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## Reframing Humans (*Homo Sapiens*) in International Biodiversity Law to Frame Protections for Climate Refugees

Jullee Kim

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# REFRAMING HUMANS (HOMO SAPIENS) IN INTERNATIONAL BIODIVERSITY LAW TO FRAME PROTECTIONS FOR CLIMATE REFUGEES

JULLEE KIM\*

## ABSTRACT

Currently, application of international environmental law assumes that humans are separate from nature. Yet, the terminology commonly adopted for persons displaced as a result of climate change, “climate refugees,” represents the ultimate expression of the nexus where impacts from both natural and human systems coalesce. “Climate” represents the physical conditions appearing as a result of climate change and altering a person’s home to render it no longer habitable. While suitability of the term “refugees” in the climate change context is debated, it represents the political and societal conditions forcing the person to flee from their home, potentially across national borders, and to seek refuge under a new international state. When “demographic pressure and chronic poverty” are paired with environmental degradation, political, ethnic, social, and economic tensions can easily escalate and lead to violence and persecution, forcing people to find new places for survival. There is potential to fill in existing gaps in protection under international law by reframing human individuals and especially those impacted by climate change, such as climate refugees, as *Homo sapiens*, as any other species within the biodiversity regime.

Prior attempts to address the political and societal influences surrounding the plight of “climate refugees” under international law, including environmental, human rights, refugee, and resettlement frameworks, as well as other international responses, have largely left the legal community dissatisfied with the lack of adequate protections. Under climate change and biodiversity regimes, international environmental law primarily addresses the impacts of climate change on the natural world. Meanwhile, there is increasing acknowledgment of interactions between climate change, ecosystems and human beings. The Conference of Parties

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to the Convention on Biological Diversity (“CBD”) has “actively sought to manage the interactions”<sup>1</sup> between the CBD and the United Nations Framework Convention on Climate Change and made “significant conceptual progress . . . related to environmentally holistic and human rights–based approaches to climate change mitigation and adaptation.”<sup>2</sup>

The CBD’s adoption of the ecosystem approach as its primary framework for action warrants “the reconstruction and re-imagination of nature, so that the ‘fence’ which has segregated humans from nature can be dismantled.”<sup>3</sup> This Article explores the potential for all humans, and in particular climate refugees, to be reinserted into the biodiversity narrative as *Homo sapiens*, and be identified as any other species being impacted by climate change. This quest acknowledges the lack of agreement on definitions and perspectives associated with the concepts of biodiversity, ecosystems, and the ecosystem approach, but proposes that there may be opportunities to use the international biodiversity regime to provide protections to climate refugees through conservation and sustainable use of the entire ecosystems within which they are situated. Exploration in and beyond the scope of this Article could reveal utility through this resurfaced view of humans, which is proposed as the *Homo sapiens* approach to biodiversity.

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<sup>1</sup> Elisa Morgera, *No Need to Reinvent the Wheel for a Human Rights–Based Approach to Tackling Climate Change: The Contribution of International Biodiversity Law*, in CLIMATE CHANGE AND THE LAW 359, 388 (Erkki J. Hollo et al. eds., 2012) (quoting Haro Van Asselt, *Managing Fragmentation of International Environmental Law: Forests at the Intersection of the Climate and Biodiversity Regimes*, 44 N.Y.U. J. OF INT’L L. AND P. 1205,1259 (2012)).

<sup>2</sup> Morgera, *supra* note 1, at 388.

<sup>3</sup> Vito De Lucia, *Competing Narratives and Complex Genealogies The Ecosystem Approach in International Environmental Law*, 27 J. ENVTL. L. 91, 105 (2015).

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## INTRODUCTION

International environmental law “presupposes a separation between humans and nature” due to its focus on “interactions of humans and the natural world—the air, water, soil, fauna, and flora.”<sup>4</sup> However, for persons displaced as a result of climate change, the terminology commonly adopted, “climate refugee,” is the ultimate expression of the interrelationship between natural ecological and human social systems: climate references the ecological notions, while refugee indicates the societal and political implications. There have been attempts to place climate refugees within international environmental, refugee, and human rights frameworks, but there are no protections specifically for climate refugees under international law.<sup>5</sup> “If international environmental law is to address not merely the surface manifestations but the root causes of environmental degradation, then our understanding of what constitutes an environmental issue must grow to encompass economic, social, and trade policy. Indeed if, as some claim, everything is interconnected, then everything becomes an environmental problem.”<sup>6</sup>

Since 1995, British environmentalist Norman Myers recognized the risk of displacement for large human populations as a result of global warming.<sup>7</sup> The concentration of carbon dioxide (CO<sub>2</sub>) in the earth’s atmosphere has been increasing in the past 150 years and especially in the past few decades, causing the global mean temperature to rise. Drastic

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<sup>4</sup> DANIEL M. BODANSKY, *THE ART AND CRAFT OF INTERNATIONAL ENVIRONMENTAL LAW* 10 (2010), [http://digitalcommons.law.uga.edu/fac\\_artchop/532](http://digitalcommons.law.uga.edu/fac_artchop/532) [<https://perma.cc/SH5F-MCJN>].

<sup>5</sup> Michele Klein Solomon & Koko Warner, *Protection of Persons Displaced as a Result of Climate Change: Existing Tools and Emerging Frameworks*, in *THREATENED ISLAND NATIONS* 245 (Michael B. Gerrard & Gregory E. Wannier eds., 2013).

<sup>6</sup> BODANSKY, *supra* note 4, at 11.

<sup>7</sup> NORMAN MYERS & JENNIFER KENT, *ENVIRONMENTAL EXODUS: AN EMERGENT CRISIS IN THE GLOBAL ARENA* 1 (1995).

and sudden changes to the global climate from an increase in greenhouse gas concentrations have and will continue to alter the earth's physical, biological, and ecological systems.<sup>8</sup> There is scientific evidence and acceptance<sup>9</sup> that climate change will impact both the natural and human systems, altering "ecosystems, food systems, infrastructure, coastal, urban and rural areas, human health and livelihoods."<sup>10</sup>

Where there is an abrupt change to an ecosystem or smaller changes that cause an irreversible alteration to the ecosystem state, this is known as an ecosystem or regime shift.<sup>11</sup> Climate change causes observed biotic and abiotic changes,<sup>12</sup> both direct long-term alterations to the structure and function of ecosystems, as well as indirect abrupt threshold changes.<sup>13</sup> Ecosystems are largely transforming as a result of "changes in temperature, precipitation, and frequency of extreme events . . . , which will affect ecosystem extent and composition."<sup>14</sup> Both natural and anthropogenic climate change will cause species to shift in "their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions."<sup>15</sup> Marine, terrestrial and freshwater ecosystems are all at

<sup>8</sup> CRAIG D. ALLEN ET AL., U.S. GEOLOGICAL SURVEY, THRESHOLDS OF CLIMATE CHANGE IN ECOSYSTEMS: FINAL REPORT, SYNTHESIS AND ASSESSMENT PRODUCT 4.2 at 10 (Anna Glover & Jeanette Ishee eds., Jan. 2009), <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1009&context=usgspubs> [<https://web.archive.org/web/20180312191921/https://digitalcommons.unl.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1009&context=usgspubs>].

<sup>9</sup> "The 2007/2008 United Nations Human Development Report (HDR) cited the Fourth Assessment Report as 'establish[ing] an overwhelming scientific consensus that climate change is both real and man-made.'" John Burrit McArthur, *International Environmental Law: Can It Overcome Its Weaknesses to Create an Effective Remedy for Global Warming?*, 10 SANTA CLARA J. INT'L L. 253, 268 (2013).

<sup>10</sup> INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: SYNTHESIS REPORT 76 (The Core Writing Team, Rajendra K. Pachauri, & Leo Meyer eds., 2014), [http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR\\_AR5\\_FINAL\\_full\\_wcover.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full_wcover.pdf) [<https://perma.cc/W6GR-RHSN>] [hereinafter IPCC, CLIMATE CHANGE 2014: SYNTHESIS REPORT]; see IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY 4 (Christopher B. Field & Vicente R. Barros eds., 2014), [https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-IntegrationBrochure\\_FINAL.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-IntegrationBrochure_FINAL.pdf) [<https://perma.cc/P3GG-4HTZ>] [hereinafter IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY].

<sup>11</sup> ALLEN ET AL., *supra* note 8, at iii.

<sup>12</sup> Camille Parmesan & Gary Yohe, *A globally coherent fingerprint of climate change impacts across natural systems*, 421 NATURE 37, 41 (Jan. 2003).

<sup>13</sup> ALLEN ET AL., *supra* note 8, at 21–22.

<sup>14</sup> Brenda B. Lin & Brian Petersen, *Resilience, Regime Shifts, and Guided Transition Under Climate Change: Examining the Practical Difficulties of Managing Continually Changing Systems, Ecology and Society*, 18 ECOLOGY AND SOC'Y 1, 1 (2013).

<sup>15</sup> IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 10, at 6.

risk.<sup>16</sup> In particular, the anticipated sea-level rise and severe weather-related events resulting from climate change will threaten the coastal and marine ecosystems of low-lying small island developing states (“SIDS”) that contain high levels of species diversity and endemism.<sup>17</sup>

Likewise, within human societies, climate change could negatively impact economic activity and human well-being, “stimulat[ing] population displacements, distress migration, and potentially the abandonment of some populated areas.”<sup>18</sup> The United Nations High Commissioner for Refugees (“UNHCR”) reports that the number of people displaced due to weather-related disasters has been increasing since the 1970s, reaching over 203.4 million people between 2008 and 2015, and that climate change will continue to be a significant contributing cause to this rising displacement.<sup>19</sup> While migration due to environmental changes is a natural adaptation mechanism,<sup>20</sup> climate change adds an anthropogenic cause to the need for migration. Further, non-migration adaptation measures may be possible for wealthy nations,<sup>21</sup> but require land and resources that poor nations lack.<sup>22</sup>

The need to migrate can be attributed to a wider range of “slow-onset climate change impacts, such as severe desertification, sea-level rise, or coastal erosion, [as well as] extreme weather events or climate-related environmental disasters, such as severe river flooding, cyclones, typhoons, or tsunamis.”<sup>23</sup> Vulnerable populations will disproportionately suffer from human rights violations relating to “the right to life and self-determination, the right to adequate food, the right to water, the right

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<sup>16</sup> *Id.* at 16.

<sup>17</sup> Global Environment Facility, *GEF and Small Island Developing States* 6 (2005), <https://openknowledge.worldbank.org/handle/10986/14831> [<http://perma.cc/65BF-K5CA>].

<sup>18</sup> Robert A. McLeman & Lori M. Hunter, *Migration in the context of vulnerability and adaptation to climate change: Insights from analogues*, 1 WILEY INTERDISCIPLINARY REVIEWS: CLIMATE CHANGE 450 (2010) (manuscript at 8), <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3183747/pdf/nihms317400.pdf> (last visited Mar. 19, 2018).

<sup>19</sup> UNHCR, POLICY BRIEF: DISPLACEMENT AT COP 22 1 (Nov. 2016), <http://www.unhcr.org/en-us/protection/environment/581870687/policy-brief-displacement-at-cop-22.html> [<http://perma.cc/HJ7L-UAS2>] [hereinafter UNHCR POLICY BRIEF: DISPLACEMENT AT COP 22].

<sup>20</sup> Jane McAdam, *Conceptualizing Climate Change-Related Movement*, CLIMATE CHANGE, FORCED MIGRATION, AND INTERNATIONAL LAW 1, 10 (2012).

<sup>21</sup> See Ruth Gordon, *The Triumph and Failure of International Law*, 34 N.C. CENT. L. REV. 63, 74 (2011).

<sup>22</sup> See generally Alice Kaswan, *Domestic Climate Change Adaptation and Equity*, 42 ENVTL. L. REP. 11125 (2012) (stating that poor nations will face challenges to adaptation as a result of lack of resources).

<sup>23</sup> ALEJANDRA TORRES CAMPRUBÍ, STATEHOOD UNDER WATER: CHALLENGES OF SEA-LEVEL RISE TO THE CONTINUITY OF PACIFIC ISLAND STATES 119 (2016).

to health, and the right to housing.”<sup>24</sup> While most displacement will occur within country borders, significant cross-border migration is anticipated “from sub-Saharan Africa toward the Mediterranean, the Middle East and Europe between 2007 and 2036.”<sup>25</sup> Entire populations of small island states may require refuge in new countries due to sea level rise making the islands mostly uninhabitable.<sup>26</sup>

Recognizing the potential for severe adverse impacts on natural ecosystems and humankind, the objective of the United Nations Framework Convention on Climate Change (“UNFCCC”), an international environmental treaty that entered into force in 1994, was “to prevent dangerous anthropogenic interference with the climate system.”<sup>27</sup> The near universal ratification crystallizes the international acceptance that humans contribute to climate change.<sup>28</sup> Now, the Paris Agreement of the 21st session of the Conference of Parties (“COP”) to the UNFCCC,<sup>29</sup> with ratification by 175 parties (as of March 21, 2018) and entry into force on November 4, 2016,<sup>30</sup> represents the international recognition of the reality of climate change and of the imminent risks that it poses to the global community.<sup>31</sup> Relating to forced migration, the Executive Committee of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts developed a two-year work plan in 2016, which includes an Action Area focused on “how the impacts of climate change are affecting patterns of migration, displacement and human mobility.”<sup>32</sup> Also recognizing the political and societal instability

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<sup>24</sup> Siobhan McInerney-Lankford, *Human Rights and Climate Change: Reflections on International Legal Issues and Potential Policy Relevance*, in THREATENED ISLAND NATIONS 195, 198–99 (Michael B. Gerrard & Gregory E. Wannier eds., 2013).

<sup>25</sup> COSMIN CORENDEA, LEGAL PROTECTION OF THE SINKING ISLANDS REFUGEES 27 (2016).

<sup>26</sup> *Id.* at 26.

<sup>27</sup> United Nations Framework Convention on Climate Change, art. 2, May 9, 1992, 1771 U.N.T.S. 107 (1992) [hereinafter UNFCCC Convention].

<sup>28</sup> *Status of Ratification of the Convention*, UNFCCC, [http://unfccc.int/essential\\_background/convention/status\\_of\\_ratification/items/2631.php](http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php) [<https://perma.cc/ZCW9-R2AS>] (last visited Mar. 19, 2018).

<sup>29</sup> UNFCCC, Rep. of the Conference of the Parties on its twenty-first session, at 2, U.N. Doc. FCCC/CP/2015/10/Add.1 (Jan. 29, 2016), <http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf> [<https://perma.cc/YC8X-YYZQ>] [hereinafter UNFCCC COP No. 21, Paris Agreement].

<sup>30</sup> *Status of Ratification of the Convention*, *supra* note 28.

<sup>31</sup> UNFCCC COP No. 21, Paris Agreement, *supra* note 29, at preamble, art. 2, para. 1.

<sup>32</sup> UN Climate Change Secretariat, *Letter dated Mar. 30, 2016 from the Co-Chairs of the Executive Committee*, Reference: EXCOM/MK/cma (Mar. 30, 2016), [http://unfccc.int/files/adaptation/groups\\_committees/loss\\_and\\_damage\\_executive\\_committee/application/pdf/excom\\_invitation\\_letter\\_aa6a.pdf](http://unfccc.int/files/adaptation/groups_committees/loss_and_damage_executive_committee/application/pdf/excom_invitation_letter_aa6a.pdf) [<https://perma.cc/BBH3-YR96>]; *see also* UNFCCC, Subsidiary Body Scientific and Technological Advice, Rep. of the Exec. Comm. of the Warsaw

associated with forced migration, UNFCCC party discussions have also included compensation schemes for particularly vulnerable countries.<sup>33</sup>

To parse out relevant relationships at play, there is acknowledgment of interactions between climate change, ecosystems and human beings. Increasingly, the planetary boundaries within which humans must coexist with “other species” are being realized. The understanding that humans cannot monopolize the Earth for themselves is causing some scholars to appeal for preservation of half of the Earth for nature.<sup>34</sup> Under the Convention on Biological Diversity (“CBD”) is the movement towards an ecosystem approach.<sup>35</sup> It looks at the best available knowledge of science and to manage human activities under a holistic approach for the benefit of the health and integrity of the ecosystem.<sup>36</sup> The critical move warrants:

the reconstruction and re-imagination of nature, so that the ‘fence’ which has segregated humans from nature can be dismantled . . . . Ecosystems are thus apprehended as wholes, and all participants—*humans and non-humans alike*—are connected in a relational field comprised of places, processes, individuals and ecological communities. This

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Int’l Mechanism for Loss and Damage Associated with Climate Change Impacts, at 3, FCCC/SB/2014/4 (Dec. 2014), <http://unfccc.int/resource/docs/2014/sb/eng/04.pdf> [<https://perma.cc/H979-G2J5>].

<sup>33</sup> Robert A. McLeman & Barry Smit, *Migration as an Adaptation to Climate Change*, 76 CLIMATIC CHANGE 31, 31 (2006).

<sup>34</sup> An important development in the global effort to protect the environment was the adoption in 2010 of the Aichi Biodiversity Targets for 2011–2020 (“Targets”). Those wide-ranging Targets were subsequently included in Millennium Development Goal 7. Some of the Aichi Targets, such as conserving at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas by 2020, are on track to be met, although many sites are poorly conserved and open oceans and deep sea areas, including the high seas, are not well covered. Progress towards the majority of the other Aichi Targets remains slow, however. The idea of declaring and actually treating certain parts of the Earth as conserved and free from human intervention is gaining popularity with time. U.N. Secretary-General, *Rep. of the Secretary-General: Updated overview of the major international economic and policy challenges for equitable and inclusive sustained economic growth and sustainable development, and of the role of the United Nations in addressing these issues in the light of the New International Economic Order*, ¶ 25, delivered to the General Assembly, U.N. Doc. A/71/168 (Jul. 20, 2016) (citing EDWARD O. WILSON, *HALF-EARTH: OUR PLANET’S FIGHT FOR LIFE* (2016)).

<sup>35</sup> De Lucia, *supra* note 3, at 91.

<sup>36</sup> See Arie Trouwborst, *International Nature Conservation Law and the Adaptation of Biodiversity to Climate Change—A Mismatch?*, 21 J. ENVTL. L. 419, 419 (2009).

shift has *potentially* significant effects on law: representations of reality mediate crucially between ‘the world of natural objects and the world of legal objects’; in return, legal notions convey ‘a particular partitioning of the world.’<sup>37</sup>

As it recognizes the existing interconnection between humans and nature, this method of managing nature is more aligned with the realities of the world. Yet, the *potential* legal implications and departitioning of the world have yet to be fully realized.

Science now recognizes that study and management of ecosystems cannot be separate from human societies and institutions<sup>38</sup> since ecosystems “are *embedded in* different levels of social organization.”<sup>39</sup> Further, human society is an adaptive system embedded within and dependent on the natural environment being another adaptive system.<sup>40</sup> While there exists legal frameworks that cover climate change impacts to the ecological environment and to human beings, and discussions overlap where interrelationships are recognized,<sup>41</sup> international law still treats human beings as external actors—i.e., a source of change to the environment or being affected by a change in the environment—rather as an internal member of the ecological system.

It is increasingly difficult to ignore that both ecosystems and human systems have already suffered from consequences of recent climate-related extremes; experiences unfortunately reveal the extent to which they are vulnerable and exposed to climate variability in the future.<sup>42</sup> The similarities in which climate change impacts affect ecosystems and human systems—i.e., degrading the environment to the extent that

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<sup>37</sup> De Lucia, *supra* note 3, at 105 (emphasis added).

<sup>38</sup> Andrew Halliday & Marion Glaser, *A Management Perspective on Social Ecological Systems: A generic system model and its application to a case study from Peru*, 18 HUM. ECOLOGY REV. 2, 2 (2011), <http://www.humanecologyreview.org/pastissues/her181/halliday.pdf> [<https://perma.cc/LKT2-A9Y6>].

<sup>39</sup> Eduardo S. Brondizio, Elinor Ostrom & Oran R. Young, *Connectivity and the Governance of Multilevel Social-Ecological Systems: The Role of Social Capital*, 34 ANN. REV. OF ENV'T & RES. 253, 254 (2009).

<sup>40</sup> Glaser’s articulation of the human system involves individual development, the social system, and the government system, and of the natural system involves environment and resources system. Marion Glaser, *The Social Dimension in Ecosystem Management: Strengths and Weaknesses of Human-Nature Mind Maps*, 13(2) HUM. ECOLOGY REV. 122, 132 (2006).

<sup>41</sup> See Erica J. Lyman, *Rethinking International Environmental Linkages: A Functional Cohesion Agenda for Species Conservation in a Time of Climate Change*, 27 FORDHAM ENVTL. L. REV. 1, 6, n.26 (2015).

<sup>42</sup> IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 10, at 6.

migration becomes necessary for survival—begs the question, why the continued separation between human and non-human species?

The view of humans as part of nature has not been fully operationalized nor has it been embraced under matters of international law, especially in the tension posed in addressing persons displaced due to climate change. Commonly referred to as “climate change refugees,”<sup>43</sup> this terminology is controversial and lacks consensus by the international community.<sup>44</sup> The *descriptive* application of the refugee concept was first applied by William Vogt’s enunciation of “ecological refugee,” and then more recently as “environmental refugees” by Essam El-Hinnawi in a United Nations Environment Programme Report without intending to provide an extension of refugee law, but rather to use the terminology as an advocacy strategy by bringing attention to the severity of the environmental conditions causing movement.<sup>45</sup> Conversely, some affected communities perceive this “refugee” identification as offensive—i.e., by potentially conveying “a sense of helplessness and a lack of dignity.”<sup>46</sup>

The UNHCR insists on the *legal* distinction between “migrants” and “refugees,”<sup>47</sup> maintaining that only individuals meeting the specific definition of Refugee in the 1951 Convention relating to the Status of Refugees (“Refugee Convention”) are afforded its respective protections under international law.<sup>48</sup> The Refugee Convention provides a universally accepted definition of refugees as one outside their country of origin who cannot or will not return due to “a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion.”<sup>49</sup> The UNHCR finds that application of refugee terminology to those displaced as a result of climate change or

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<sup>43</sup> McAdam, *supra* note 20, at 39–40.

<sup>44</sup> COUNCIL OF EUR. PARLIAMENTARY ASSEMB., RES. NO. 2115 (2016), <http://www.refworld.org/docid/583736aa4.html> [[https://web.archive.org/web/\\*/http://www.refworld.org/docid/583736aa4.html](https://web.archive.org/web/*/http://www.refworld.org/docid/583736aa4.html)].

<sup>45</sup> McAdam, *supra* note 20, at 39–40.

<sup>46</sup> *Id.* at 40.

<sup>47</sup> UNHCR POLICY BRIEF: DISPLACEMENT AT COP 22, *supra* note 19, at 2.

<sup>48</sup> *Refugees and migrants: frequently asked questions*, UNHCR (Mar. 16, 2016), <http://www.unhcr.org/print/56e95c676.html> [<http://perma.cc/X7EW-VHYR>] [hereinafter UNHCR, *Refugees and migrants: FAQs*].

<sup>49</sup> UN Convention and Protocol Relating to the Status of Refugees art. I(A)(2), Jul. 28, 1951, 19 U.S.T. 6259, 89 U.N.T.S. 137 [hereinafter 1951 Refugee Convention]. The 1967 Protocol Relating to the Status of Refugees extended the “refugee” definition to include those resulting from events occurring on and after January 1, 1951 and beyond the geographic boundaries of Europe. UN Protocol Relating to the Status of Refugees art. I(2) and (3), Jan. 31, 1967, 19 U.S.T. 6224, 606 U.N.T.S. 267.

environmental causes could undermine the legal protections for Refugees recognized under the Refugee Convention.<sup>50</sup> Rather than all environmental triggers, this Article will focus on climate change related displacement because of the man-made nature of cause—i.e., anthropogenic climate change, similar to the human-imposed persecution associated with conventional Refugees.

The alternative term “migration” has no existing universally accepted definition, but is generally associated with movement that is voluntary.<sup>51</sup> Amidst the lack of definitive consensus on the appropriate terminology, there are additional confounding considerations associated with climate change–related displacement:

- (a) whether such movement is perceived as voluntary or involuntary;
- (b) the nature of the trigger (a rapid-onset disaster versus a slow-onset process);
- (c) whether international borders are crossed;
- (d) the extent to which there are political incentives to characterize movement as linked to climate change or not; and
- (e) whether movement is driven or aggravated by human factors, such as discrimination.<sup>52</sup>

While analysis of these circumstantial factors may contribute to further dispute, the conclusions deduced have implications on which legal protections apply. To clarify discussions, this Article will use the following terminology to identify specific persons: (1) “Refugee” as defined under international law—i.e., meeting the narrow Refugee Convention definition; (2) “refugee” in a broader sense, which includes the Refugee as well as alternative refugee definitions such as those under domestic law; and (3) “climate refugee”<sup>53</sup> to identify persons forced to migrate and permanently displaced as a result of climate change impacts.

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<sup>50</sup> Solomon & Warner, *supra* note 5, at 258.

<sup>51</sup> UNHCR, *Refugees and migrants: FAQs*, *supra* note 48.

<sup>52</sup> McAdam, *supra* note 20, at 17.

<sup>53</sup> *Cf.* The term “environmentally-induced migrants” used by the International Organization for Migration to connote persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad. KOKO WARNER ET AL., IN SEARCH OF SHELTER: MAPPING THE EFFECTS OF CLIMATE CHANGE ON HUMAN MIGRATION AND DISPLACEMENT 18 (May 2009).

There is no existing international convention or instrument “to protect persons forced to move for reasons other than political or security-related ones.”<sup>54</sup> Therefore, the right of climate refugees to remain permanently in another country may be absent due to: (a) the failure of domestic immigration policies to provide the right to remain permanently to migrants fleeing from climate change impacts, and (b) the failure for such migrants to *generally* qualify for protections under international refugee law and under the non-refoulement principle of international human rights law.<sup>55</sup>

While protection may or may not be available to climate refugees under international refugee law, international human rights law and the home country may provide complementary protections. Yet, there still exists a “protection gap” discussed in climate migration literature<sup>56</sup> for certain climate refugees—i.e., those who are (1) forced to move to another country, (2) do not otherwise qualify as a Refugee or refugee in the new country, (3) are without protection from its country of origin or from the new country’s domestic immigration laws, and (4) are not adequately given assistance through international human rights mechanisms.

Beyond integration of impacts and systems, an integration of humans within nature as embraced by the ecosystem approach forces a renewed look at the CBD and may offer legal protections and tools for climate refugees. Using evolutive treaty interpretation, there exists possibility for this perspective and it may uncover CBD applications to the human person for protections and displacement prevention, particularly the “climate refugee.” The functionalist school of conservation views humans as “part of nature and that *Homo sapiens* is no less natural than any other species.”<sup>57</sup> This Article explores whether existing legal instruments can fill in this gap by reinserting the identity of humans and by extension, climate refugees, as *Homo sapiens*, into the biodiversity discourse.

The first substantive section of this Thesis, Part I, will explore the impacts of climate change on natural systems and human systems to illustrate the extent to which climate change poses severe threats to the existence of biodiversity and humanity. It will explore not only direct

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<sup>54</sup> COUNCIL OF EUR. PARLIAMENTARY ASSEMB., RES. NO. 2115, *supra* note 44.

<sup>55</sup> Katrina M. Wyman, *Responses to Climate Migration*, 37 HARV. ENVTL. L. REV. 167, 177–78 (2013).

<sup>56</sup> *Id.*

<sup>57</sup> J. Baird Callicott et al., *Current Normative Concepts in Conservation*, 13 CONSERVATION BIOLOGY 22, 24 (1999), [http://www.pelagicos.net/MARS6400/readings/Callicott\\_et\\_al\\_1999.pdf](http://www.pelagicos.net/MARS6400/readings/Callicott_et_al_1999.pdf) [<https://perma.cc/T33D-WSBZ>].

impacts, but also the impacts on the relationship between society and the ecosystem—i.e., socioecological systems, and its capacity to adapt. There will be a case study on SIDS, as they have unique flora and fauna, cultures, and origins, yet are the most vulnerable to climate change impacts and from which human displacement is most visibly evident.

Then, Part II will cover the international legal systems governing the natural systems—i.e., the climate change and biological diversity regimes—and the significance of the ecosystem approach. Then, the harmonization of the two regimes will be analyzed, and a case study on SIDS will also be provided. Next, Part III will cover prior analyses of international laws and frameworks that address climate refugees. To reveal the range of issues confronted by the plight of climate refugees, it will first focus on the relevant laws and frameworks governing the human systems—i.e., refugee law, human rights law, resettlement framework, the UNHCR, the International Organization on Migration (“IOM”), the Guiding Principles of Internal Displacement, and the Responsibility to Protect Doctrine. Then, there will be an explanation of the attempts to address climate refugees through international laws and frameworks covering natural systems—i.e., international environmental law and climate change law. Next, the responses that attempt to combine the natural and human system regimes through developing frameworks and other proposals will be discussed. However, this Section will conclude that these approaches are fragmented, and leave gaps in the protection necessary for imminent or already displaced climate refugees. There will be a discussion on SIDS, as a “special case” due to their unique characteristics and vulnerabilities, under the relevant international laws and frameworks.

Part IV will then build the case for and introduce the novel concept proposed by this Thesis. The general movement towards integration in both scientific and the legal fields governing the environment will be introduced. This will reveal indications of a combined view of humans in nature, and suggest climate refugees are the ultimate expression of the impacts of this combination between the natural climate and human systems. Then, there will be a focused discussion of this integration in international environmental law. Next, the role of the international biodiversity regime to realize human rights will be explained to reveal that this integrated view has potential for actual utility and impact. Finally, this Article will propose that under the lens of humans as *Homo sapiens*, international biodiversity law may offer legal avenues to protect humans, and in particular, fill in gaps in protections for climate refugees. It will also propose the possible application to SIDS. Part V will then

conclude the Article by acknowledging this proposal itself has many gaps and questions that need to be addressed and may have undesirable reach, but offers an opportunity to recycle existing legal resources for new applications to humans, and in particular, climate refugees.

#### I. THE IMPACTS OF CLIMATE CHANGE ON NATURAL SYSTEMS AND HUMAN SYSTEMS

There is scientific evidence and acceptance that climate change will impact both the natural environment and human societal systems pursuant to the findings of the Intergovernmental Panel on Climate Change ("IPCC"), which was established by the United Nations General Assembly<sup>58</sup> and tasked under Article 2 of the UNFCCC<sup>59</sup> to provide a critical assessment of the known science on climate change.<sup>60</sup> The concentration of CO<sub>2</sub> in the earth's atmosphere has been increasing in the past 150 years, especially in the past few decades, causing the global mean temperature to rise. Drastic and sudden changes to the global climate from an increase in greenhouse gas concentrations have and will continue to alter the earth's physical, biological, and ecological systems.<sup>61</sup> Widespread change is already visible in habitats becoming vulnerable and fragmented; the migration pathways necessary for species survival are disappearing, causing them to become extinct.<sup>62</sup> Strikingly, this observation can be applicable to all life<sup>63</sup>—i.e., both human and non-human species.

Biological diversity ("biodiversity") is "the variability among living organisms from all sources including, inter alia, terrestrial, marine and

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<sup>58</sup> G.A. Res. 43/53, ¶¶ 1, 10 (Dec. 6, 1988).

<sup>59</sup> UNFCCC Convention, *supra* note 27, art. 2.

<sup>60</sup> IPCC, CLIMATE CHANGE 2014: SYNTHESIS REPORT, *supra* note 10, at 2; IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 10, at 4. For the debate on public acceptance of the IPCC reports, see Michael S. Simon, *Reliable Science: Overcoming Public Doubts in the Climate Change Debate*, 37 WM. & MARY ENVTL. L. & POL'Y REV. 219, 221 (2012), <http://digitalcommons.pace.edu/cgi/viewcontent.cgi?article=1871&context=lawfaculty> [<https://perma.cc/E8PY-U6YH>].

<sup>61</sup> ALLEN ET AL., *supra* note 8, at 11.

<sup>62</sup> Harold Mooney et al., *Biodiversity, climate change, and ecosystem services*, 1 ENVTL. SUSTAINABILITY 46, 46 (2009).

<sup>63</sup> "Life is classified into seven taxonomic groups: kingdom, phylum, class, order, family, genus, and species. For example, man is classified as: kingdom—animal, phylum—chordates (vertebrates), class—mammals, order—primates, family—hominids, genus—homo, and species—homo sapiens." Major David N. Diner, *The Army and the Endangered Species Act: Who's Endangering Whom?*, 143 MIL. L. REV. 161, 164 (1994) (citing STEVEN M. STANLEY, EXTINCTION 12 (1987)).

other aquatic ecosystems and the ecological complexes of which they are part.”<sup>64</sup> It underpins the availability of goods and services essential for human societies—i.e., food production, clean air and water, human health services, and spiritual and cultural values.<sup>65</sup> Conservation and sustainable use of ecosystems, which are the “dynamic complex of plants, animals, and microorganisms,” is not only necessary for ecological health, but also for continued support of human needs.<sup>66</sup>

With the goal of ensuring conservation and sustainable use of ecosystem processes for the benefit of human well-being, the Millennium Ecosystem Assessment (“MA”) was launched by then–United Nations Secretary General Kofi Annan in 2000 in order to set forth the scientific basis to assist policymaking in international environmental law.<sup>67</sup> MA’s recognition of the dynamic interaction between humans, ecosystems, and biodiversity<sup>68</sup> represents the path in which science’s understanding of the world is evolving:

[t]hese fundamental linkages among organisms and their physical and biological environment constitute an interacting and ever-changing system that is known as an

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<sup>64</sup> Secretariat of the Convention on Biological Diversity and the World Health Organization, *Connecting Global Priorities: Biodiversity and Human Health: A State of Knowledge Review* 1 (2015) [hereinafter CBD Secretariat and WHO, *State of Knowledge Review*] (citing *United Nations Conference on Environment and Development: Convention on Biological Diversity*, art. 2, at 818, 823 (June 5, 1992) (entered into force on Dec. 29, 1993)).

<sup>65</sup> *Id.* at 1.

<sup>66</sup> Millennium Ecosystem Assessment, *Ecosystems and Human Well-being, Biodiversity Synthesis* iii (2005), <http://www.millenniumassessment.org/documents/document.354.aspx.pdf> [<http://perma.cc/FB7V-WPMX>] [hereinafter MEA, *Ecosystems and Human Well-being, Biodiversity Synthesis*]. The MA uses a broad definition of human well-being, examining how ecosystem changes influence income and “material needs, health, good social relations, security, and freedom of choice and action.” *Id.* at 31. At a minimum, a good life requires “adequate income, household assets, food, water, and shelter.” Marc Levy, Suresh Babu & Kirk Hamilton, *Ecosystem Conditions & Human Well-Being*, in *MILLENNIUM ECOSYSTEM ASSESSMENT, ECOSYSTEMS AND HUMAN WELL-BEING: CURRENT STATE AND TRENDS* 125 (A.H. Kakri & Robert T. Watson eds., 2005), <http://www.millenniumassessment.org/documents/document.274.aspx.pdf> [<http://perma.cc/9ZTN-W4ZK>].

<sup>67</sup> MEA, *Ecosystems and Human Well-being, Biodiversity Synthesis*, *supra* note 66, at iii. The MA was an international effort “designed to meet the needs of decision makers and the public for scientific information concerning the consequences of ecosystem change for human well-being, and options for responding to those changes.” *Convention on Biological Diversity, Climate Change and Biodiversity: The Next Great Threat to Biodiversity*, n.1 (2008), <http://www.cbd.int/doc/meetings/cop/cop-09/media/cop9-press-kit-cc-en.pdf> [<https://perma.cc/Y2DS-R3S2>].

<sup>68</sup> MEA, *Ecosystems and Human Well-being, Biodiversity Synthesis*, *supra* note 66, at iii.

ecosystem. *Humans are a component of these ecosystems.* Indeed, in many regions they are the dominant organism. Whether dominant or not, however, humans depend on ecosystem properties and on the network of interactions among organisms and within and among ecosystems for sustenance, just like all other species.<sup>69</sup>

Critical to the topic of this Thesis, climate change impacts ecosystem services,<sup>70</sup> the provisions ecosystems provide to humans and on which human well-being relies.<sup>71</sup>

The relationship in which climate change and biodiversity loss impacts humans has been described in the context of posing developmental challenges: “providing clean water, energy services, and food; maintaining a healthy environment; and conserving ecological systems and their biodiversity and associated ecological goods and services.”<sup>72</sup> The rising temperatures and increased frequency of droughts associated with climate change will only increase the severity of the challenges.<sup>73</sup> Developing countries are already experiencing reduced agricultural production (threatening food security), increased flooding (threatening low-lying coastal areas), and increased severe storms (threatening life, wetlands, mangroves, and infrastructure).<sup>74</sup>

A system’s vulnerability and instability are heightened by disruptions of natural variability.<sup>75</sup> Vulnerability is the “propensity or predisposition to be adversely affected,”<sup>76</sup> both in being harmed and in being capable to cope and adapt.<sup>77</sup> Regime shifts occur when the impacts of

<sup>69</sup> Ecosystems and Human Well-being: A Framework for Assessment, Rep. Of the Conceptual Framework Working Group, Millennium Ecosystem Assessment, 50 (2003), [http://pdf.wri.org/ecosystems\\_human\\_wellbeing.pdf](http://pdf.wri.org/ecosystems_human_wellbeing.pdf) [<http://perma.cc/MSY4-BUSB>] (emphasis added) [hereinafter MEA Working Group, Ecosystems and Human Well-being: A Framework for Assessment].

<sup>70</sup> MEA, Ecosystems and Human Well-being, Biodiversity Synthesis, *supra* note 66, at 10.

<sup>71</sup> Ecosystem services include: “provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth.” MEA Working Group, Ecosystems and Human Well-being: A Framework for Assessment, *supra* note 69, at 49.

<sup>72</sup> MEA, Ecosystems and Human Well-being, Biodiversity Synthesis, *supra* note 66, at 125.

<sup>73</sup> Levy, Babu & Hamilton, *supra* note 66, at 146.

<sup>74</sup> *Id.*

<sup>75</sup> ALLEN ET AL., *supra* note 8, at 27.

<sup>76</sup> IPCC, DATA DISTRIBUTION CENTRE GLOSSARY, [http://www.ipcc-data.org/guidelines/pages/glossary/glossary\\_uv.html](http://www.ipcc-data.org/guidelines/pages/glossary/glossary_uv.html) [<https://perma.cc/H98L-2HU7>].

<sup>77</sup> IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 10, at 136.

system changes push an ecosystem beyond its capacity to maintain its current state; adaptive management would interpret this as exceeding “the adaptive capacity of the system to adjust to the change.”<sup>78</sup> Resilience, “the capacity to absorb shocks while maintaining function,” is applicable to human and ecological systems separately, and new insights are beginning to reveal the “connection between resilience, diversity, and the sustainability of socioecological systems.”<sup>79</sup>

There is a close relationship between climate change impacts on biodiversity and interconnected social-ecological problems.<sup>80</sup>

There is not much dispute among scholars in these research areas that global climatic change, the depletion of ecosystems and over-exploitation of natural resources, as well as economic, political and cultural globalisation yield to new social inequalities and polarisations. *They require novel ways of analysing the interactions* among nature and society, and new forms of societal dealing with these interactions . . . .<sup>81</sup>

There is still much work to be done by way of transfer of knowledge from “biological and geological based research to the social sciences and to discourses and decision processes in politics, economy and society,” which also creates many new questions.<sup>82</sup> Yet, the integrated perspective of social-ecological systems<sup>83</sup> (“SES”) provides one method to analyze ecological and social systems, and to reconcile the insufficiency of addressing components individually.<sup>84</sup>

There are many possible views of SES as its specific attributes generally depend on the definition of the system chosen.<sup>85</sup> While acknowledging the existence, and not discounting the validity, of alternative definitions of biodiversity, ecosystems, and SES, this Article applies the

<sup>78</sup> ALLEN ET AL., *supra* note 8, at 27.

<sup>79</sup> Levy, Babu & Hamilton, *supra* note 66, at 147.

<sup>80</sup> Diana Hummel, Thomas Jahn & Engelbert Schramm, BIODIVERSITÄT UND KLIMA FORSCHUNGSZENTRUM, *Social-Ecological Analysis of Climate Induced Changes in Biodiversity—Outline of a Research Concept*, Knowledge Flow Paper No. 11, at 3 (2011).

<sup>81</sup> Hummel, Jahn & Schramm, *supra* note 80, at 4.

<sup>82</sup> *Id.* at 3.

<sup>83</sup> Other conceptualizations include “coupled ‘human-environment systems’ (e.g., Turner et al., 2003); ‘socio-ecological systems’ (e.g., Gallopín et al., 2001) or ‘social-ecological systems’ (Berkes/Folke 1998; Gunderson/Holling 2002; Folke 2006; Liehr et al. 2006; Becker, forthcoming).” Hummel, Jahn & Schramm, *supra* note 80, at 4 (emphasis added).

<sup>84</sup> Hummel, Jahn & Schramm, *supra* note 80, at 3.

<sup>85</sup> *Id.* at 5.

CBD's definitions and viewpoints for the purposes of illustrating the proposed "*Homo sapiens* approach to biological diversity." This Section will first discuss the climate change impacts on natural systems—i.e., biological diversity and ecosystems. Next, the consequences of climate change to human systems, both on a physical level and societal level, will be explored. Then, the section will discuss the corresponding management methods using ecosystem approaches. The section will conclude with a case study on the impacts of climate change on the natural and human systems of SIDS.

#### A. *Biodiversity*

Climate change will exacerbate and directly drive biodiversity loss at every level: "from individual organisms, through populations and species, to ecosystem composition and function."<sup>86</sup> The world's biodiversity is under threat of habitat loss and fragmentation, which can cause "extinction, decreased population abundance, reduced genetic diversity, lower reproductive success, lower dispersal ability, [and] increased vulnerability to stochastic events," and may strip populations of their capacity "to adapt to climate change in-situ."<sup>87</sup> To formulate necessary conservation responses, ecologists have begun to study the interaction between climate change and habitat loss and fragmentation, and its impact on ecosystems and species.<sup>88</sup>

Due to fragmentation as a result of natural and human-made developments, without translocation, climate change will cause certain endemic species to disappear once existing habitats become inhospitable.<sup>89</sup> While this type of translocation activity has been called "assisted migration," the species may not naturally exhibit any migratory behavior.<sup>90</sup> Oceans are warming and rising in elevation, causing "high-altitude, high-latitude, and sea level habitats" to disappear.<sup>91</sup> While the precise nature and severity of climate change impacts remain uncertain, conventional

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<sup>86</sup> MEA, Ecosystems and Human Well-being, Biodiversity Synthesis, *supra* note 66, at 49.

<sup>87</sup> Daniel B. Segan, Kris A. Murray & James E.M. Watson, *A global assessment of current and future biodiversity vulnerability to habitat loss—climate change interactions*, 5 GLOB. ECOLOGY & CONSERVATION 12, 13 (2016).

<sup>88</sup> *Id.*

<sup>89</sup> Robert L. Fischman & Jeffrey B. Hyman, *The Legal Challenge of Protecting Animal Migrations as Phenomena of Abundance*, 28 VA. ENVTL. L.J. 173, 181 (2010).

<sup>90</sup> *Id.* at 181–82.

<sup>91</sup> *Id.* at 185.

stressors must be reduced through active management to improve the resilience of biodiversity in the face of climate change.<sup>92</sup>

### B. *Ecosystems*

Closely related to biodiversity is the concept of ecosystems. The definition of biodiversity includes diversity within species, as well as diversity between species and of ecosystems.<sup>93</sup> “Diversity thus is a structural feature of ecosystems, and the variability among ecosystems is an element of biodiversity.”<sup>94</sup> Ecosystem categories—i.e., “marine, coastal, inland, water, forest, dryland, island, mountain, polar, cultivated, and urban”—generally share a suite of similar characteristics relating to climate, geophysical traits, human activities, surface cover, inhabiting species, and systems and institutions for resource management.<sup>95</sup> Each of these categories provides unique ecosystem service benefits to humans.

The IPCC reports *with high confidence* that climate change is already causing changes in both biotic and abiotic factors of living systems.<sup>96</sup> Climate change directly alters the structure and function of ecosystems in the long term, as well as indirectly induces abrupt threshold changes.<sup>97</sup> “Changes in temperature, precipitation, and frequency of extreme events” will largely alter the extent and composition of ecosystems,<sup>98</sup> as well as the interactions with all biotic and abiotic components of SES.<sup>99</sup> In response to both natural and anthropogenic climate change, species will shift in “their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions.”<sup>100</sup> These shifts can be part of a larger phenomenon called an ecosystem or regime shift, which is “an abrupt change in an ecosystem quality, property, or phenomenon, or where small changes in one or more external conditions produce large

<sup>92</sup> *Id.* at 186.

<sup>93</sup> MEA Working Group, *Ecosystems and Human Well-being: A Framework for Assessment*, *supra* note 69, at 51.

<sup>94</sup> *Id.*

<sup>95</sup> *Id.* at 53.

<sup>96</sup> Parmesan & Yohe, *supra* note 12, at 41 (2003).

<sup>97</sup> ALLEN ET AL., *supra* note 8, at 21–22.

<sup>98</sup> Lin & Petersen, *supra* note 14, at 28.

<sup>99</sup> Anne D. Guerry et al., *Natural capital and ecosystem services informing decisions: From promise to practice*, 112(24) PROC. NAT'L ACAD. SCI. USA 7348, 7349 (June 16, 2015), <http://www.pnas.org/content/112/24/7348.full.pdf> [<https://perma.cc/5VCZ-4V8N>].

<sup>100</sup> IPCC, *CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY*, *supra* note 10, at 4.

and persistent responses in an ecosystem can cause an ecological threshold to be crossed and unlikely for the ecosystem to return to the original state.”<sup>101</sup> Marine, terrestrial and freshwater ecosystems are all at risk to abrupt changes as a result of climate change.<sup>102</sup>

The interactions between, not just the influence of, humans and the biosphere are continuing to grow to unprecedented extent and scale, and are altering ecosystems and the climate globally.<sup>103</sup>

The threats of environmental changes to the fitness, survival and reproductive success of individuals, and ultimately to the survival of species and ecosystems come from many directions: habitat destruction, disruption of food chains, changes in disease and parasitic loads, increased pollution and direct and indirect effects of climate change. The physical environmental changes can be detected at almost any place on the planet: from pole to pole and from ocean depths to the stratosphere. To what extent will these various changes and pressures affect the ability of individuals, species and ecosystems to survive in the long term?<sup>104</sup>

Due to this influence of human activities, and especially anthropogenic climate change, ecosystems will shift to entirely new combinations of both biotic and abiotic factors.<sup>105</sup> Humans have already altered 50% of global terrestrial habitats by 1750 and 75% by 2000.<sup>106</sup> These changes will continue to push ecosystems to their thresholds and, as connectivity to these altered ecosystems increases through human activity, there will continue to be implications on disease patterns, new species, harvesting and market access, indigenous stewardship, food webs, and spatial

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<sup>101</sup> ALLEN et al., *supra* note 8, at 1.

<sup>102</sup> IPCC, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, *supra* note 10, at 16.

<sup>103</sup> Terry P. Hughes et al., *Multiscale Regime Shifts and Planetary Boundaries*, 28(7) TRENDS IN ECOLOGY & EVOLUTION 389, 389 (2013), [http://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347\(13\)00141-9](http://www.cell.com/trends/ecology-evolution/fulltext/S0169-5347(13)00141-9) [<https://perma.cc/UE9W-2YQ5>].

<sup>104</sup> Stuart R. Milligan, William V. Holt & Rhiannon Lloyd, *Impacts of climate change and environmental factors on reproduction and development in wildlife*, 364 (1534) PHIL. TRANS R. SOC'Y B. 3313, 3314 (2009), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2781851/pdf/rstb20090175.pdf> [<http://perma.cc/4A8J-GJ6E>].

<sup>105</sup> Hughes et al., *supra* note 103, at 389.

<sup>106</sup> *Id.*

refuges.<sup>107</sup> Further, as this connectivity of humans and the biosphere is not unidirectional, on a larger scale the repercussions of climate change can be enormous and trigger system-wide collapse.<sup>108</sup>

Generally, ecosystems have inherent resiliency and adaptive capacity, permitting stressors to cause smaller or larger shifts without coinciding with an entire regime shift.<sup>109</sup> Adaptive capacity is the ability “to cope with climate change by persisting in situ, by shifting to more suitable local microhabitats, or by migrating to more suitable regions . . . [and] depends on . . . phenotypic plasticity, genetic diversity, evolutionary rates, life history traits, and dispersal and colonization ability.”<sup>110</sup> Human actions, such as “emissions of waste and pollutants (bottom-up effects) and climate change,” weaken ecosystem resiliency,<sup>111</sup> rendering it more fragile and susceptible to changes.<sup>112</sup>

When adaptive or resilience management fails, ecosystems become less resilient and more vulnerable to changes and regime shifts, moving from an original or desired state to a new state.<sup>113</sup> These shifts can be irreversible or too expensive to repair and coincide with a loss in biological sources and ecosystem services.<sup>114</sup> There is a clear need to prevent regime shifts by preserving ecosystem resiliency,<sup>115</sup> but the current state of knowledge to create effective action is inadequate. Due to climate change, ecosystems remain under threat of being pushed out of stability and beyond their existing states.

### C. *Human Systems and Homo Sapiens*

Traditionally, biodiversity does not include humans as one of the covered species,<sup>116</sup> but rather humans as beneficiaries of biodiversity,<sup>117</sup>

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<sup>107</sup> *Id.* at 392.

<sup>108</sup> *Id.* at 392–93.

<sup>109</sup> Lin & Petersen, *supra* note 14, at 3.

<sup>110</sup> Terence P. Dawson et al., *Beyond Predictions: Biodiversity Conservation in a Changing Climate*, 332(1) SCIENCE 53, 53 (2011), <http://ipclimatechange.trg-learning.com/wp-content/uploads/2013/11/2011-Dawson-et-al-climate-Science.pdf> [<https://perma.cc/J4HW-9TCC>].

<sup>111</sup> Carl Folke et al., *Regime Shifts, Resilience, and Biodiversity*, 35 ANN. REV. OF ECOLOGY, EVOLUTION, & SYSTEMATICS 557, 557 (2004).

<sup>112</sup> Marten Scheffer et al., *Catastrophic shifts in ecosystems*, 413 NATURE 591, 591 (2001).

<sup>113</sup> Folke et al., *supra* note 111, at 575.

<sup>114</sup> *Id.*

<sup>115</sup> Scheffer et al., *supra* note 112, at 591.

<sup>116</sup> BODANSKY, *supra* note 4, at 10.

<sup>117</sup> Ian R. Swingland, *Biodiversity*, in 1 ENCYCLOPEDIA OF BIODIVERSITY 377, 379 (Simon Asher Levin ed., 2001).

or as the stimuli altering biodiversity<sup>118</sup>—i.e., biodiversity as exclusive of humans. However, factually, humans, or *Homo sapiens*, are a species and part of terrestrial ecosystems and its ecological complexes.<sup>119</sup> The International Union for Conservation of Nature and Natural Resources (“IUCN”) presents its evaluation of the conservation status of species on its Red List of Threatened Species,<sup>120</sup> which lists humans under its scientific name as “*Homo sapiens*” and acknowledges that: “There are currently no major threats to humans, although some subpopulations may be experiencing localized declines as a result of disease, drought, war, natural disasters, and other factors.”<sup>121</sup>

As indicated by compensation considered for countries facing forced migration,<sup>122</sup> UNFCCC Parties recognize the need to address the political and societal instability associated with human migration. The need to migrate can be attributed to a wider range of “slow-onset climate change impacts, such as severe desertification, sea-level rise, or coastal erosion, [as well as] extreme weather events or climate-related environmental disasters, such as severe river flooding, cyclones, typhoons, or tsunamis.”<sup>123</sup> Vulnerable populations will disproportionately suffer from human rights violations relating to “the right to life and self-determination, the right to adequate food, the right to water, the right to health, and the right to housing.”<sup>124</sup> While most displacement will occur within country borders, significant cross-border migration is anticipated “from sub-Saharan Africa toward the Mediterranean, the Middle East and Europe between 2007 and 2036.”<sup>125</sup> Further, entire populations of small island states may require refuge in new countries due to sea level rise making the islands mostly uninhabitable.<sup>126</sup>

Humans are just as dependent on the environment for habitat (or colloquially, its “address”) and niche (or colloquially, its “profession”) for

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<sup>118</sup> *Id.* at 385.

<sup>119</sup> Global Mammal Assessment Team, *Homo sapiens*, THE IUCN RED LIST OF THREATENED SPECIES 1 (2008), <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T136584A4313662.en> [<https://perma.cc/Y7RK-DR6Y>] (last visited Mar. 19, 2018).

<sup>120</sup> International Union for Conservation of Nature and Natural Resources, *The IUCN Red List of Threatened Species: About*, Version 2017-1, <http://www.iucnredlist.org> [<https://perma.cc/2ZQB-F5SL>] (last visited Mar. 19, 2018).

<sup>121</sup> Global Mammal Assessment Team, *supra* note 119; *see also* discussion *infra* Section I.C.2.

<sup>122</sup> McLeman & Smit, *supra* note 33, at 8.

<sup>123</sup> CAMPRUBÍ, *supra* note 23, at 119.

<sup>124</sup> McInerney-Lankford, *supra* note 24, at 195, 198–99.

<sup>125</sup> CORENDEA, *supra* note 25, at 27.

<sup>126</sup> *Id.* at 26.

sources of food, agriculture, or industry within the ecosystem.<sup>127</sup> Climate change negatively impacts biodiversity, which includes consequences on human well-being and economic activity; it will “stimulate population displacements, distress migration, and potentially the abandonment of some populated areas.”<sup>128</sup> Adaptation must both strengthen the adaptive capacity of species and ecosystems, as well as create opportunities for ecosystem-based approaches to adaptation.<sup>129</sup> This Article questions whether observations of climate change impacts to biodiversity, including the direct and indirect impacts to socioecological systems, necessitate new analysis under the functionalist view of humans—i.e., as “a part of nature and that *Homo sapiens* is no less natural than other species.”<sup>130</sup>

### 1. Direct Impacts

Both shifts and abrupt changes in climactic conditions are indicated to have impacted settlement and migration patterns of prehistoric humans, as well as in the past century.<sup>131</sup> It is no longer imagined but now expected that anthropogenic climate change will continue to significantly impact ecosystems and degrade the quality and quantity of resources human communities currently rely on,<sup>132</sup> through “drought, land degradation, flooding, access to contextually significant natural resources, sea-level rise, natural disasters, agricultural productivity and deforestation.”<sup>133</sup> Where a regime shift does occur, it can be attributed to the loss of resiliency, and either a failure or lack of resiliency management. Regardless of whether the ecological threshold has been crossed, however, ecosystems will be altered such that human communities find them no longer habitable or productive,<sup>134</sup> and populations lacking the

<sup>127</sup> GRAHAM DICKSON, *ENCYCLOPEDIA OF THE ARCTIC* 892 (Mark Nuttall, ed. 2004).

<sup>128</sup> McLeman & Hunter, *supra* note 18, at 8.

<sup>129</sup> Convention on Biological Diversity, United Nations Convention to Combat Desertification, United Nations Framework Convention on Climate Change, The Rio Conventions: Action on Adaptation 7 (2012), [http://unfccc.int/resource/docs/publications/rio\\_20\\_adaptation\\_brochure.pdf](http://unfccc.int/resource/docs/publications/rio_20_adaptation_brochure.pdf) [<https://perma.cc/UB5G-WBFS>] [hereinafter The Rio Conventions: Action on Adaptation].

<sup>130</sup> Callicott et al., *supra* note 57, at 22, 24.

<sup>131</sup> McLeman & Smit, *supra* note 33, at 31.

<sup>132</sup> ROBERT MCLEMAN, INT’L ORG. FOR MIGRATION, CLIMATE CHANGE, MIGRATION AND CRITICAL INTERNATIONAL SECURITY CONSIDERATIONS, IOM MIGRATION RESEARCH SERIES 12 (2011).

<sup>133</sup> Reiko Obokata, Luisa Veronis & Robert McLeman, *Empirical research on international environmental migration: a systematic review*, 36(1) POPULATION AND ENV’T 111, 113 (2014).

<sup>134</sup> David J. Wrathall, *Migration Amidst Social-Ecological Regime Shift: The Search for Stability in Garifuna Villages of Northern Honduras*, 40(4) HUM. ECOLOGY 583, 583 (2012).

adaptive capacity to withstand environmental pressure *in situ* may be forced to permanently abandon their homes.<sup>135</sup>

Disturbances inducing migration include sudden onset extreme weather-related events, as well as slow-onset events and conditions that unfold over a period of time.<sup>136</sup> Particularly vulnerable to these changes are “low-lying coastal areas and small islands (especially those in regions subject to tropical storms); river valleys and deltas; dryland areas; regions where precipitation is highly seasonal; and high latitudes and high altitudes.”<sup>137</sup> Despite the difficulty in “isolating the climate signal from other stimuli,” studies on environmentally related international migration can serve as a useful foundational resource to promote understanding and make predictions of how climactic and environmental changes will influence international migration in the future.<sup>138</sup> By applying the concepts of vulnerability, exposure, sensitivity, and adaptability to human settlements facing climate change,<sup>139</sup> potential migration patterns can be identified.<sup>140</sup>

## 2. Integrated Physical-Societal Impacts

Except in extreme cases, climatic and environmental changes cannot be viewed as the isolated cause of human migration.<sup>141</sup> Rather than a straightforward stimulus-response mechanism,<sup>142</sup> it is a multidimensional relationship involving environmental, political, economic, social, and cultural factors.<sup>143</sup> The resulting adaptation method, whether voluntary or involuntary, is also based on interactive considerations.<sup>144</sup> Any level of governance or private actors (individuals, households, and local, state, or international governments)<sup>145</sup> can undertake a range of potential responses, including both migration and *in situ* adaptation within the household or community.<sup>146</sup>

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<sup>135</sup> *Id.*

<sup>136</sup> MCLEMAN, *supra* note 132, at 17.

<sup>137</sup> *Id.*

<sup>138</sup> Obokata, Veronis & McLeman, *supra* note 133, at 113.

<sup>139</sup> Dawson et al., *supra* note 110, at 53.

<sup>140</sup> MCLEMAN, *supra* note 132, at 15.

<sup>141</sup> Etienne Piguet, *Linking climate change, environmental degradation, and migration: A methodological overview*, 1 WILEY INTERDISCIPLINARY REVIEWS: CLIMATE CHANGE 517, 517 (2010).

<sup>142</sup> McLeman & Hunter, *supra* note 18, at 450.

<sup>143</sup> Piguet, *supra* note 141.

<sup>144</sup> MCLEMAN, *supra* note 132, at 19.

<sup>145</sup> *Id.*

<sup>146</sup> Piguet, *supra* note 141.

However, in order to better anticipate potential migration resulting from climate change, further research into the use of migration as a coping strategy to environmental degradation could assist in making predictions.<sup>147</sup> Especially prone to climatic changes are those generally reliant on agriculture and natural resources, developing areas and socio-economically disadvantaged persons such as laborers and farmers.<sup>148</sup> These populations dependent on biodiversity and ecosystem services<sup>149</sup> are more vulnerable, but less covered by social protection mechanisms.<sup>150</sup> For example, in India, the Orissa and Chattisgarh regions have been largely deforested, causing women to lose their livelihoods as forest gatherers resort to walking much further to collect forest produce, and have reduced access to medicinal herbs; thus, women suffer from loss in income and physical health.<sup>151</sup> Adaptive capacity and resiliency of human communities, as well as the likelihood of migration, rely on a web of ecological and social factors.

### 3. Human Stability and Security

Applying the concept of regime shift, environmental migration can be interpreted as such a shift in social-ecological terms; this lens removes the artificial separation between humans and the dynamic social-nature system.<sup>152</sup> Climate change may overwhelm the system's capacity to absorb or adapt to the stressor without undergoing fundamental changes.<sup>153</sup> The ability of institutions that are relied upon for protection to cope with the changed environment may dictate the vulnerability of individuals.<sup>154</sup> Should the institutions not be able to maintain the community's ecosystem or society in a state of stability, the community will be pushed out of its "threshold." Without protection, individuals may then

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<sup>147</sup> *Id.*

<sup>148</sup> MCLEMAN, *supra* note 132, at 13.

<sup>149</sup> Four categories of ecosystem services include: "provisioning services such as water, food and timber; regulating services such as pest control, climate regulation and regulation of water quality; cultural services including recreational and spiritual benefits; and supporting services such as photosynthesis, soil formation and nutrient cycling." CBD Secretariat and WHO, *State of Knowledge Review*, *supra* note 64, at 35.

<sup>150</sup> *Id.* at 32.

<sup>151</sup> Peter Bridgewater, Mathieu Regnier & Wang Zhen, Secretariat of the Convention on Biological Diversity, *Healthy Planet Healthy People: a Guide to Human Health and Biodiversity*, at 10 (2012).

<sup>152</sup> Wrathall, *supra* note 134, at 583.

<sup>153</sup> *Id.*

<sup>154</sup> McLeman & Smit, *supra* note 33, at 31.

be forced to implement their own adaptive mechanism, such as migration away from the community. For example, inhabitants of low-lying SIDS may be forced to migrate if sea level rises as expected.<sup>155</sup> However, some community members may not have the option to exercise a rational choice to migrate in the situation,<sup>156</sup> as a result of broader political, social and economic forces<sup>157</sup> or even individual perceptions of environmental changes and the associated risks.<sup>158</sup>

Related to the complex relationship between climate change, societal factors, and human displacement, environmental changes and human settlement into new areas may trigger societal instability. The IPCC recognizes that adverse environmental conditions such as land degradation and conflict could be a cause of human migrations.<sup>159</sup> Involuntary displacement represents, amongst others, a lack of security, political power and social capital.<sup>160</sup> Environmental stress due to climate change can reduce or entirely eliminate significant resources required for subsistence activities and livelihoods,<sup>161</sup> causing or contributing to other political, economic, social, and demographic stresses.

#### D. *Adaptive Management to Climate Change*

Applicable to societal systems is the concept of vulnerability: the susceptibility or ability to cope with climate variability and extremes.<sup>162</sup> In response to climatic changes, ecological, social, and economic systems adapt by adjusting in structure, process, and practice either to reduce effects and impacts, or to benefit from new conditions.<sup>163</sup> In order to adapt to acute variations of climate change, human populations will be

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<sup>155</sup> *Id.*

<sup>156</sup> Daniel W.A. Murphy, *Theorizing Climate Change, (Im)mobility and Socio-Ecological Systems Resilience in Low-Elevation Coastal Zones*, 7 CLIMATE & DEV. 380, 380 (2015).

<sup>157</sup> McLeman & Smit, *supra* note 33, at 31.

<sup>158</sup> *Id.*

<sup>159</sup> *Id.*

<sup>160</sup> Wrathall, *supra* note 134, at 583.

<sup>161</sup> Obokata, Veronis & McLeman, *supra* note 133, at 119.

<sup>162</sup> McLeman & Hunter, *supra* note 18, at 451.

<sup>163</sup> Barry Smit & Olga Pilifosova, *Chapter 18: Adaptation to Climate Change in the Context of Sustainable Development and Equity*, in CLIMATE CHANGE 2001: IMPACTS, ADAPTION, AND VULNERABILITY, CONTRIBUTION OF WORKING GROUP I TO THE THIRD ASSESSMENT REPORT OF THE INTERNATIONAL PANEL ON CLIMATE CHANGE 881 (A. Patwardhan & J.-F. Soussana eds., 2001), <https://www.ipcc.ch/ipccreports/tar/wg2/pdf/wg2TARchap18.pdf> [<https://perma.cc/L9JW-RMJW>].

forced to migrate, voluntarily for some and involuntarily for others.<sup>164</sup> “To reduce the vulnerability of communities, regions, or activities to climactic change and variability,” assessments on impact, vulnerability, and response options and strategies is necessary.<sup>165</sup>

Migratory responses to climate change can be one of a range of possible ways by which people may adapt to adverse impacts of climate change or take advantage of resulting opportunities.<sup>166</sup> However, the capacity to adapt, whether through migration or otherwise, depends on a community’s adaptive capacity and is determined by socioeconomic characteristics.<sup>167</sup> Sudden-onset events could cause distress migration—e.g., due to evacuation or considerable property damage.<sup>168</sup> Meanwhile, the areas and communities with highest vulnerability and limited adaptive capacity are also those extremely exposed to climate change impacts.<sup>169</sup> “Countries with limited economic resources, low levels of technology, poor information and skills, poor infrastructure, unstable or weak institutions, and inequitable empowerment and access to resources have little capacity to adapt and are highly vulnerable.”<sup>170</sup> By enhancing a community’s adaptive capacity, vulnerabilities can be reduced and sustainable development encouraged.<sup>171</sup>

Adaptive capacity focuses on “learning, flexibility to experiment and adopt novel solutions, and development of generalized responses to broad classes of challenges.”<sup>172</sup> While distinct, it is often used interchangeably with resilience, “the potential of a system to remain in a particular configuration and to maintain its feedbacks and functions, and involves the ability of the system to reorganize following disturbance-driven change.”<sup>173</sup> Therefore, resilience management differs from adaptive management in that the resilience focus aims to prevent the social-ecological system from moving into configurations that are undesirable, and affect actions that increase long-term sustainability.<sup>174</sup>

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<sup>164</sup> McLEMAN, *supra* note 132, at 12.

<sup>165</sup> Smit & Pilifosova, *supra* note 163.

<sup>166</sup> McLeman & Hunter, *supra* note 18, at 450.

<sup>167</sup> Smit & Pilifosova, *supra* note 163, at 879.

<sup>168</sup> McLeman & Hunter, *supra* note 18, at 450.

<sup>169</sup> *Id.*

<sup>170</sup> *Id.*

<sup>171</sup> Smit & Pilifosova, *supra* note 163, at 879.

<sup>172</sup> Brian Walker et al., *Resilience Management in Social-ecological Systems: a Working Hypothesis for a Participatory Approach*, 6(1) CONSERVATION ECOLOGY 14, 14 (2002).

<sup>173</sup> *Id.*

<sup>174</sup> *Id.*

There is a clear need to build adaptive capacity in areas that will be both the source and host of climate refugees through adaptive management, as well as to prevent the need for migration through resilience management. Researchers anticipate up to one billion people may endure global climate-related migrations during this century.<sup>175</sup> Adaptive capacity can be improved through the same activities for sustainable development; jointly achieving climate adaptation and equity objectives through a focus on providing assistance to the most vulnerable populations of society—e.g., “by improving food security, facilitating access to safe water and health care, and providing shelter and access to other resources.”<sup>176</sup> Improving the resilience of a social-ecological structure involves strengthening “structures and processes (social, ecological, economic) that enable it to reorganize following a disturbance . . . [and] reducing those that tend to undermine it.”<sup>177</sup>

#### *E. Response Methods*

Relating to climate change, the 2nd Ad Hoc Technical Expert Group on Biodiversity and Climate Change defined ecosystem-based approaches to climate change adaptation as “the use of biodiversity and ecosystem services to help people adapt to the adverse effects of climate change.”<sup>178</sup> The evidence-base to support this approach is still developing and growing, but its utility is already being recognized.<sup>179</sup> Ecosystem-based management approaches can work along with other approaches to reduce disaster risks and adapt to climate change.<sup>180</sup> For example, coastal foredunes can protect against climate change impacts from extreme storm-related events such as hurricanes and tsunamis.<sup>181</sup> Coastlines affected by beach erosion and vulnerable to wave run-up and increased beach slope can be rehabilitated by “maintaining natural vegetation,

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<sup>175</sup> McLeman & Hunter, *supra* note 18, at 457.

<sup>176</sup> Smit & Pilifosova, *supra* note 163, at 879.

<sup>177</sup> Walker et al., *supra* note 172. “Enhancing resilience—including the technical, institutional, economic, and cultural capability to cope with impacts—is a particularly appropriate adaptive strategy given future uncertainties and the desire to maintain development opportunities.” Smit & Pilifosova, *supra* note 163, at 900.

<sup>178</sup> Robert Munroe et al., *Review of the Evidence base for Ecosystem-based Approaches for Adaptation to Climate Change*, 1 ENVTL. EVIDENCE at 13, 13 (2012).

<sup>179</sup> *See id.*

<sup>180</sup> Jeanne L. Nel et al., *Natural Hazards in a Changing World: A Case for Ecosystem-Based Management*, 9(5) PLOS ONE 1, 6–7, 10 (2014).

<sup>181</sup> *Id.*

sand volume, and natural sediment movement, and restricting developments on foredunes.”<sup>182</sup> Mangrove systems protect beaches and coastlines from storm surges and erosion, as well as regulate climate by maintaining air quality, temperature and precipitation.<sup>183</sup> There are opportunities to reduce risks that society faces from climate change by focusing on ecosystems in management, conservation and restoration.<sup>184</sup>

For ecosystem protection generally, ecosystem-based management looks at “the relationships among all ecosystem components, including humans within the biota and the environments in which they live.”<sup>185</sup> It combines humans and ecology into a “society integrated or transdisciplinary ecosystem management”<sup>186</sup> and focuses to maintain the ecosystem’s structure and function, rather than for a single species.<sup>187</sup> Application of a functionalist approach renders humans as natural as other species and an integral part of the ecosystem.<sup>188</sup> The ecosystem approach is a method, under the overarching ecosystem-based management umbrella, to achieve ecological sustainability.<sup>189</sup> Management must be integrated and adaptive as to address the complex interactions within ecosystems; it is recognized that the traditional method of intervening or manipulating a single species is no longer sufficient alone.<sup>190</sup>

#### F. Case Study: Small Island Developing States

In order to exemplify the clearest threat of human habitat loss in both physical and political terms, as well as due to its unique geographic and cultural characteristics,<sup>191</sup> this case study will focus on climate

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<sup>182</sup> *Id.*

<sup>183</sup> J.H. Primavera et al., *Manual on Community-Based Mangrove Rehabilitation*, 1 MANGROVE MANUAL SERIES at 7 (The Zoological Soc’y of London 2012), <http://www.mangrove-restoration.com/pdfs/Primavera%20et%20al%202013%20ZSL-CMRP%20Manual%20incl%20cover.pdf> [https://perma.cc/QNU7-QEWV].

<sup>184</sup> Nel et al., *supra* note 180, at 9.

<sup>185</sup> Michael P. Weinstein, *Ecological Restoration and Estuarine Management: Placing People in the Coastal Landscape*, 45 J. OF APPLIED ECOLOGY 296, 297 (2008).

<sup>186</sup> *Id.*

<sup>187</sup> Duncan E.J. Currie, *Ecosystem-Based Management in Multilateral Environmental Agreements: Progress towards Adopting the Ecosystem Approach in the International Management of Living Marine Resources*, WORLD WILDLIFE FUND 8–9, [http://assets.panda.org/downloads/wwf\\_ecosystem\\_paper\\_final\\_wlogo.pdf](http://assets.panda.org/downloads/wwf_ecosystem_paper_final_wlogo.pdf) [https://perma.cc/Q5P7-LYZC].

<sup>188</sup> Weinstein, *supra* note 185, at 297.

<sup>189</sup> Currie, *supra* note 187, at 1–2.

<sup>190</sup> *Id.*

<sup>191</sup> Poh Poh Wong et al., *Island Systems, Millennium Ecosystem Assessment*, in *Ecosystems*

change impacts to small island developing states (“SIDS”).<sup>192</sup> The 5th Assessment report of the IPCC (2014) states “there is no unequivocal evidence that reveals migration *from islands* is being driven by anthropogenic climate change,” but that statement is in the context of discussing the complexity and multiple drivers associated with the decision to migrate.<sup>193</sup> Rather,

[t]he affected small island nations are diverse in their cultures and origins. They range in geographical location from the Pacific Ocean to the Indian Ocean, and vary in their peoples, traditions, appearance, and ways of life. *In addition to people, these nations vary in their flora and fauna, much of which is unique to the islands and will be forever lost with their submersion.* Depending on the elevation of the islands, the location of the fresh water aquifers, and the elevation and placement of infrastructure, each of these nations will be affected in different ways. Some states, such as Western Samoa and Tahiti, will require money to rebuild on higher ground. However, some states, such as the Maldives and Tuvalu, will likely be fully submerged and require much more than rebuilding.<sup>194</sup>

The IPCC reports that environmental changes have historically become drivers of migration in the Pacific and that “it is clear that there is the

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and Human Well-being: Current State and Trends 663, 665 (Joseph Baker, Ariel Lugo & Avelino S. Rodriguez, eds., 2005), <http://www.millenniumassessment.org/documents/document.292.aspx.pdf> [<https://perma.cc/9694-TG9H>] ([SIDS] differ in their geological and geomorphologic settings and geography, in their physical, biological, climatic, social, political, cultural, and ethnic characteristics, and in their stage of economic development. Yet they share several characteristics that not only unify them as a distinct category but underscore their overall vulnerability in the context of sustainable development.)

<sup>192</sup> “The Small Island Developing States (SIDS) emerged as a loose coalition during the UN Conference on Environment and Development in 1992. . . . They formed themselves into the Alliance of Small Island States (AOSIS) mainly to lobby in relation to climate change.” Sumudu Atapattu, *Climate Change: Disappearing States, Migration, and Challenges for International Law*, 4 WASH. J. ENVTL. L. & POL'Y 1, 2, n.3 (2014).

<sup>193</sup> See LEONARD A. NURSE ET AL., SMALL ISLANDS, in CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY at 1625 (Thomas Spencer & Kazuya Yasuhara eds., 2014), [https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap29\\_FINAL.pdf](https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap29_FINAL.pdf) [<https://perma.cc/GUT8-FBC8>].

<sup>194</sup> Shaina Stahl, *Unprotected Ground: The Plight of Vanishing Island Nations*, 23 N.Y. INT'L L. REV. 1, 7–8 (2010).

potential for human movement as a response to climate change.”<sup>195</sup> There is an *urgent* need to better study the relationship between climate change and migration.<sup>196</sup>

Since 1992, the international community has recognized SIDS as a “special case” for sustainable development, and vulnerable to environmental changes in particular, with the Agenda 21<sup>197</sup> and recently in 2015 with “Transforming Our World: 2030 Agenda for Sustainable Development.”<sup>198</sup> The 2012 “Future We Want” recognizes “their small size, remoteness, narrow resource and export base, and exposure to global environmental challenges and external economic shocks, including a large range of impacts from climate change and potentially more frequent and intense natural disasters.”<sup>199</sup> Climate change will alter the physical environment to varying degrees and forms throughout the world, but southern-tier nations will be affected most disproportionately and are least capable of responding to the consequences.<sup>200</sup> Impacts to ecosystems and socio-economic systems will influence their health and welfare.<sup>201</sup> Climate change will “affect food production in terms of output and location, cause fresh water stress, increase heat waves, and, in conjunction with other factors, cause increased levels of certain diseases such as malaria and dengue fever.”<sup>202</sup> Further, each small island developing state is comprised of irreplaceable ecosystems,<sup>203</sup> and unique ways of life, cultural heritage and practices.<sup>204</sup>

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<sup>195</sup> NURSE ET AL., *supra* note 193, at 1625.

<sup>196</sup> *Id.*

<sup>197</sup> U.N. Conference on Environment and Development Res. 1(2), U.N. Doc A/Conf.151/26 (Aug. 12, 1992).

<sup>198</sup> G.A. Res. 70/1, Transforming our World: The 2030 Agenda for Sustainable Development, at preamble (Sept. 25, 2015) [hereinafter UNGA, The 2030 Agenda].

<sup>199</sup> G.A. Res. 66/288, The future we want, ¶ 178 (July 27, 2012) [hereinafter UNGA, The future we want].

<sup>200</sup> Ruth Gordon, *Climate Change and the Poorest Nations: Further Reflections on Global Inequality*, 78 U. COLO. L. REV. 1559, 1589–90 (2007).

<sup>201</sup> Alexander Gillespie, *Small Island States in the Face of Climatic Change: The End of the Line in International Environmental Responsibility*, 22 UCLA J. ENVTL. L. & POL'Y 107, 111 (2004).

<sup>202</sup> *Id.* at 111–12.

<sup>203</sup> Secretariat of the Convention on Biological Diversity, The Convention on Biological Diversity: Year in Review at 36–37 (2009), <https://www.cbd.int/doc/reports/cbd-report-2009-en.pdf> [https://perma.cc/2PEN-77NE].

<sup>204</sup> See Ryan Jarvis, *Sinking Nations and Climate Change Adaptation Strategies*, 9(1) SEATTLE J. FOR SOC. JUST. 447, 447 (2010), <http://digitalcommons.law.seattleu.edu/sjsj/vol9/iss1/15> [https://perma.cc/XWG2-HB57].

Generally, SIDS are only situated three to four meters above present sea level.<sup>205</sup> Ocean thermal expansion and related response in icecaps will cause sea level rise.<sup>206</sup> By 2100, it is expected that the global mean sea level will increase by a range of 0.09 to 0.88 meters from 2000 levels.<sup>207</sup> This will adversely impact developed and developing countries,<sup>208</sup> but SIDS are especially at extreme risk of inhabitability.<sup>209</sup> The Republic of Marshall Islands' Majuro Atoll could lose eighty percent of the land from sea level rise of one meter.<sup>210</sup> The hundreds of smaller islands of which the Maldives and Kiribati are comprised range in only one to two meters above mean sea level.<sup>211</sup> Small islands in the Indian and Pacific Oceans could be completely inundated within this century, and millions of inhabitants living on the Philippine and Indonesian archipelago coastlines could be faced with displacement from homes.<sup>212</sup> The international community recognizes that SIDS are most severely in peril of being affected, yet have contributed the least to global climate change.<sup>213</sup>

Both the ecological and human systems of SIDS have low capacity for adaptation,<sup>214</sup> but high level of vulnerability.<sup>215</sup> Anticipated ecological consequences include coastal erosion, saltwater intrusion, soil salinization, and loss in land and coastal ecosystem resiliency, which will in turn cause loss of property and human displacement, high resource costs for response and adaptive measures, reduced water balance, and impact tourism, domestic food production and cash crop exports.<sup>216</sup> SIDS could completely lose the ability to meet the water needs of their inhabitants during low

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<sup>205</sup> Gillespie, *supra* note 201, at 113.

<sup>206</sup> *Id.* at 112.

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> Stahl, *supra* note 194, at 5.

<sup>210</sup> Gillespie, *supra* note 201, at 113.

<sup>211</sup> *Id.*

<sup>212</sup> Wong et al., *supra* note 191, at 676.

<sup>213</sup> Gillespie, *supra* note 201, at 113.

<sup>214</sup> It's impracticable for islands with scarce physical space to retreat to higher elevation or to further distance structures from the shore. As a result of sea level rise and associated consequences, abandonment can incur serious economic and social costs. Wong et al., *supra* note 191, at 677; Levy, Babu & Hamilton, *supra* note 66, at 125.

<sup>215</sup> Gillespie, *supra* note 201, at 114. SIDS are similarly situated and vulnerable as a result of their "physical size; generally limited natural resources; high susceptibility to climatic changes and natural hazards such as tropical cyclones (hurricanes) and associated storm surges, droughts, tsunamis, and volcanic eruptions; and relatively thin fresh water supplies that are highly sensitive to sea level changes." Wong et al., *supra* note 191, at 666.

<sup>216</sup> Gillespie, *supra* note 201, at 116.

rain periods by mid-century.<sup>217</sup> Further exacerbating these effects, climate change will likely also worsen weather patterns such as storms, tornadoes, and cyclones, as well as increase precipitation and storm activity.<sup>218</sup>

While summarized here, climate change will have profound adverse impacts on the current state of oceans—e.g., affecting carbon storage, species' migratory patterns, habitats, and climactic stability, and profoundly impacting marine ecosystems in both structure and function.<sup>219</sup> Of importance to SIDS, coastal ecosystem decline threatens the fisheries upon which the livelihoods of coastal inhabitants rely for culture and for food.<sup>220</sup>

Thus, at best, these nations face a tremendous assault upon their environment and, since their economies are intimately tied to the environment, their economies are likely to decline, perhaps drastically. At worst, they face the total destruction of their homes, cultures, and communities—that is the end of their existence as a community.<sup>221</sup>

The cumulative impacts of climate change will cause SIDS, already facing developmental challenges, to now be overwhelmed with an existential threat.<sup>222</sup>

## II. THE RESPONSE TO CLIMATE CHANGE IMPACTS ON NATURAL SYSTEMS UNDER INTERNATIONAL LAW

Climate change will significantly impact many features of biological diversity: “ecosystems, species, genetic diversity within species, and on ecological interactions,” on its long-term stability, as well as on the ecosystem services for human benefit.<sup>223</sup> The Convention on Biological Diversity (“CBD”) and the United Nations Framework Convention on Climate Change (“UNFCCC”) recognize “the interlinkages between biodiversity, climate change, and sustainable development.”<sup>224</sup> Biodiversity

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<sup>217</sup> Gordon, *supra* note 200, at 1593–94.

<sup>218</sup> Gillespie, *supra* note 201, at 114.

<sup>219</sup> *Id.* at 114–15.

<sup>220</sup> *Id.* at 116; Gordon, *supra* note 200, at 1595–97.

<sup>221</sup> Gordon, *supra* note 200, at 1595–97.

<sup>222</sup> *Id.* at 1593–94.

<sup>223</sup> Secretariat of the Convention on Biological Diversity, Review of the Literature on the Links between Biodiversity and Climate Change: Impacts, Adaptation and Mitigation, at 9 (2009) [hereinafter CBD Technical Series, Review of the Literature].

<sup>224</sup> *Id.* at 5.

is important for climate change mitigation and adaptation policies.<sup>225</sup> This section will explore the international legal governance systems governing climate change and biological diversity to reveal the limitations and correlations of each regime.

This section will first briefly set up the international climate change regime and its limitations. The next subsection will set forth the international legal regime governing biological diversity and discuss the CBD's adoption of the ecosystem approach. Finally, this section will analyze the harmonization of the international biodiversity and climate change regimes, as well as how they relate to the ecosystem approach.

#### A. *The International Climate Change Regime*

The UNFCCC, including its affiliated agreements, is the chief instrument of the multilateral climate change regime.<sup>226</sup> The first phase of the regime began with negotiations from 1990 through its adoption and entry into force in 1995.<sup>227</sup> The second phase involved the Kyoto Protocol negotiations through entry into force in 2004.<sup>228</sup> Beginning in 2005, the phase culminated in the adoption of the Paris Agreement to limit greenhouse gas ("GHG") emissions with a rather global approach.<sup>229</sup>

The UNFCCC provides general commitments, and the framework provides a structure to achieve specific targets under certain deadlines.<sup>230</sup> Parties regularly meet through the Conference of Parties ("UNFCCC COP") to negotiate new agreements to further the objective of the UNFCCC.<sup>231</sup> Nonetheless, problems with the climate change regime and negotiations have been recognized during implementation of the Kyoto Protocol: first, commitments were neither met nor ambitious enough to prevent the gravest risks associated with climate change, and second, the United States, Canada, Japan, and Russia failed to make the commitments necessary to be influential.<sup>232</sup>

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<sup>225</sup> *Id.* at 6.

<sup>226</sup> Hari M. Osofsky, *Climate Change and Crises of International Law: Possibilities for Geographic Reenvisioning*, 44 CASE W. RES. J. INT'L L. 423, 424 (2011). See *infra* Section III.A.1. for an analysis of the international climate change regime as it relates to climate refugees.

<sup>227</sup> Daniel Bodansky, *The Paris Climate Change Agreement: A New Hope?*, 110 AM. J. INT'L L. 288, 291 (2016).

<sup>228</sup> *Id.*

<sup>229</sup> *Id.*

<sup>230</sup> Osofsky, *supra* note 226, at 423.

<sup>231</sup> *Id.*

<sup>232</sup> *Id.* at 424–25.

Some of these difficulties were in part addressed by the Paris Agreement, which took on a more flexible approach.<sup>233</sup> However, it also raised questions of effective climate change activity, whether that activity should be addressed through better agreements between parties or a shift in focus, and the role of non-UNFCCC international legal agreements.<sup>234</sup> Further, there is difficulty with using the nation-state foundation in addressing climate change when the nation-state geography is inaccurate and incomplete.<sup>235</sup> “Namely, if the nation-state is constituted by individuals and entities and has borders that can be informally permeated, does the formal story also need to be changed?”<sup>236</sup> This poses serious issues in light of the permeability of climate change causes, impacts, and displaced persons across national borders.

### B. *The International Biodiversity Regime*

Biodiversity conservation is a “common concern of humankind,”<sup>237</sup> and the international community continues to increasingly recognize the threat biodiversity faces, as well as the benefits arising from its conservation.<sup>238</sup> More than 150 multilateral environmental agreements (“MEAs”) related to biodiversity exist on the global and regional scales.<sup>239</sup> Acknowledging the fragmentation and complexity of the existing global governance generally, as well as the international biodiversity regime, the main MEAs associated with the “biodiversity cluster” include:

[T]he Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Convention on Wetlands of International

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<sup>233</sup> Bodansky, *supra* note 227, at 290, 295.

<sup>234</sup> Osofsky, *supra* note 226, at 425.

<sup>235</sup> *Id.* at 428–29.

<sup>236</sup> This author acknowledges this question of a “permeable model of the nation-state” was posed in the context of a discussion on “international legal norms [that] flow in and out of its borders and individuals (and other entities),” but finds the question equally applicable to people moving across borders. *Id.* at 429.

<sup>237</sup> Convention on Biological Diversity, Jun. 1992, 1760 U.N.T.S. 79, <http://www.cbd.int/convention/convention.shtml> [<https://perma.cc/CT2A-LEAM>] [hereinafter CBD].

<sup>238</sup> Trouwborst, *supra* note 36, at 419.

<sup>239</sup> Philippe Le Prestre & Daniel Compagnon, *IPBES and Governance of the International Biodiversity Regime Complex*, THE INTERGOVERNMENTAL PLATFORM ON BIODIVERSITY AND ECOSYSTEM SERVICES 21 (Marie Hrabanski & Denis Pesche eds., 2016).

Importance (Ramsar Convention), the Convention Concerning the Protection of the World Cultural and Natural Heritage (WHC), the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and finally the Convention on Biological Diversity (CBD).<sup>240</sup>

At the core lies the CBD, coexisting with other international conservation treaties.<sup>241</sup> This Article will focus on the CBD, and consider to a lesser extent the other conventions that have contributed to climate change discussions, the "CMS", Ramsar Convention, and the World Heritage Convention.<sup>242</sup>

The CBD strives for nature conservation as it relates to supporting human livelihoods. As articulated in Article 1, the three main goals are: "conservation of biological diversity, sustainable use of its components and the fair and equitable sharing of benefits arising out of the use of genetic resources."<sup>243</sup>

With its unique combination of both sustainable use and conservation, supplemented by socio-economic and equity considerations (sharing of benefits), its nearly worldwide validity and scope, the [CBD] could change the management of [biodiversity], or better, biological resources in a revolutionary way.<sup>244</sup>

The furtherance of biodiversity conservation and sustainable use occurs through national strategies, plans and programmes, and integration into sectoral or cross-sectoral mechanisms so that biodiversity becomes a mainstream aspect of governmental planning.<sup>245</sup> Conservation is prioritized with *in-situ* conservation, "where genetic resources (material containing functional units of heredity with actual or potential value) exist

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<sup>240</sup> Le Prestre & Compagnon, *supra* note 239, at 23; see Volker Roben, *Institutional Developments under Modern International Environmental Agreements*, 4 MAX PLANCK UNYB 363, 366 (2000), [http://www.mpil.de/files/pdf2/mpunyb\\_roeben\\_4.pdf](http://www.mpil.de/files/pdf2/mpunyb_roeben_4.pdf) [<https://perma.cc/37PP-QYG5>]. The 1973 CITES, 1979 CMS, and 1993 CBD each have Secretariats established by or under the auspices of the United Nations Environment Programme.

<sup>241</sup> Le Prestre & Compagnon, *supra* note 239.

<sup>242</sup> Morgera, *supra* note 1, at 367.

<sup>243</sup> Gudrun Henne & Saliem Fakir, *The Regime Building of the Convention on Biological Diversity on the Road to Nairobi*, 3 MAX PLANCK UNYB 315, 315 (1999), [http://www.mpil.de/files/pdf2/mpunyb\\_henne\\_fakir\\_3.pdf](http://www.mpil.de/files/pdf2/mpunyb_henne_fakir_3.pdf) [<https://perma.cc/K29H-68J5>].

<sup>244</sup> Henne & Fakir, *supra* note 243, at 317–18.

<sup>245</sup> *Id.* at 322.

within ecosystems, and natural habitats, and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties,” while *ex-situ* conservation “complements” *in-situ* measures.<sup>246</sup>

The broad foundation and structure of the CBD fosters slow development,<sup>247</sup> but is not necessarily a hindrance to its success.<sup>248</sup> The CBD takes shape in the form of a framework,<sup>249</sup> an international environmental regime that governs an area of international environmental policy, providing “principles, norms, rules, and decision making procedures.”<sup>250</sup> Contracting parties meet at the CBD COPs, during which decisions on Resolutions or Decisions are made, covering general and implementation provisions with national and international scope.<sup>251</sup> To give provisions effect on the international level, Article 23 of the CBD articulates the legal means of the CBD COP to consider and adopt: protocols in accordance with Article 28, and amendments to the CBD, protocol, or its annexes in accordance with Articles 29 and 30.<sup>252</sup> CBD COP decisions provide legally binding interpretations of the CBD; thus, a violation of a CBD COP decision is a violation of the CBD.<sup>253</sup>

To fulfill conservation obligations, Contracting Parties must craft a system of *in-situ* measures—e.g., biodiversity management and risk regulation, which includes mechanisms for conservation and sustainable use; rehabilitation and restoration of degraded ecosystems; legal protections for threatened species and populations; and control of threats to ecosystems.<sup>254</sup> Where practicable, *ex-situ* conservation should take place within the country of origin.<sup>255</sup> “Sustainable use” obligations

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<sup>246</sup> *Id.* (citing CBD Convention Art. 8 on *in-situ* conservation, Art. 9 on *ex-situ* conservation, and Art. 2 on the definition of *in-situ* conservation).

<sup>247</sup> The myriad of decisions issued by the Conference of Parties (“CBD COP”) lacks in organization and clear writing; therefore, its function and potential legal implications under the CBD is undermined. Morgera, *supra* note 1, at 360. Critically important to its effectiveness, relevant stakeholders involved with biodiversity include those in farming, protected area management, land use planning, botanical gardens, botany, water supply, forestry, pharmaceuticals, microbiology research, curriculum planning, as well as businesses and consumers; however, they are not aware of the existence of the CBD. Henne & Fakir, *supra* note 243, at 318.

<sup>248</sup> Henne & Fakir, *supra* note 243, at 318.

<sup>249</sup> *Id.* at 317–18.

<sup>250</sup> *Id.* at 322.

<sup>251</sup> *Id.* at 318–19.

<sup>252</sup> CBD, *supra* note 237, at art. 23(c)–(f).

<sup>253</sup> Henne & Fakir, *supra* note 243, at 319.

<sup>254</sup> *Id.* at 322–23.

<sup>255</sup> *Id.* at 323.

involve more general provisions in Article 10 requiring Contracting Parties to integrate into their national decision-making. This is broader than governmental planning, includes all governmental action, and can have far-reaching implications that encompass private sector users of the biological resources.<sup>256</sup>

Local populations should also be involved in the resource management process so as to facilitate incorporation of local knowledge and responsibility ownership.<sup>257</sup> Recognizing “the close dependence of many indigenous and local communities embodying traditional lifestyles on biological resources,”<sup>258</sup> Contracting Parties must also provide protection and facilitate “customary use of biological resources in accordance with traditional cultural practices”<sup>259</sup> and “support local populations.”<sup>260</sup>

Finally, the benefit-sharing objectives in Articles 15 and 16 relate to fair and equitable access to genetic resources for commercial and personal use, as well as transfer of relevant technologies.<sup>261</sup> Due to individual national capacities and circumstances, most provisions of the CBD are qualified by “as far as possible and as appropriate,” “where appropriate,” or “in accordance with each Contracting Party’s particular conditions and capabilities.”<sup>262</sup> Therefore, the CBD’s approach to biodiversity conservation is reasonable and realistic, rendering potentially effective application to all species, non-human and human.

### C. *The Ecosystem Approach*

Illustrating a shift from focusing on entity-oriented species towards process-oriented ecosystems, the CBD explicitly adopted the ecosystem approach as its primary framework for action.<sup>263</sup> The ecosystem approach is “a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.”<sup>264</sup> Critical for this Article, “it recognizes that

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<sup>256</sup> *Id.*

<sup>257</sup> *Id.*

<sup>258</sup> CBD, *supra* note 237, at art. 8(j).

<sup>259</sup> *Id.* art. 10(c).

<sup>260</sup> *Id.* art. 10(d).

<sup>261</sup> Henne & Fakir, *supra* note 243, at 324.

<sup>262</sup> CBD, *supra* note 237, at art. 8(j).

<sup>263</sup> Richard D. Smith & Edward Maltby, *Using the Ecosystem Approach to Implement the Convention on Biological Diversity: Key Issues and Case Studies*, 9 (2003), <https://portals.iucn.org/library/sites/library/files/documents/cem-002.pdf> [<https://perma.cc/TQE2-QRV2>].

<sup>264</sup> Convention on Biological Diversity Decision V/6 at ¶ A(1) (2000).

humans, with their cultural diversity, are an integral component of many ecosystems.”<sup>265</sup> People and nature cannot be separated, as humans impact the ecological system, and the system likewise affects people.<sup>266</sup> By recognizing the importance of ecosystems for human well-being, the ecosystem approach has become the basis for successful conservation and rehabilitation efforts.<sup>267</sup>

A deeper analysis of the international biodiversity regime generally, and output of the CBD COP specifically, reveals a normative development towards “environmentally holistic and human rights–based standards.”<sup>268</sup> The CBD COP’s decision to adopt the ecosystem approach sets forth a legally binding interpretation of the CBD pursuant to the Vienna Convention on the Law of Treaties.<sup>269</sup> The purpose of the approach is to achieve the CBD’s three objectives: conservation, sustainable use, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.<sup>270</sup>

The ecosystem concept and approach is commonly associated with, but arguably distinct from,<sup>271</sup> management solutions, such as “ecosystem management” or “ecosystem-based management.”<sup>272</sup> Visionary ecologists and biologists, notably Aldo Leopold (Ecological Society of America’s Committee for the Study of Plant and Animal Communities), George Wright, and Ben Thompson, have used this approach in *conceptualizing* ecosystem management since the 1930s, but early attempts

<sup>265</sup> *Id.*

<sup>266</sup> R. Edward Grumbine, *What is Ecosystem Management?*, 8 CONSERVATION BIOLOGY 27, 31 (1994).

<sup>267</sup> Smith & Maltby, *supra* note 263, at 51.

<sup>268</sup> Morgera, *supra* note 1, at 361.

<sup>269</sup> Henne & Fakir, *supra* note 243, at 319 (citing arts. 31 and 32 of the Vienna Convention on the Law of Treaties, 1155 U.N.T.S. 18232). Pursuant to Article 31 of the Vienna Convention on the Law of Treaties, the General Rules of Interpretation of Treaties includes: (2) “the context for the purpose of interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes: (a) Any agreement . . . made between all the parties . . .,” and (3) shall take into account: “(a) Any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; [and] (b) Any subsequent practice in the application of the treaty.” Therefore, the CBD COP’s decision to adopt the ecosystem approach is a legally binding interpretation of the treaty.

<sup>270</sup> Convention on Biological Diversity Decision V/6, *supra* note 264.

<sup>271</sup> Edward Maltby, IUCN COMM’N ON ECOSYSTEM MGMT., *Ecosystem Approach: from principles to practice* 205, 213 (2000).

<sup>272</sup> Thilo Marauhn & Ayse-Martina Bohringer, *An Ecosystem Approach to Transboundary Biodiversity*, in TRANSBOUNDARY GOVERNANCE OF BIODIVERSITY 93 (Louis J. Kotzé & Thilo Marauhn eds., 2014).

were not successful in *implementation*.<sup>273</sup> Importantly, existing policies were not effective in halting the biodiversity crisis and environmental deterioration, and in the U.S., “the safety net of U.S. environmental laws is being stretched thin as society reaches and exceeds environmental limits through industrial expansion, population growth, and resource consumption.”<sup>274</sup> Beginning in the late 1980s, acceptance of the ecosystem management concept has increased, and has since proliferated.<sup>275</sup>

Elements of the ecosystem approach revealed themselves in the development of international law since the Stockholm Declaration of the United Nations Conference on the Human Environment of 1972, which calls on States for careful planning or management of natural resources and a broader utilization of knowledge.<sup>276</sup> In 1982, the non-binding World Charter for Nature (adopted by the UN General Assembly) calls for “an efficient management of ecosystems” in a manner so as not “to endanger the integrity of those other ecosystems or species with which they coexist.”<sup>277</sup> The 1992 Rio Declaration also calls for “adequate protection of ecosystems,” and the 1992 CBD obligates states to promote ecosystem protection, rehabilitation, and restoration.<sup>278</sup> Under the ecosystem approach, distinct and individual species are accounted for through interrelationships over a long-term view, and as such, human activities are addressed in relation to the ecosystem within which they are situated and along with their cumulative impacts.<sup>279</sup>

While there is still a lack of definite universal agreement on the specific definition and elements of the ecosystem approach,<sup>280</sup> the applicability and benefits of the ecosystem approach to conservation are increasingly being recognized. This broader approach differs from the traditional conservation methods that focused on single species or areas, and necessarily recognizes the important function and services of ecosystems for both people and wildlife.<sup>281</sup> Some argue there is a shift in

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<sup>273</sup> Grumbine, *supra* note 266, at 28.

<sup>274</sup> *Id.* at 29.

<sup>275</sup> *Id.*

<sup>276</sup> Arie Trouwborst, *The Precautionary Principle and the Ecosystem Approach in International Law: Differences, Similarities, and Linkages*, 18(1) R. OF EUR. COMP. & INT'L ENVTL. L. 26, 35 (Louis J. Kotzé & Thilo Marauhn eds., 2014).

<sup>277</sup> *Id.* at 29.

<sup>278</sup> *Id.* at 27, 29.

<sup>279</sup> Marauhn & Bohringer, *supra* note 272, at 95.

<sup>280</sup> See Maltby, *supra* note 271, at 15; K.A. Waylen et al., *The Need to Disentangle Key Concepts from Ecosystem-Approach Jargon*, 28 CONSERVATION BIOLOGY 1215, 1216 (2014).

<sup>281</sup> Maltby, *supra* note 271, at 205.

perspective from environmental to ecosystems, and that it harbors “a change from a view of environment in a political or people-oriented context to a view of politics in an ‘ecosystem context.’”<sup>282</sup> Conservation biologist Robert Grumbine articulates an ecocentric view of the ecosystem approach—i.e., the objective to accommodate “human use and occupancy within ecosystem constraints”<sup>283</sup>—that reinforces the planetary boundaries within which humans must exist. The ecosystem approach harbors a range of potential interpretations: anthropocentric to ecoregional or ecocentric perspectives.<sup>284</sup>

Regardless of the perspective, the necessary components of the ecosystem approach in the international biodiversity regime emphasize the life-support performance that sustains human well-being and existence.<sup>285</sup> They provide environmental and social considerations that can be instrumental in the protection of human rights impacted by climate change.<sup>286</sup> It signals the recognition of the equality of all components of the ecosystem, the necessity to prioritize intergenerational sustainability over other management goals, and man’s active role in ecosystem regulation and restoration.<sup>287</sup>

While difficult to define, the ecosystem approach is already being applied and called on for integration into the three objectives of the CBD. The CBD has produced extensive work that provides States with a frame of reference to implement the ecosystem approach, in the form of principles and guidelines for operation.<sup>288</sup> The twelve principles of the ecosystem approach, called the “Malawi Principles” and endorsed by the 5th Conference of Parties to the CBD in May 2000<sup>289</sup> include:

Principle 1—The objectives of management of land, water and living resources are a matter of societal choice.

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<sup>282</sup> De Lucia, *supra* note 3, at 104.

<sup>283</sup> *Id.*

<sup>284</sup> Volkmar Hartje, Axel Klaphake & Rainer Schliep, *The International Debate on the Ecosystem Approach: Critical Review, International Actors, Obstacles and Challenges*, 80 BFN SKRIPTEN at 12 (2003).

<sup>285</sup> *Id.* at 13.

<sup>286</sup> Morgera, *supra* note 1, at 383.

<sup>287</sup> Philip J. Burton, *Ecosystem Management and Conservation Biology*, FORESTRY HANDBOOK FOR BRITISH COLUMBIA 309 (S.B. Watts & L. Tolland eds., 2005).

<sup>288</sup> Secretariat of the Convention on Biological Diversity, CBD Guidelines: The Ecosystem Approach, at 8–30 (2004), <https://www.cbd.int/doc/publications/ea-text-en.pdf> [<https://perma.cc/56ZE-KG6W>] [hereinafter Secretariat, CBD Guidelines: The Ecosystem Approach].

<sup>289</sup> Smith & Maltby, *supra* note 263, at ii.

Principle 2—Management should be decentralized to the lowest appropriate level.

Principle 3—Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.

Principle 4—Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should: (a) Reduce those market distortions that adversely affect biological diversity; (b) Align incentives to promote biodiversity conservation and sustainable use; (c) Internalize costs and benefits in the given ecosystem to the extent feasible.

Principle 5—Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.

Principle 6—Ecosystems must be managed within the limits of their functioning.

Principle 7—The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.

Principle 8—Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long term.

Principle 9—Management must recognize that change is inevitable.

Principle 10—The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.

Principle 11—The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.

Principle 12—The ecosystem approach should involve all relevant sectors of society and scientific disciplines.<sup>290</sup>

These illustrate the complexity associated with the balancing act in addressing, amongst others, ecosystem services and function, the economic context and market instruments, and the temporal scales.<sup>291</sup> Further, it demonstrates the reference to the intrinsic value of nature

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<sup>290</sup> See Secretariat, CBD Guidelines: The Ecosystem Approach, *supra* note 288, at 14–20.

<sup>291</sup> See *id.* at 1.

that is unique to the CBD, and even more significantly, “recognizes that humans, with their cultural diversity, are an integral component of many ecosystems . . . dismantling of the ‘fence’ separating humans and nature.”<sup>292</sup>

Also referenced within the CBD’s articulation of the ecosystem approach and its twelve principles,<sup>293</sup> precaution is critical to determine necessary action for damage prevention as it:

[E]ntails taking into account the vulnerability of the environment, the limitations of science, the availability of alternatives, and the need for long-term, holistic environmental considerations, thus operating as a safeguard against asymmetric information and imperfect monitoring.<sup>294</sup>

Therefore, *in dubio pro natura* gives nature the benefit of doubt.<sup>295</sup> The CBD Parties should use the precautionary approach in measures for *ex-situ* conservation associated with climate change impacts, particularly for migratory species, in:

[D]evelop[ing] strategies for biodiversity conservation and sustainable use in areas that are becoming accessible to new uses as a consequence of climate change; [taking] specific measures for species that are particularly vulnerable to climate change, including migratory species; and [maintaining] genetic diversity in the face of climate change.<sup>296</sup>

CMS Parties specifically must address the impacts of climate change to migratory species, particularly the most vulnerable species and local communities that depend on the ecosystem services of affected species, with consideration of *ex-situ* measures, assisted colonization, and monitoring regimes.<sup>297</sup> Both the precautionary and ecosystem approaches are responses to the inadequacy of *reacting* to environmental changes in a *fragmented* manner.

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<sup>292</sup> *Id.*

<sup>293</sup> *Id.* at 7. For example, under Principle 6 of the ecosystem approach, the implementation guideline 6.2 provides: “Given the uncertainty associated with defining the limits to ecosystem functioning under most circumstances, the precautionary approach should be applied.” *Id.* at 19.

<sup>294</sup> Morgera, *supra* note 1, at 368–69.

<sup>295</sup> Trouwborst, *supra* note 36, at 425.

<sup>296</sup> Morgera, *supra* note 1, at 382.

<sup>297</sup> *Id.*

To address the complexity and transformative character of ecosystems and action, and in the midst of incomplete knowledge or understanding, the ecosystem approach calls on the use of adaptive management responsive to the best available science and the precautionary approach.<sup>298</sup> This is critical for decision-making, tailor-made and adaptable measures for implementation, cost-benefit analysis for consideration of impacts to ecosystems, and equity in benefit-sharing.<sup>299</sup> The social process underlying both approaches involves interested communities throughout decision-making and sustainable resource management.<sup>300</sup> The CBD work programme and Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity adopted under the CBD similarly reflect the importance of these considerations.<sup>301</sup>

For climate change mitigation, the climate change approach can be applied to involve biodiversity conservation and ecosystem restoration.<sup>302</sup> To ensure co-benefits (or at least minimize adverse impacts) between mitigation action and biodiversity conservation, the CBD COP has issued guidance that includes guarantees for indigenous and local communities.<sup>303</sup>

There is a need for greater awareness and capacity building for indigenous peoples and local communities on biodiversity and climate change issues, so that these groups can take an active role in deciding how to engage in climate change mitigation activities.<sup>304</sup>

Similarly, Parties to the Ramsar Convention and CMS are committed to mitigate impacts to wetlands and migratory species in climate change mitigation responses such as forest management projects and renewable energy projects.<sup>305</sup>

For climate change adaptation, the Addis Ababa Principles and Guidelines on the Sustainable Use of Biodiversity requires adaptive management to be based on both science and local and traditional knowledge,

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<sup>298</sup> Secretariat, CBD Guidelines: The Ecosystem Approach, *supra* note 288, at 1.

<sup>299</sup> Morgera, *supra* note 1, at 369.

<sup>300</sup> *Id.* at 370.

<sup>301</sup> *Id.* at 370–71.

<sup>302</sup> Morgera, *supra* note 1, at 370.

<sup>303</sup> *Id.*

<sup>304</sup> Secretariat of the Convention on Biological Diversity, Rep. of the Second Ad Hoc Technical Expert Group on Biodiversity and Change, Connecting Biodiversity and Climate Change Mitigation and Adaptation, CBD Technical Series No. 41 ¶ 153 (2009), <https://www.cbd.int/doc/publications/cbd-ts-41-en.pdf> [<https://perma.cc/5UPN-273X>].

<sup>305</sup> Morgera, *supra* note 1, at 377.

fostering the history of sustainable use of biodiversity.<sup>306</sup> The CBD COP also provides technical guidance on the ecosystem approach in this context, and stressed again the importance of scientific and traditional knowledge in the management of protected areas.<sup>307</sup> The World Heritage Convention Strategy to Assist Parties to Implement Appropriate Management Responses requires similar considerations for management of protected sites.<sup>308</sup> CMS Parties are urged to strengthen the capacity of critical sites to hold a range of habitats, the connection between sites, and assistance for species dispersal and colonization.<sup>309</sup> Also addressing climate change adaptation, similar considerations are made by the CBD COP for mountain ecosystems, forest biodiversity, inland waters biodiversity, and connectivity of inland water ecosystems to terrestrial and marine ecosystems, and by the Parties to the Ramsar Convention for wetlands.<sup>310</sup>

To resist reaching the maximum limits of demand placed on an ecosystem and since current information is incomplete, the precautionary approach should be paired with adaptive management for implementation.<sup>311</sup> Adaptive management fosters an ongoing learning process and caters to changed circumstances, new knowledge, and reduced uncertainties.<sup>312</sup> Ecosystem-based adaptation applies the ecosystem approach in management activities that serve as a coping strategy in the face of climate change to build resilience and decrease vulnerability of both people and the environment.<sup>313</sup> “Such approaches include, for example, sustainable agriculture, integrated water resource management, and sustainable forest management interventions that use nature to reduce vulnerability to climate change.”<sup>314</sup> IUCN recognizes that people’s adaptive capacity to climate change is linked to human rights and ecosystem services, and so effective adaptation policies and programmes require the promotion of human rights in efforts to protect ecosystem functions.<sup>315</sup>

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<sup>306</sup> See Secretariat of the Convention of Biological Diversity, *Addis Ababa Principles and Guidelines for the Sustainable Use of Biodiversity*, at 11 (2004).

<sup>307</sup> Morgera, *supra* note 1, at 379–80.

<sup>308</sup> *Id.* at 380.

<sup>309</sup> *Id.*

<sup>310</sup> *Id.* at 380–82.

<sup>311</sup> Secretariat, *CBD Guidelines: The Ecosystem Approach*, *supra* note 288, at 18.

<sup>312</sup> Morgera, *supra* note 1, at 369.

<sup>313</sup> Ali Raza Rizvi, IUCN, *Ecosystem-based Approaches to Climate Change Adaptation*, <https://www.iucn.org/theme/ecosystem-management/our-work/ecosystem-based-adaptation-and-climate-change> [<https://perma.cc/X3CK-DRT7>] (last visited on Mar. 19, 2018).

<sup>314</sup> *Id.*

<sup>315</sup> *Id.*

D. *The Compatibility Between the United Nations Convention on Biological Diversity and the United Nations Framework Convention on Climate Change*

Both opened for signature during the 1992 United Nations Conference on Environment and Development (“UNCED”) in Rio de Janeiro (the “Earth Summit”), the CBD and the UNFCCC are “intrinsically linked, operating in the same ecosystems and addressing interdependent issues.”<sup>316</sup> Along with the United Nations Convention to Combat Desertification (“UNCCD”), the three Conventions are referred to as the “Rio Conventions” from the “Earth Summit.”<sup>317</sup> Further supporting the multi-lateral character of climate change and biodiversity, the principle of “common concern of humankind” underpins both the UNFCCC and the CBD.<sup>318</sup> Their Secretariats are responsible for coordination with each other,<sup>319</sup> and fulfill this obligation through the Joint Liaison Group.<sup>320</sup>

Both international biodiversity and climate change regimes continuously evolve through COP decisions, and remain mutually supportive of each other.<sup>321</sup> Although methods used by the UNFCCC and CBD may diverge, they still reflect outcomes that are compatible and mutually supported.<sup>322</sup> While the international climate change regime has not closely reflected CBD developments, CBD COP decisions related to climate change indicate Parties apply a highly evolutionary interpretation and systematically account for the normative climate change developments.<sup>323</sup> Attention on biodiversity protection is insufficient both in law enforcement, transparency and accountability, as well as scientific knowledge,<sup>324</sup> but the international biodiversity regime’s primary

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<sup>316</sup> Convention on Biological Diversity, *The Rio Conventions*, <https://www.cbd.int/riol> [<https://perma.cc/X4U6-EE9F>].

<sup>317</sup> The Rio Conventions: Action on Adaptation, *supra* note 129, at 5.

<sup>318</sup> Lyman, *supra* note 41, at 9.

<sup>319</sup> CBD, *supra* note 237, at art. 24(1)(d); UNFCCC, art. 8(2)(e).

<sup>320</sup> UNFCCC, *Rep. of the Subsidiary Body for Scientific and Technological Advice on its Fourteenth Session*, FCCC/SBSTA/2001/2, ¶¶ 39–42 (Sept. 18, 2001). The Joint Liaison Group (“JLG”) comprises of the Executive Secretaries of the Rio Conventions and coordinates to achieve national-level synergies and coordination in the implementation of the Conventions.” The Rio Conventions: Action on Adaptation, *supra* note 129, at 5.

<sup>321</sup> Morgera, *supra* note 1, at 366.

<sup>322</sup> *Id.* at 367–68.

<sup>323</sup> *Id.* at 366–67.

<sup>324</sup> Susan Shearing, *Biodiversity, in THE FUTURE OF INTERNATIONAL ENVIRONMENTAL LAW* 42, 46 (David Leary & Balakrishna Pisupati eds., 2010).

contribution to the international climate change discourse lies in the ecosystem approach.<sup>325</sup>

The UNFCCC's objective for stabilization of GHG concentrations and for international conservation of sinks and reservoirs also makes reference to ecosystems. The UNFCCC further recognizes the precautionary principle, which is closely linked to the ecosystem approach. While not explicitly mentioned by the Kyoto Protocol, it requires an assessment of environmental impacts and a minimization of adverse impacts on fellow Protocol Parties, especially developing country Parties.<sup>326</sup> Therefore, the UNFCCC has strains of both the ecosystem and precautionary approach, and it is clear there is mutual compatibility between international climate change and biodiversity regimes to address climate change impacts to biodiversity.

Grounding this relationship in “the emerging general principle of mutual supportiveness,” it is freed from the unreliable dependence on systematic interpretation under the Vienna Convention on the Law of Treaties.<sup>327</sup> CBD COP has approved several decisions calling for joint activities under the CBD and UNFCCC to address impacts of climate change on biodiversity.<sup>328</sup> To a lesser extent than the CBD COP, the Convention on Migratory Species (“CMS”), the Ramsar Convention on Wetlands of International Importance, and the World Heritage Convention also address climate change issues.<sup>329</sup>

The 5th CBD COP emphasized the serious risk that climate change poses on biodiversity and by decision VII/15, became included in the CBD's work in 2004.<sup>330</sup> Since then, there have been numerous decisions addressing biodiversity and climate change.<sup>331</sup> The CBD COP acknowledges

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<sup>325</sup> Morgera, *supra* note 1, at 368.

<sup>326</sup> *Id.* at 363.

<sup>327</sup> *Id.* at 366.

<sup>328</sup> Convention on Biological Diversity COP 6 Decision VI/20 ¶ 10 (“Recognizes that there is a need to take immediate actions under the Convention on Biological Diversity and the United Nations Framework Convention on Climate Change to reduce and mitigate the impacts of climate change on the biological diversity of coral reefs and their associated socio-economic effects.”).

<sup>329</sup> Morgera, *supra* note 1, at 366.

<sup>330</sup> CBD Secretariat, *Climate Change and Biodiversity: Background* (last visited Mar. 19, 2018), <https://www.cbd.int/climate/background.shtml> [<https://perma.cc/AVC5-Z7MG>].

<sup>331</sup> *See, e.g.*, CBD Decision XIII/4, Biodiversity and Climate Change, CBD/COP/DEC/XIII/4 (Dec. 10, 2016); CBD Decision XII/20, Biodiversity and climate change and disaster risk reduction (Oct. 17, 2014); CBD Decision XI/19, Biodiversity and climate change related issues: advice on the application of relevant safeguards for biodiversity in forests, CBD

the *applicability* of the ecosystem approach for climate change adaptation and response activities as related to biodiversity,<sup>332</sup> and through “key questions . . . such as the role of precaution, the balance between cost-effectiveness and equity, and the need for procedural and substantive protection of indigenous and local communities.”<sup>333</sup> The attention on ecosystems is equally *valuable* to the international climate change regime.<sup>334</sup>

Climate change adaptation is critical to biodiversity conservation, and there is a mutual relationship between biodiversity and societal adaptation.<sup>335</sup> Ecosystem based adaptation is increasingly known to be a cost-effective and promising strategy for adaptation across sectors: coastal, water, agriculture, forest, urban, and human health environments.<sup>336</sup> Strengthening the resilience of biodiversity also assists in its capacity for mitigation provisioning due to the ecosystem’s role in assimilating and storing carbon dioxide.<sup>337</sup> Through ecosystem-based mitigation, such as through carbon storage and sequestration, significant climate regulation benefits can arise, but can also have negative impacts on biodiversity.<sup>338</sup> If combined with adaptation strategies, a mindful approach has the potential to create a “triple win” policy for climate change mitigation, conservation, and biodiversity conservation.<sup>339</sup>

Rather than the institutionalized approach of international environmental agreements, which address the conceptual divisible components of the environment—i.e., the atmosphere, biosphere, aquasphere, and lithosphere,<sup>340</sup> the global environmental *problematique* is beginning to reflect

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Decision XI/20, Climate-related geoengineering, CBD Decision XI/21, Biodiversity and climate change: integrating biodiversity considerations into climate-change-related activities (Dec. 5, 2012); CBD Decision X/33, Biodiversity and climate change (Oct. 29, 2010); CBD Decision IX/16, Biodiversity and climate change (Oct. 9, 2008); CBD Decision VIII/30, Biodiversity and climate change: guidance to promote synergy among activities (Jun. 15, 2006); CBD Decision VII/15, Biodiversity and Climate Change (Apr. 13, 2004); *see also* CBD Secretariat, *Climate Change and Biodiversity: COP Decisions*, <https://www.cbd.int/climate/decision.shtml> [<https://perma.cc/UAN7-Q6GP>].

<sup>332</sup> As recognized at the eighth meeting of the COP by decision VIII/30 on Biodiversity and climate change: guidance to promote synergy among activities for biodiversity conservation, mitigating or adapting to climate change and combating land degradation, and at the ninth meeting of the COP by decision IX/16 on Biodiversity and climate change.

<sup>333</sup> Morgera, *supra* note 1, at 368.

<sup>334</sup> *Id.*

<sup>335</sup> CBD Technical Series, Review of the Literature, *supra* note 223, at 51.

<sup>336</sup> *Id.*

<sup>337</sup> *Id.* at 91.

<sup>338</sup> *Id.* at 91–92.

<sup>339</sup> *Id.* at 92.

<sup>340</sup> Roben, *supra* note 240, at 366, n.6.

the indivisibility of the environment. Climate change drives global diversity loss, and therefore requires attention on threats to and necessary response measures for the conservation and sustainable use of biodiversity.<sup>341</sup> Climate change is expected to directly impact species and ecosystems through increased risk of plant and animal species extinction, ocean acidification, decreased resilience, heightened vulnerability, and reduced ecosystem goods and services.<sup>342</sup> Further, underlying and indirect drivers will exacerbate biodiversity loss.<sup>343</sup> Meanwhile, economic systems have not properly accounted for biodiversity and its services to human well-being—e.g., provisioning of food and resources, regulating of the climate and environment, and cultural provisions, and supporting of natural processes.<sup>344</sup>

*E. Case Study: Small Island Developing States*

As demonstrated in Part I, SIDS are undergoing serious changes as a result of climate change. Due to climate change impacts, SIDS are vulnerable to “increased temperatures and longer dry seasons, changing rainfall regimes, inadequate freshwater supplies, sea-level rise and saltwater intrusion, increased health risks (e.g., water- and vector-borne diseases), land loss and degradation, coastal erosion, and coral bleaching.”<sup>345</sup> Fisheries are significant sources of protein for SIDS, placing importance on “marine ecosystems such as coral reefs, sea grass communities and salt ponds” from which they are found.<sup>346</sup> Critically, climate change will impact natural resources SIDS largely depend on for food production,<sup>347</sup> as well as the availability and price of food imports upon which SIDS are largely dependent.<sup>348</sup>

The UNFCCC recognizes the long-term direct and indirect impacts of climate change to biodiversity of SIDS, including the diversity and composition of ecosystems, habitats, and breeding sites, especially as a result of sea level rise.<sup>349</sup> The CBD COP Decision on biodiversity and

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<sup>341</sup> Morgera, *supra* note 1, at 359–60.

<sup>342</sup> Shearing, *supra* note 324, at 45.

<sup>343</sup> *Id.*

<sup>344</sup> *Id.* at 46.

<sup>345</sup> Jessica Mercer et al., *Ecosystem-Based Adaptation for Food Security in the AIMS SIDS: Integrating External and Local Knowledge*, 6 SUSTAINABILITY 5566, 5567 (2014).

<sup>346</sup> UNFCCC, Climate change: small island developing States 20 (2005), [http://unfccc.int/resource/docs/publications/cc\\_sids.pdf](http://unfccc.int/resource/docs/publications/cc_sids.pdf) [<https://perma.cc/4TSB-TX7Z>] [hereinafter UNFCCC Secretariat, Climate Change: SIDS].

<sup>347</sup> Mercer et al., *supra* note 345, at 5567.

<sup>348</sup> *Id.*

<sup>349</sup> UNFCCC Secretariat, Climate Change: SIDS, *supra* note 346, at 20.

climate change recognizes the particular needs of SIDS for increased financial resources to address biodiversity and climate change challenges.<sup>350</sup> The 2013 Majuro Declaration for Climate Leadership recognizes climate change as “the greatest threat to the livelihoods, security and well-being of the peoples of the Pacific and one of the greatest challenges for the entire world.”<sup>351</sup> The SIDS generally share common sustainable development challenges due to their similar characteristics: small land size and natural resource base; large coastal zones and exposure to global development; remoteness, high costs for transportation, and dependence on external finance and trade; and large land use intensity and expanding populations,<sup>352</sup> these challenges will be amplified due to climate change impacts on the unique biodiversity and ecosystems of SIDS.

The 1999 Conference of Contracting Parties to the Ramsar Convention urged particular attention to SIDS due to their “special needs and significant wetlands, including coral reefs, sea-grass beds and mangroves” and endorsed Resolution VII.4 to develop a Memorandum of Cooperation between the Ramsar Convention and UNFCCC, noting SIDS’ urgent interest in climate change impacts and the role of wetlands to address such threats.<sup>353</sup> The Convention on Migratory Species further adopted Resolution 9.7 on “Climate Change Impacts on Migratory Species” in 2008, which recognizes SIDS contain important sites for species migration requiring immediate attention to address climate change vulnerabilities, and needing technical and financial support for reductions of climate change threats and consideration of “climate change and land degradation, as well as the positive and negative impacts of climate change mitigation and adaptation activities on migratory species.”<sup>354</sup>

Due to the increasing understanding of interactions between water and land resources,<sup>355</sup> there is a shift from independent management to

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<sup>350</sup> CBD COP 10 Decision X/33, *Biodiversity and climate change* (Oct. 29, 2010), <https://www.cbd.int/decision/cop/?id=12299> [<https://perma.cc/UWA6-7BY3>].

<sup>351</sup> Pacific Islands Forum, *Majuro Declaration for Climate Leadership* ¶ 1, Sept. 5, 2013, [https://reliefweb.int/sites/reliefweb.int/files/resources/130905\\_RMI\\_PIF\\_Majuro\\_Declaration\\_\\_Commitments.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/130905_RMI_PIF_Majuro_Declaration__Commitments.pdf) [<https://perma.cc/3WE9-LQKA>].

<sup>352</sup> Mercer et al., *supra* note 345, at 5567.

<sup>353</sup> The Ramsar Convention on Wetlands, Recommendation 7.2: Small Island Developing States, island wetland ecosystems, and the Ramsar Convention ¶¶ 2, 19 (May 10–18, 1999), [http://archive.ramsar.org/cda/en/ramsar-documents-recom-recommendation-7-2/main/ramsar/1-31-110%5E23428\\_4000\\_0\\_\\_](http://archive.ramsar.org/cda/en/ramsar-documents-recom-recommendation-7-2/main/ramsar/1-31-110%5E23428_4000_0__) [<https://perma.cc/B72W-NZEQ>].

<sup>354</sup> Resolution of the Convention on Migratory Species, Climate Change Impact on Migratory Species, UNEP/CMS/Resolution 9.7, ¶ 3 (Dec. 1–5, 2008), [http://www.cms.int/sites/default/files/document/Res\\_9\\_07\\_Climate\\_Change\\_En.pdf](http://www.cms.int/sites/default/files/document/Res_9_07_Climate_Change_En.pdf) [<https://perma.cc/3YXV-6WU8>].

<sup>355</sup> UNEP, *Emerging Issues for Small Island Developing States: Results of the UNEP/UN*

an integrated management of water and land, which models a “holistic, ecosystem approach to satisfying competing needs for these resources.”<sup>356</sup> The ecosystem approach in climate change adaptation can assist SIDS to address climate change impacts to its biodiversity. Further, an ecosystem approach to adaptation gives local people autonomy and traditional knowledge a position in decision-making.<sup>357</sup> Ecosystem-based adaptation is increasingly being explored as a potential method to secure food security and address climate change.<sup>358</sup> These methods continue to be developed and have great potential to assist SIDS in protecting its inhabitants from the consequences of climate change.

### III. THE EXISTING RESPONSE TO CLIMATE REFUGEES UNDER INTERNATIONAL LAW

As a result of climate change impacts, individuals may be forced to migrate from their prior homes, potentially in no-longer-existing countries, and to other countries for refuge.<sup>359</sup> Projected numbers range from 20 million to 200 million by 2050.<sup>360</sup> Contemporary international law addresses particular elements of this type of cross-border migration—i.e., the climate change cause, the human rights implicated, and cross-border movement; however, it does not provide direct and comprehensive attention on climate refugees.<sup>361</sup> Meanwhile, the sources of States obligations under international law set forth under Article 38.1 of the International Court of Justice (“ICJ”) Statute require States to address climate refugees.

In making decisions on disputes in accordance with international law, the ICJ applies:

- a. international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;

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DESA Foresight Process, at 26 (2014), <https://wedocs.unep.org/rest/bitstreams/16063/retrieve> [<https://perma.cc/UXT6-9F7J>].

<sup>356</sup> *Id.*

<sup>357</sup> *Id.* at 53.

<sup>358</sup> Mercer et al., *supra* note 345, at 5566–97.

<sup>359</sup> Katrina M. Wyman, *The National Immigration Policy Option: Limits and Potential*, in THREATENED ISLAND NATIONS 337 (Michael B. Gerrard & Gregory E. Wannier eds., 2013).

<sup>360</sup> Atapattu, *supra* note 192, at 22, n.97.

<sup>361</sup> Solomon & Warner, *supra* note 5, at 245.

- b. international custom, as evidence of a general practice accepted as law;
- c. the general principles of law recognized by civilized nations;
- d. subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.<sup>362</sup>

Applicable to the 193 Member States of the United Nations,<sup>363</sup> Article 1 of the UN Charter set forth the purposes of the United Nations: to take collective measures “to maintain international peace and security,” to respect “the principle of equal rights and self-determination of peoples,” to solve international problems through international cooperation, and to “[promote] and [encourage] respect for human rights and fundamental freedoms for all.”<sup>364</sup> Under Article 2, its Members agree to act in accordance with the principles of sovereign equality, good faith in fulfilling their obligations, peaceful means in settling international disputes, and territorial integrity and states’ political independence in conducting international relations.<sup>365</sup> Notwithstanding the breadth of sources of international law, none comprehensively address the plight of climate refugees specifically—the disappearing land at home, the impact to the climate refugee, the forced migration, and the settlement into the new country.

The international discussion on long-term habitability has been focused on securing land alternatives and migration; this focus overlooks the importance of the disappearing land, the right to enter and reside on the alternative land, human rights guarantees, and protection from expulsion.<sup>366</sup> Low-lying Pacific island states will require adaptation in the form of cross-border movement in order to respond to long-term climate change impacts.<sup>367</sup> This will likely be a gradual movement through common paths of migration.<sup>368</sup> While internal migration is more representative of

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<sup>362</sup> U.N. Charter Statute of the International Court of Justice, 1946 U.N.Y.B. 843, 3 T.L.A.S. 1179, art 38 ¶ 1.

<sup>363</sup> United Nations, Member States (last visited Mar. 19, 2018), <http://www.un.org/en/member-states/index.html> [<https://perma.cc/9Q6X-ATAK>] [hereinafter U.N. Charter].

<sup>364</sup> *Id.* at art. 1.

<sup>365</sup> *Id.* at art. 2.

<sup>366</sup> Jane McAdam, *Under Two Jurisdictions Immigration, Citizenship, and Self-Governance in Cross-Border Community Relocations*, 34 LAW & HIST. REV. 281, 284 (2016).

<sup>367</sup> McAdam, *supra* note 366, at 283.

<sup>368</sup> *Id.*

the type of climate change induced migration, Kiribati, the Maldives, the Republic of the Marshall Islands, and Tuvalu may be so severely at threat from climate change impacts to the extent that cross-border migration may become necessary.<sup>369</sup> Unsurprisingly, Pacific communities view relocation as the “option of resort” due to concerns with permanent severance from “home, land, and identity,” and negative impacts to “nationhood, sovereignty, control over land and sea resources, culture, and livelihoods.”<sup>370</sup>

Without Refugee status, there is no guarantee that non-refoulement will apply under international human rights law, and the fate of climate refugees will depend on “the politics and resources of nations and aid organizations.”<sup>371</sup> Further, should entire nations cease to exist, “citizenship of that State would cease, because there would no longer be a State of which a person could be a national.”<sup>372</sup> Critical questions are outstanding:

What happens to the population of a disappearing state? Where would they go? Should such relocation be part of an organized program of migration (for example, as part of adaptation plans under the U.N. Framework Convention on Climate Change (UNFCCC)) or should this be left to the judgment of each individual? If this is an individual decision, displaced populations may be at the mercy of developed states that are responsible for causing the problem in the first place.<sup>373</sup>

The global community needs to cooperatively address climate refugees as a matter of international law.

This section will discuss the sources of international law that peripherally concern the range of the plight, using SIDS as a case study. To ground the legal landscape of the climate refugee’s predicament, this Section will first explore the international legal response addressing *human systems*—i.e., the relation to, but limitations of, international refugee law and international human rights law in addressing the *plight* of climate refugees, as they are limited to concerning protections (if provided at all) for climate refugees who have already been displaced and

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<sup>369</sup> Wyman, *supra* note 55, at 175.

<sup>370</sup> McAdam, *supra* note 366, at 284.

<sup>371</sup> Gregory S. McCue, *Environmental Refugees: Applying International Environmental Law to Involuntary Migration*, 6 GEO. INT’L ENVTL. L. REV. 151, 154 (1993).

<sup>372</sup> Solomon & Warner, *supra* note 5, at 275.

<sup>373</sup> Atapattu, *supra* note 192, at 12–13.

arrived in the new country, and other related frameworks. Next, as representative of the international legal response addressing *natural systems*, this section will discuss the continued evolution of international environmental law, from its origins in customary international law to its attempts to address climate change. However, acknowledging the inadequacies of the siloed approach of the legal regimes addressing the human system and the natural system, this section will evaluate currently developing international frameworks and previously proposed solutions that integrate natural and human systems. ly, as a “special case” for sustainable development, the SIDS also face unique legal challenges due to climate change that are currently left unresolved. Although international legal regimes peripherally or tangentially address climate refugees, existing protections are neither sufficient in preventing harm or providing comprehensive protections, nor are they universal for all climate refugees.

#### A. *Response to Impacts on Human Systems*

The attempted application of international legal frameworks and agency mandates to climate refugees makes unavoidable the recognition that active international protection is warranted. Yet, the “protection gap” discussed in climate migration literature<sup>374</sup> is potentially present to a limited number of climate refugees—i.e., those who are (1) forced to move to another country, (2) do not otherwise qualify as a Refugee or refugee in the new country, (3) are without protection from its country of origin or from the new country’s domestic immigration laws, and (4) are not adequately given assistance through international human rights mechanisms. While protection may not be available to climate refugees under international refugee law, the home country may afford some under international human rights law and complementary protections.

##### 1. Response to Impacts on Human Systems: Under Refugee Law

Due to its historical development “as a post–Second World War instrument,” the original purpose of the Refugee Convention is limited to offer protection to those facing political or other forms of persecution;<sup>375</sup> the term Refugee only applies to a person who:

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<sup>374</sup> See Wyman, *supra* note 55.

<sup>375</sup> Office of the U.N. High Comm’r for Refugees, *Introductory Note, Convention and Protocol Relating to the Status of Refugees*, at 2–3 (2010), <http://www.unhcr.org/protect/PROTECTION/3b66c2aa10.pdf> [<https://perma.cc/2CYK-B99N>] [hereinafter UNHCR, *Introductory Note*].

[O]wing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.<sup>376</sup>

If the definition is met, the Refugee is granted rights under the Refugee Convention including the right of non-refoulement and potentially under domestic law.<sup>377</sup> Many countries incorporate the Refugee Convention definition of refugee into their domestic immigration laws, which determines whether permanent residency or citizenship is granted.<sup>378</sup> A person displaced *solely* on the basis of climate change impacts, however, falls outside the Refugee Convention's intended scope of protection. *Facially*, he or she would not meet the following required elements of the Refugee Convention's requirements: (a) persecution; (b) fear for reasons of race, religion, nationality, membership of a particular social group, or political opinion; and (c) unable or unwilling to avail oneself to the protection of the state government of the country of nationality or former habitual residence.

While there is no universally accepted definition of persecution,<sup>379</sup> some concrete identifiable agent must be committing the serious violation of human rights.<sup>380</sup> While the anthropogenic causes of climate change are internationally recognized, it would be difficult to prove causality and attribute liability to a particular agent for human rights violations caused by climate change. Further, the Refugee Convention requires the reason for persecution to be based on one of the five protected grounds: "race, religion, nationality, membership of a particular social group, or political opinion" ("Protected Ground").<sup>381</sup> While certain groups will be particularly vulnerable to the negative consequences of climate change and be forced

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<sup>376</sup> 1951 Refugee Convention, *supra* note 49, art. 1(A)(2).

<sup>377</sup> Wyman, *supra* note 55, at 178.

<sup>378</sup> *Id.*

<sup>379</sup> U.N. High Comm'r for Refugees, *Handbook on Procedures and Criteria for Determining Refugee Status under the 1951 Convention and the 1967 Protocol Relating to the Status of Refugees*, ¶ 51, U.N. Doc. HCR/1P/4/ENG/Rev.3 (Dec. 2011).

<sup>380</sup> Solomon & Warner, *supra* note 5, at 256; Wyman, *supra* note 55, at 179, n.62.

<sup>381</sup> 1951 Refugee Convention, *supra* note 49, art. 1(A)(2).

to migrate across borders, vulnerability is based on various factors other than climate change (e.g., geographic, socioeconomic, and political). Further, climate change impacts do not discriminate on the basis of one of the Protected Grounds, nor are impacts imposed to overcome some Protected Ground of the individual.<sup>382</sup> Therefore, it would be impractical to argue that the cause for the forced migration, climate change, is based on a will to target some Protected Ground or that it can be perceived as such by a climate refugee.

While climate change is likely to disproportionately impact concretely identifiable groups who are already in vulnerable situations, “such as women, children, indigenous peoples, and persons with disabilities,”<sup>383</sup> in order to qualify as a particular social group, “the group must be connected by a fundamental, immutable characteristic other than the risk of persecution itself.”<sup>384</sup> For the harm to be “on account of” membership in a particular social group, the membership must be the main reason for the persecutor’s action. While vulnerable populations may be perceived as a general group in society, it is not a particular social group as required under the Refugee Convention. A specific immutable or fundamental characteristic of climate refugees has not yet been recognized and so, there is not yet a particular social group a climate refugee could rely upon to serve as the central reason for the harm endured.

Refugee status requires the crossing of an international border and failure of State protection.<sup>385</sup> The majority of climate refugees is anticipated to be internally displaced persons—i.e., displaced within their home country,<sup>386</sup> and will not qualify for Refugee status. If a migrant crosses international borders, its home country remains responsible to protect its nationals affected by climate change.<sup>387</sup> To meet the “unable or unwilling to avail oneself to protection . . .” prong of the Refugee definition, the government’s failure to protect must result from a cessation of its rights and responsibilities to protect its citizens, rather than an inability to do so.<sup>388</sup> Governments are unlikely to willingly abandon

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<sup>382</sup> Solomon & Warner, *supra* note 5, at 256; Wyman, *supra* note 55, at 179.

<sup>383</sup> McInerney-Lankford, *supra* note 24, at 199. *See also* U.N. Human Rights Council, Res. 7/23, U.N. Doc. A/HRC/7/78 (March 28, 2008), which recognizes climate change will impact “most acutely . . . those segments of the population who are already in a vulnerable situation.”

<sup>384</sup> Wyman, *supra* note 55, at 179.

<sup>385</sup> Solomon & Warner, *supra* note 5, at 257.

<sup>386</sup> *Id.*

<sup>387</sup> *Id.* at 262.

<sup>388</sup> *Id.* at 257.

climate refugees, but rather likely will lack the capacity to protect their citizens' homes.<sup>389</sup>

In small-island nations where climate change impacts are already occurring, government leaders anticipate dissolution of entire communities from sea-level rises and are urging the international community to address climate change.<sup>390</sup> Habitable areas could be nearly dissolved so that “most or all inhabitants will be forced to migrate,” bringing into question the traditional sense of the nation-state sovereignty over areas that become “rendered uninhabitable or ha[ve] physically disappeared.”<sup>391</sup> Therefore, it is unlikely that an outright cessation by the home country's government could be established.

However, a climate refugee may *arguably* and *circumstantially* fall under the Refugee Convention umbrella. The substantive benefit of the refugee law framework is in the protection afforded to individuals granted status as Refugee or as refugee in respective countries, including basic minimum standards (access to courts, primary education, work, and documentation),<sup>392</sup> equivalent treatment as nationals of the new country, and application of the Convention's non-refoulement principle.<sup>393</sup> The procedural benefit of applying the refugee law framework to climate refugees, if appropriate, is that it allows for (1) the prospective assessment of impending harm—i.e., refugees need not have already been harmed, but can merely be anticipating harm that could require flight—and (2) other reasons for flight beyond the qualifying harm—i.e., the established persecution.<sup>394</sup> As this section has demonstrated, however, many climate refugees will not qualify as Refugees under the Refugee Convention to benefit from its protections.

## 2. Response to Impacts on Human Systems: Under Human Rights Law

Climate change adversely affects human rights that are specifically recognized under international law, such as the “rights to life, health,

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<sup>389</sup> Wyman, *supra* note 55, at 179.

<sup>390</sup> McAdam, *supra* note 20, at 15. *See also* CAMPRUBÍ, *supra* note 23, at 217 on the potential for “‘failed’ or ‘collapsed’ States [and] therefore . . . the obligations and responsibilities of other States in such a situation.”

<sup>391</sup> Maxine A. Burkett, *The Nation Ex-Situ*, in *THREATENED ISLAND NATIONS* 93 (Michael B. Gerrard & Gregory E. Wannier eds., 2013). Burkett, however, argues that there remains a possibility for the deterritorialized statehood to have continued existence. *Id.* at 95. This Paper will rely on this continued existence in discussing the potential protections afforded by a migrant's home state even once the migrant has crossed international borders.

<sup>392</sup> UNHCR, *Introductory Note*, *supra* note 375, at 3.

<sup>393</sup> Solomon & Warner, *supra* note 5, at 259.

<sup>394</sup> McAdam, *supra* note 20, at 49.

water, food, work, culture, development, information, and participation,”<sup>395</sup> of which deprivation forces inhabitants to flee from their homes. Climate change contributes to “food insecurity, loss of cultural identity and depletion of biological diversity, threats to territorial integrity and to the viability of States, and in the case of low-lying island States, threats to physical integrity as well.”<sup>396</sup> Migration and mobility are strategies to adapt to a changing environment,<sup>397</sup> but also implicate dimensions of human rights.<sup>398</sup> Human rights treaties and customary international law provide pertinent protections against “non-return to persecution, arbitrary deprivation of life, torture or cruel, inhuman, or degrading treatment or punishment.”<sup>399</sup>

International human rights law recognizes human dependency on the environment, and obligates State Parties to take steps to guarantee the rights necessary for human well-being, but lacks a comprehensive mechanism and leaves individual countries to provide domestic protection of human rights.<sup>400</sup> The right to life is an absolute right<sup>401</sup> as expressed under Article 6 of the International Covenant on Civil and Political Rights (“ICCPR”).<sup>402</sup> Article 1(2) of the ICCPR provides a right not to be deprived of means of subsistence.<sup>403</sup> Under the International Covenant on Economic, Social and Cultural Rights of 1966 (“ICESCR”), pursuant to Article 12, State Parties recognize “the right of everyone to the enjoyment of the

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<sup>395</sup> CORENDEA, *supra* note 25, at xxvi.

<sup>396</sup> Ben Boer, *Climate Change and Human Rights in the Asia-Pacific: A Fragmented Approach*, in ENVIRONMENTAL LAW DIMENSIONS OF HUMAN RIGHTS 135–80 (Ben Boer ed. 2015).

<sup>397</sup> W. N. Adger et al., 2014: *Human security*, in CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY, CONTRIBUTION OF WORKING GROUP II TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 755, 758 (2014), [http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap12\\_FINAL.pdf](http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap12_FINAL.pdf) [<https://perma.cc/EC53-JZ5L>].

<sup>398</sup> See Boer, *supra* note 396, at 135–80.

<sup>399</sup> The Universal Declaration of Human Rights provides asylum from persecution under Article 14 and freedom of movement (within states, as well as the right to leave any country and return to his country) under Article 13. Wyman, *supra* note 55, at 181; see also International Convention on Civil and Political Rights, adopted Dec. 19, 1966, art. 7, 999 U.N.T.S. 171, 175 (entered into force Mar. 23, 1976) [hereinafter ICCPR]. The United States ratified the treaty Sept. 8, 1992.

<sup>400</sup> See Stefan Gruber, *Human Displacement and Climate Change in the Asia-Pacific*, in ENVIRONMENTAL LAW DIMENSIONS OF HUMAN RIGHTS 181–200 (Ben Boer ed. 2015).

<sup>401</sup> *Id.* at 197 (citing the Universal Declaration of Human Rights, G.A. Res. 217A (III), U.N. Doc. A/810 at 71, art. 3 (1948) (noting that “[e]veryone has the right to life, liberty and security of person.”)).

<sup>402</sup> Michèle Morel, *Human Rights Law, Refugee and Migration Law, and Environmental Law: Exploring Their Contributions in the Context of ‘Environmental Migration’*, in ENVIRONMENTAL GOVERNANCE AND SUSTAINABILITY 250 (Paul Martin et al. eds., 2012).

<sup>403</sup> ICCPR, *supra* note 399, at art. 1.

highest attainable standard of physical and mental health,” and agree to take steps necessary to improve environmental and industrial hygiene.<sup>404</sup> Under Article 11, the right to an adequate standard of living includes “adequate food, clothing and housing, and to the continuous improvement of living conditions.”<sup>405</sup>

State Parties must take necessary steps to realize rights recognized under the ICESCR, and acknowledge “the essential importance of international co-operation based on free consent.”<sup>406</sup> Yet, countries and individuals<sup>407</sup> most vulnerable to climate change impacts will require resources for which extraterritorial obligations of other countries remain unclear under human rights law.<sup>408</sup> Further, “claims to human rights may ultimately not offer greater explanation of the harm to individuals or realize political traction in climate policy.”<sup>409</sup>

While the human rights protections are applicable to all, including those who fall outside Refugee protections, the international human rights regime is inadequate and uncertain regarding whether the non-refoulement principle is applicable to climate refugees.<sup>410</sup> The principle of non-refoulement, existing under human rights law and potentially as a matter of customary international law,<sup>411</sup> is an absolute prohibition against *returning* aliens to potential torture, inhumane or degrading treatments, or conditions placing their lives and freedom at risk.<sup>412</sup> The original conception of non-refoulement as envisaged by the Refugee Convention relates to the Refugee definition in that it is concerned with fear of persecution.<sup>413</sup> However, this interpretation is evolving and increasingly encompasses promotion of *human rights* (i.e., concerning lives that would be in danger or at risk of torture or inhuman and degrading treatment), and occasions implicating other rights.<sup>414</sup> Nonetheless, to benefit from the non-refoulement principle, the climate refugee must be outside its

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<sup>404</sup> International Covenant on Economic, Social and Cultural Rights, Dec. 16, 1966, article 12(1), 993 U.N.T.S. 3 (entered into force, Jan. 3, 1976).

<sup>405</sup> *Id.* at art. 11.

<sup>406</sup> *Id.*

<sup>407</sup> See Morel, *supra* note 402, at 250 (referencing other instruments relating to specific social groups, such as the CRC (children), CEDAW (women), and the ILO (indigenous peoples)).

<sup>408</sup> Gruber, *supra* note 400, at 181–200.

<sup>409</sup> Adger et al., *supra* note 397, at 755, 758.

<sup>410</sup> See Morel, *supra* note 402, at 251–52.

<sup>411</sup> Wyman, *supra* note 55, at 180.

<sup>412</sup> *Id.* at 181.

<sup>413</sup> Solomon & Warner, *supra* note 5, at 259.

<sup>414</sup> *Id.* at 259–60.

home country and an explicit extension specifically to climate refugees is required.<sup>415</sup> Further, non-refoulement only prevents individuals from being returned to their home country, rather than providing any assistance and rights in the new country.<sup>416</sup> The scope of individuals applicable for protection is here again carved out from a larger set of individuals requiring it.

### 3. Response to Impacts on Human Systems: Under the Resettlement Framework

Protections of climate refugees in resettlement only exist through the added human rights dimension, rather than application of any specific international laws, extension of existing laws, promotion by domestic laws, or any relevant local laws.<sup>417</sup> Climate refugees do not have an explicit right of refuge as a matter of international law.<sup>418</sup> This concern has led to proposals for using domestic immigration laws of destination countries likely to receive climate refugees.<sup>419</sup> Existing domestic laws, such as those in Australia, do accommodate for persons to immigrate after having been displaced as a result of environmental changes.<sup>420</sup> Utilizing domestic immigration policy or bilateral arrangements will require planning for responsibility sharing, adaptation, population absorption, and societal integration.<sup>421</sup> However:

[P]ossibilities for international relocation [of climate refugees] outside the region (as opposed to other forms of migration) are extremely bleak . . . [It] is equally unlikely that a relocated group could sustain its 'way' in a foreign land that did not accept or understand many of their cultural beliefs or practices, including their bond to the land.<sup>422</sup>

Therefore, climate refugees are not guaranteed protection in resettlement under a resettlement framework.

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<sup>415</sup> Wyman, *supra* note 55, at 181.

<sup>416</sup> Solomon & Warner, *supra* note 5, at 260.

<sup>417</sup> Leslie A. Stein, *Domestic Law for Resettlement of Persons Displaced by Climate Change*, in THREATENED ISLAND NATIONS 405 (Michael B. Gerrard & Gregory E. Wannier eds., 2013).

<sup>418</sup> Wyman, *supra* note 359, at 177.

<sup>419</sup> *Id.*

<sup>420</sup> *Id.* at 178, 344–45.

<sup>421</sup> *See id.* at 344–49.

<sup>422</sup> Stein, *supra* note 417, at 371 (quoting Campbell, *Climate-Induced Relocation in the Pacific: The Meaning and Importance of Land*, in CLIMATE CHANGE AND DISPLACEMENT: MULTIDISCIPLINARY PERSPECTIVES (J. McAdam ed., 2010)).

4. Response to Impacts on Human Systems: By the United Nations High Commissioner for Refugees (“UNHCR”)

The UNHCR’s statutory mandate is to provide international protection to refugees on a non-political, humanitarian and social basis.<sup>423</sup> While initially limited to Refugees, the mandate has been broadened by General Assembly resolutions and the growing need for UNHCR assistance.<sup>424</sup> Now, humanitarian assistance is also provided to people “of concern”—i.e., internally displaced persons.<sup>425</sup> As will be addressed in Section III.D, UNHCR’s work on climate refugees is currently under development, recognizing the need for attention by the international community.

5. Response to Impacts on Human Systems: By the International Organization on Migration (“IOM”)

All migrants, including those for environmental and economic reasons, are still subjects of human rights obligations that states must fulfill and that the International Organization for Migration (“IOM”) has a de facto mandate to protect.<sup>426</sup> Although there neither exists a legal protection mandate for IOM nor an international legal framework specifically addressing cross-border migrants who fail to qualify as Refugees, international migration law exists as “norms governing relationships between states and those between states and individuals involved in migration process.”<sup>427</sup> Regardless of whether a convention exists, “shared responsibility and respect for human rights are central in managing migration, including environmental migration.”<sup>428</sup> IOM recognizes this responsibility; IOM’s work on climate refugees is developing (as will be discussed in Section III.D).

6. Response to Impacts on Human Systems: By the Guiding Principles on Internal Displacement

The majority of climate refugees will be internally displaced persons,<sup>429</sup> which the Guiding Principles on Internal Displacement defines as:

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<sup>423</sup> Statute of the United Nations High Commissioner for Refugees, 5 U.N. GAOR Annex 1 at 1–2, U.N. Doc. A/1 775 (1950).

<sup>424</sup> CORENDEA, *supra* note 25, at 108–09.

<sup>425</sup> *Id.* at 109.

<sup>426</sup> Solomon & Warner, *supra* note 5, at 263.

<sup>427</sup> *Id.* at 260.

<sup>428</sup> *Id.* at 294.

<sup>429</sup> *Id.* at 257.

persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.<sup>430</sup>

Internally displaced persons are entitled to specific rights derived from international humanitarian and human rights law.<sup>431</sup> The Guiding Principles on Internal Displacement provide assistance to states in the protection of and assistance in securing those rights,<sup>432</sup> including “protection against arbitrary displacement . . . a basis for protection and assistance during displacement, and . . . guarantees for safe return resettlement, and reintegration.”<sup>433</sup> Therefore, climate refugees who do not cross borders may be protected as internally displaced persons by states acting under the Guiding Principles on Internal Displacement.

#### 7. Response to Impacts on Human Systems: By the Responsibility to Protect Doctrine

The “responsibility to protect” (“R2P”) doctrine was set out in a United Nations General Assembly Resolution<sup>434</sup> and provides a proactive approach to protecting migrants.<sup>435</sup> In reacting to violations of genocide and mass atrocity, it views the sovereign as primarily responsible for protecting its citizens and the international community as responsible for assisting in the protection.<sup>436</sup> While climate change and environmental disasters are specifically excluded in order to narrow the doctrine’s

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<sup>430</sup> U.N. Econ. & Soc. Council, Comm’n on Hum. Rts., *Guiding Principles on Internal Displacement*, U.N. Doc. No. E/CN.4/1998/53/Add.2 (1998) (prepared by Mr. Francis M. Deng).

<sup>431</sup> U.N. General Assembly, *Report of the Representative of the Secretary-General on the Human Rights of Internally Displaced Persons*, ¶¶ 17–18, U.N. Doc. A/64/214 (Aug. 3, 2009) [hereinafter *UN Report on the Human Rights of Internally Displaced Persons*].

<sup>432</sup> *UN Report on the Human Rights of Internally Displaced Persons*, *supra* note 431, ¶¶ 17–18.

<sup>433</sup> Solomon & Warner, *supra* note 5, at 264.

<sup>434</sup> G.A. Res. 60/1, 2005 World Summit Outcome ¶ 138 (Sept. 16, 2005).

<sup>435</sup> Susan Harris Rimmer, *Refugees, Internally Displaced Persons and the Responsibility to Protect*, U.N. HIGH COMM’R FOR REFUGEES POLICY DEV. AND EVALUATION SERV. 1 (Research Paper No. 185, 2010).

<sup>436</sup> Rimmer, *supra* note 435, at 1.

focus,<sup>437</sup> they cannot be removed from the R2P discussion altogether “in cases where crimes against humanity are committed in response to disasters and the victims are in need of international protection.”<sup>438</sup> Therefore, the R2P doctrine may be applicable in providing protection to certain climate refugees.

### B. *Response to Impacts on Natural Systems*

As a result of the obvious challenge of “global ecological interdependence,” nations recognized that response to environmental problems must be a coordinated international effort and adopted thousands of multilateral, bilateral, and intergovernmental instruments addressing environmental concerns over the past five decades.<sup>439</sup> Norms in international documents and applicable juridical principles of customary international law have developed a subpart of general international law: international environmental law.<sup>440</sup> Beginning with the 1972 United Nations Conference on the Human Environment and the adoption of Principle 21 of the Stockholm Declaration<sup>441</sup>

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.<sup>442</sup>

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<sup>437</sup> GLOBAL CENTRE FOR THE RESPONSIBILITY TO PROTECT, IMPLEMENTING THE RESPONSIBILITY TO PROTECT: THE 2009 GENERAL ASSEMBLY DEBATE: AN ASSESSMENT (2009), [http://www.globalr2p.org/media/files/gcr2p\\_general-assembly-debate-assessment.pdf](http://www.globalr2p.org/media/files/gcr2p_general-assembly-debate-assessment.pdf) [<https://perma.cc/VA88-AM89>].

<sup>438</sup> Rimmer, *supra* note 435, at 14.

<sup>439</sup> Luis E. Rodriguez-Rivera, *Is the Human Right to Environment Recognized Under International Law? It Depends on the Source*, 12 COLO. J. INT'L ENVTL. L. & POL'Y 1, 173, 179 (2001).

<sup>440</sup> *Id.* at 173.

<sup>441</sup> EDITH BROWN WEISS ET AL., INTERNATIONAL ENVIRONMENTAL LAW: BASIC INSTRUMENTS AND REFERENCES 171 (TRANSNATIONAL PUBLISHERS, REVISED ED., 1992).

<sup>442</sup> McCue, *supra* note 371, at 179 (quoting Conference on the Human Environment, Final Documents, June 16, 1972, art. 21, 11 I.L.M. 1416, also U.N. Doc. A/CONF.48/14/Rev.1).

This development has been necessary to address the inadequacy of customary international law principles to address environmental problems and in particular, climate change impacts.<sup>443</sup>

The general principles of international environmental law commonly used in legal scholarship reflect principles of international law set forth in the United Nations Charter<sup>444</sup> and include: Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration; the principle of preventive action; the principle of co-operation; the principle of sustainable development; the precautionary principle; the polluter-pays principle; and the principle of common but differentiated responsibility.<sup>445</sup> In the context of climate change, central are principles of sovereignty and state consent.<sup>446</sup> Climate change poses a threat to state sovereignty, which is the source of international legal obligations or the right to reject such obligations.<sup>447</sup> Principle 2 of the 1992 Rio Declaration similarly reflects this principle of sovereignty:

States have . . . the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.<sup>448</sup>

However, the nature of environmental harms do not fit solely within the international law framework, as they neither respect nor are contained within national boundaries.<sup>449</sup> Further, they have not yet been used to create binding legal obligations to protect climate refugees. The threat is particularly evident in the low-lying SIDS, as sea-level rise “is projected

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<sup>443</sup> Sara C. Aminzadeh, *A Moral Imperative: The Human Rights Implications of Climate Change*, 30 HASTINGS INT'L & COMP. L. REV. 231, 258–59 (2007).

<sup>444</sup> U.N. Charter, *supra* note 363, at art. 1, 2.

<sup>445</sup> PHILIPPE SANDS, PRINCIPLES OF INTERNATIONAL LAW 231 (2d ed., 2003).

<sup>446</sup> Deepa Badrinarayana, *Global Warming: A Second Coming for International Law?*, 85 WASH. L. REV. 253, 256 (2010).

<sup>447</sup> *Id.* at 256–57.

<sup>448</sup> Jennifer Kilinski, *International Climate Change Liability: A Myth or A Reality?*, 18 J. TRANSNAT'L L. & POL'Y 377, 387 (2009) (quoting *Rio Declaration on Environment and Development*, Annex I, Principle 2, U.N. Doc. A/CONF.151/26 Rev.1 (Vol. 1) (June 14, 1992), <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> [<https://perma.cc/E7JG-9HLD>] [hereinafter *Rio Declaration*]).

<sup>449</sup> Rodriguez-Rivera, *supra* note 439, at 176.

to destroy property, endanger life, threaten livelihood, spread diseases, and displace massive numbers of people.”<sup>450</sup>

1. Response to Impacts on Natural Systems: Under Climate Change Law

The international legal regime on climate change consists of the United Nations Framework Convention on Climate Change (“UNFCCC”),<sup>451</sup> the Kyoto Protocol to the UNFCCC (“Kyoto Protocol”),<sup>452</sup> and the Paris Agreement. As a result of the 1992 United Nations Conference on Environment and Development, the UNFCCC set an intergovernmental framework in pursuit of addressing climate change by limiting the rise in global temperatures and preparing for inevitable impacts.<sup>453</sup> The 1992 Rio Declaration on Environment and Development<sup>454</sup> and the UNFCCC reflect the Principle of Common but Differentiated Responsibility (“CBDR”), demanding a unified effort to deal with climate change impacts, but differentiating in responsibility based on the capacities of each state.<sup>455</sup> CBDR places special priority on the least-developed countries most vulnerable to environmental challenges.<sup>456</sup> Yet, the UNFCCC is designed to protect the climate system, not “to provide human rights protections and humanitarian aid to individuals.”<sup>457</sup>

From 1995 negotiations, the Kyoto Protocol provided the first attempt to set legally binding emission reduction targets for developed country parties.<sup>458</sup> The latest Paris Agreement, adopted in 2015, aims to

<sup>450</sup> Badrinarayana, *supra* note 446, at 257.

<sup>451</sup> UN Framework Convention on Climate Change, May 9, 1992, S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

<sup>452</sup> Kyoto Protocol to the UNFCCC, opened for signature Dec. 10, 1997, 37 I.L.M. 22 (entered into force Feb. 16, 2005).

<sup>453</sup> *Background on the UNFCCC: The International Response to Climate Change*, UNFCCC, [http://unfccc.int/essential\\_background/items/6031.php](http://unfccc.int/essential_background/items/6031.php) [<https://perma.cc/E2CE-9B88>] (last visited Mar. 19, 2018) [hereinafter *Background on the UNFCCC*].

<sup>454</sup> *Rio Declaration*, *supra* note 448, Principle 7, U.N. Doc. A/CONF.151/26 (June 14, 1992), <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm> [<https://perma.cc/JHS8-WJVJ>].

<sup>455</sup> Benoit Mayer, *The International Legal Challenges of Climate-Induced Migration: Proposal for an International Legal Framework*, 22 COLO. J. INT'L ENVTL. L. & POL'Y 357, 394 (2011).

<sup>456</sup> *Id.* at 394 (quoting *Rio Declaration*, *supra* note 448, Principle 7, U.N. Doc. A/CONF.151/26).

<sup>457</sup> Michael Greene, *Three Letters Preventing the Success of International Environmental Treaties*, 18 SOUTHEASTERN ENVTL. L.J. 137, 151 (2009).

<sup>458</sup> *Background on the UNFCCC*, *supra* note 453.

accelerate action and intensify investments in maintaining the increase in global temperature below 2 degrees Celsius above pre-industrial levels and pursuing efforts for a further 1.5 degrees Celsius goal.<sup>459</sup> Despite the focus on emissions reduction, human rights discourse began to cross-fertilize with climate change frameworks since COP-13 in Bali.<sup>460</sup> In 2009, the Ad Hoc Working Group on Long-Term Cooperative Action (“AWGLCA”)’s draft outcome made references to human rights and human rights principles,<sup>461</sup> and by the end of COP-15, all UNFCCC state Parties accepted the necessity of including human rights principles in developing climate change policy.<sup>462</sup>

Yet, attempts to link climate change displacement to the narrow confines of international climate change law alone has limited applicability: the UNFCCC and its Kyoto Protocol do not contain “any provisions concerning specific assistance or protection for those who will be directly affected by the effects of climate change,”<sup>463</sup> and deal primarily with mitigation and adaptation.<sup>464</sup> While climate change displacement is a form of adaptation to climate change impacts, unlike human rights and refugee regimes, the UNFCCC is preventative in nature and governs state-to-state relations, not specific duties to individuals or communities.<sup>465</sup> To the extent that the UNFCCC is beginning to address migration and displacement, it is not legally binding in the text, rather it references climate change efforts—e.g., by Ad Hoc Working Group “Non-paper”<sup>466</sup> (as discussed in developing “refugee” frameworks).

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<sup>459</sup> *Id.*

<sup>460</sup> Marc Limon, *Human Rights Obligations and Accountability in the Face of Climate Change*, 38 GA. J. INT’L & COMP. L. 543, 583 (2010) (citing UNFCCC Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention, Ideas and Proposals on Par. 1 of the Bali Action Plan: Revised Note by the Chair, ¶ 97, U.N. Doc. FCCC/AWGLCA/2008/16/REV.1 (Jan. 15, 2009)).

<sup>461</sup> Limon, *supra* note 460, at 592.

<sup>462</sup> *Id.* at 583.

<sup>463</sup> Informal Group on Migration/ Displacement and Climate Change of the IASC, *Climate Change, Migration and Displacement: Who will be affected?*, 1 (2008), <http://unfccc.int/resource/docs/2008/smsn/igo/022.pdf> [<https://perma.cc/Q49T-MVS7>].

<sup>464</sup> David Hodgkinson & Lucy Young, *In the Face of Looming Catastrophe: A Convention for Climate-Change-Displaced Persons*, in THREATENED ISLAND NATIONS 299, 305 (Michael B. Gerrard & Gregory E. Wannier eds., 2013).

<sup>465</sup> *Id.* at 305–06 (quoting Bonnie Docherty & Tyler Giannini, *Confronting a Rising Tide: A Proposal for a Convention on Climate Change Refugees*, 33 HARV. ENVTL. L. REV. 349, 358 (2009)).

<sup>466</sup> Hodgkinson & Young, *supra* note 464, at 306 (citing UNFCCC Ad Hoc Working Group on Long-Term Cooperative Action under the Convention, *Contact Group on Enhanced*

Some criticize that the current state of international environmental law is insufficient to address climate change and may actually inhibit efforts to expand beyond tradition and to think creatively to address interconnected development issues.<sup>467</sup> Further, it has mostly been reactive and ad hoc in approach, and must move to proactive and holistic methods.<sup>468</sup> Challenges to the existing paradigm of the international climate change regime have suggested looking beyond international environmental law to address the broader suite of impacts: “Stepping back to view the system critically enables us to use more effectively the tools of international environmental law to address climate change and the host of other environmental problems we face.”<sup>469</sup> This “stepping back” could also create fodder to reanalyze the existing laws, in order to find new realignments and resulting potentials. In particular, the ecosystem approach and the precautionary principle of the international biodiversity regime could better address the limitations to adequately protect biodiversity, including humans and climate refugees.<sup>470</sup>

### C. *Prior Proposals: To Address Climate Refugees*

To address the lack of an international legal protection regime for climate refugees, prior proposals suggest amendments or additions under the 1951 Refugee Convention and UNFCCC frameworks, or a new international agreement.<sup>471</sup> For example, the Draft Convention on the International Status of Environmentally Displaced Persons aims “to guarantee the rights of environmentally-displaced persons and to organize their reception as well as their eventual return, in application of the principle of solidarity.”<sup>472</sup> Consistent with human rights law, the Draft Convention “guarantees the right to water, housing, food, healthcare, work, culture, religion and education”—i.e., both civil and political rights and economic, social, and cultural rights.<sup>473</sup> However, the Draft Convention

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*Action on Adaptation and its Associated Means of Implementation* 3–4 (Non-paper No. 41, Draft Text, 2009), <http://unfccc.int/resource/docs/2009/awglca7/eng/14.pdf> [<https://perma.cc/W99C-89VN>].

<sup>467</sup> Cinnamon Carlarne, *Delinking International Environmental Law & Climate Change*, 4 MICH. J. ENVTL. & ADMIN. L. 1, 4–5 (2014).

<sup>468</sup> Trouwborst, *supra* note 36, at 424.

<sup>469</sup> Carlarne, *supra* note 467, at 5–7.

<sup>470</sup> Trouwborst, *supra* note 36, at 425.

<sup>471</sup> Boer, *supra* note 396, at 181–200.

<sup>472</sup> Atapattu, *supra* note 192, at 30.

<sup>473</sup> *Id.* at 32.

would be hard and costly to implement, and may lack political will.<sup>474</sup> More importantly, it envisions the displaced populations would have the possibility of return to their homes, a possibility not available for SIDS climate refugees.<sup>475</sup> Other proposals to adopt new laws would encounter similar difficulties with uncertain political reception at the national level, the unlikely and long process at the international level, difficulties with deciphering the status of a “climate refugee” in the face of other combined causes, and the need to complement the law with international programmes.<sup>476</sup> Also proposed, and reflective of the existing framework, is the synthesis of existing international legal mechanisms that create non-binding, but universally agreed upon principles to protect climate refugees.<sup>477</sup>

*D. Developing Frameworks: International Response Combining Natural and Human Systems*

Increased attention on refugees and migrants in the media, and the anticipated large movements of people as a result of “violent conflict, poverty, inequality, climate change, disasters, and environmental degradation,” have caused pleas for strengthened collective action.<sup>478</sup> Pursuant to United Nations General Assembly decision 70/539, the Secretary-General issued the Report, “In Safety and Dignity: addressing Large Movements of Refugees and Migrants,” on May 9, 2016 (the “Report”),<sup>479</sup> and likewise, an outcome document from a high-level meeting on September 19, 2016 was also issued, the “New York Declaration for Refugees and Migrants,” which was adopted by all Member States.<sup>480</sup> The Report recognizes that people will be forced to leave their homes due to climate change at an increasing rate and intensity,<sup>481</sup> but they may not satisfy the Convention’s Refugee definition.<sup>482</sup>

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<sup>474</sup> *Id.* at 33.

<sup>475</sup> *Id.*

<sup>476</sup> Morel, *supra* note 402, at 250.

<sup>477</sup> Benjamin Glahn, “Climate refugees? Addressing the International Legal Gaps,” INT’L B. ASS’N (June 11 2009), <http://www.ibanet.org/Article/NewDetail.aspx?ArticleUId=B51C02C1-3C27-4AE3-B4C4-7E350EB0F442> [<https://perma.cc/7EWW-FJRF>].

<sup>478</sup> U.N. General Assembly, *Report of the Secretary-General: In Safety and Dignity: Addressing Large Movements of Refugees and Migrants*, ¶¶ 1–5, U.N. Doc. A/70/59 (May 9, 2016) [hereinafter UNGA, *Secretary-General Report: In Safety and Dignity*].

<sup>479</sup> *Id.* at Summary ¶ 6.

<sup>480</sup> U.N. General Assembly, *New York Declaration for Refugees and Migrants*, G.A. Res. A/RES/71/1, U.N. Doc. A/71/L.1 (Sept. 13, 2016).

<sup>481</sup> UNGA, *Secretary-General Report: In Safety and Dignity*, *supra* note 478, ¶ 27.

<sup>482</sup> *Id.* ¶ 18.

To develop adequate mechanisms “to avert, minimize and address” this type of displacement excluded by the Refugee Convention, the 21st COP to the UNFCCC in 2015 agreed on establishing a task force.<sup>483</sup> An Advisory Group on Climate Change and Human Mobility, of which the UNHCR and IOM are part of, was formed to advise UNFCCC Parties on issues relating to climate change–induced displacement, migration and planned relocation.<sup>484</sup> Further, state-led initiatives and processes (the “Nansen Initiative,” “Migrants in Countries in Crisis Initiative,” and “Solutions Alliance”) worked to develop guidelines and solutions to address forced displacement resulting from disasters.<sup>485</sup> By 2015, 110 countries endorsed the Nansen Initiative’s “Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change,” which identifies effective practices in addressing cross-border displacement resulting from disasters and climate change.<sup>486</sup>

Additionally, the Secretary General of the United Nations calls on Member States (a) to implement the 2030 Agenda for Sustainable Development, measures outlined in the Sendai Framework for Disaster Risk Reduction 2015–2030, and the Paris Agreement,<sup>487</sup> as well as (b) to address the causes of large movements of refugees and migrants and to implement efforts to mitigate climate change impacts and to plan for migration.<sup>488</sup> In urging collaboration towards a new “Global Compact for Safe, Regular and Orderly Migration” by setting commitments for Member States, and to specifically consider current initiatives addressing displacement due to climate change,<sup>489</sup> it appears the Secretary

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<sup>483</sup> *Id.* ¶ 47 (citing UNFCCC COP No. 21, Paris Agreement, *supra* note 29).

<sup>484</sup> THE ADVISORY GROUP ON CLIMATE CHANGE AND HUMAN MOBILITY, U.N. HIGH COMM’R FOR REFUGEES, HUMAN MOBILITY IN THE CONTEXT OF CLIMATE CHANGE UNFCCC—PARIS COP-21 (2015).

<sup>485</sup> UNGA, *Secretary-General Report: In Safety and Dignity*, *supra* note 478, ¶ 49 (citing UNFCCC COP No. 21, Paris Agreement, *supra* note 29).

<sup>486</sup> Andy Needham, *UNHCR commits to follow up on the Nansen Initiative on climate and disaster displacement and launches new overview of its work in this area*, UNITED NATIONS HIGH COMM’R FOR REFUGEES (Oct. 14, 2015), <http://www.unhcr.org/en-us/news/press/2015/10/561e5ea06/unhcr-commits-follow-nansen-initiative-climate-disaster-displacement-launches.html> [<https://perma.cc/EQ8B-27HG>]; see NANSEN INITIATIVE, AGENDA FOR THE PROTECTION OF CROSS-BORDER DISPLACED PERSONS IN THE CONTEXT OF DISASTERS AND CLIMATE CHANGE (2015), <https://www.nanseninitiative.org/wp-content/uploads/2015/10/Agenda-Final-Draft.pdf> [<https://perma.cc/2ZDH-VEHP>].

<sup>487</sup> UNGA, *Secretary-General Report: In Safety and Dignity*, *supra* note 478, ¶ 100(b)–(d) (citing UNFCCC COP No. 21, Paris Agreement, *supra* note 29).

<sup>488</sup> *Id.* ¶ 101 (citing UNFCCC COP No. 21, Paris Agreement, *supra* note 29).

<sup>489</sup> *Id.* ¶ 105(b) (citing UNFCCC COP No. 21, Paris Agreement, *supra* note 29).

General contemplates an international framework in which Member States work together to handle the large movement of refugees and migrants.

*E. Case Study: Small Island Developing States*

SIDS have a small resource base and domestic markets, and therefore, depend on external markets and import resources. They also have fragile environments and are vulnerable to natural disasters.<sup>490</sup> Therefore, since 1992, SIDS had international “recognition as a special case both for their environment and development,” at the United Nations Conference on Economic and Development (“UNCED”) and in the text of Agenda 21.<sup>491</sup> Most recently, the outcome document of the third International Conference on Small Island Developing States held in 2014, that the *SIDS Accelerated Modalities of Action (SAMOA) Pathway*:

reaffirm[s] that small island developing States [have] unique and particular vulnerabilities and that they remain constrained in meeting their goals in all three dimensions of sustainable development. We recognize the ownership and leadership of small island developing States in overcoming some of these challenges, but stress that, in the absence of international cooperation, success will remain difficult.<sup>492</sup>

Climate change poses not only a challenge to achieving sustainable development, but at its extreme, an existential threat to SIDS: “represent[ing] the gravest of threats to their survival and viability, including, for some, through the loss of territory.”<sup>493</sup>

Pursuant to the 1933 Montevideo Convention on Rights and Duties of States, to qualify as a “state” under customary international law, an

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<sup>490</sup> OFFICE OF THE HIGH REPRESENTATIVE FOR THE LEAST DEVELOPED COUNTRIES, LANDLOCKED DEVELOPING COUNTRIES AND SMALL ISLAND DEVELOPING STATES (UN-OHRLLS), SMALL ISLAND DEVELOPING STATES: SMALL ISLANDS BIG(GER) STAKES 2–3 (2013), <http://unohrlls.org/custom-content/uploads/2013/08/SIDS-Small-Islands-Bigger-Stakes.pdf> [<https://perma.cc/4ETA-44JC>].

<sup>491</sup> *Id.* at 1–2; see also Gillespie, *supra* note 201, at 107–08.

<sup>492</sup> G.A. Res. 69/15, U.N. DOC. A/RES/69/15 (Dec. 15, 2015), Annex, ¶ 5. Parties also reaffirmed the commitments made at U.N. conferences and summits on sustainable development, as well as in the economic, social, and environmental fields. G.A. Res. 69/15, U.N. DOC. A/RES/69/15 (Dec. 15, 2015), Annex, ¶¶ 2–5.

<sup>493</sup> G.A. Res. 69/15, U.N. DOC. A/RES/69/15 (Dec. 15, 2015), Annex, ¶ 11.

entity must have: “(a) a defined territory; (b) a permanent population; (c) an effective government; and (d) the capacity to enter into relations with other states.”<sup>494</sup> Meanwhile, to qualify the defined territory element, there is no standard for the minimum geographic area, and a presumption against state extinction once firmly established and referring not only physical land.<sup>495</sup> Detrimental to SIDS, however, loss of land territory may also render a loss in maritime territory and its resources.<sup>496</sup> This puts into question the fate of the population and the fate of the statehood.<sup>497</sup>

The unique vulnerability of SIDS to climate change has been recognized in the outcome documents to UN conferences on sustainable development. The outcome document of the UN Conference on Sustainable Development (Rio+20) and the United Nations summit for the adoption of the post-2015 development agenda provide similar language: “[C]limate change impacts are seriously affecting coastal areas and low-lying coastal countries, including many least developed countries and small island developing States. The survival of many societies, and of the biological support systems of the planet, is at risk.”<sup>498</sup> While impacts to ecosystem services such as water, agriculture, and fisheries pose severe risks to human survival, the complete disappearance of entire island states poses a new legal challenge.

In addition to the discussion on the international legal responses to human displacement resulting from climate change impacts, as well its limitations, developed country Parties to the UNFCCC pledged to assist vulnerable developing countries, which would include SIDS, with the costs of direct impacts and of adaptation.<sup>499</sup> Complete disappearance of states, however, has not been contemplated under international law.<sup>500</sup> Since “every available territory is under the sovereignty of a particular state,” climate refugees are not provided with territory for relocation en masse nor are they allowed to retain their identity in new destination states.<sup>501</sup> The state would disappear and “the population would lose its nationality, diplomatic protection . . . and other rights associated with

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<sup>494</sup> Atapattu, *supra* note 192, at 14.

<sup>495</sup> *Id.*

<sup>496</sup> *Id.* at 15.

<sup>497</sup> *Id.* at 15–16.

<sup>498</sup> UNGA, The 2030 Agenda, *supra* note 198, ¶ 14; *see also* UNGA, The future we want, *supra* note 199.

<sup>499</sup> Atapattu, *supra* note 192, at 16, 19.

<sup>500</sup> *Id.* at 18.

<sup>501</sup> *Id.* at 19.

nationality.”<sup>502</sup> Should the disappeared sovereign state be allowed some fictitious “*ex-situ*” nationhood status, this would demand a governmental framework similar to the UN trusteeship system.<sup>503</sup>

The grave threat that climate changes poses to the fate of SIDS existence and statehood manifests in the loss of land, ecosystem services, and biodiversity:

The adaptive capacity of humans and ecological systems on these islands is minimal because of their *unique and fragile environment and limited area*. In these island areas, *coastline erosion, loss of land and property*, dislocation of people, and *saltwater intrusion into freshwater resources* could be catastrophic. With the loss of adequate drinking water and agricultural crops from *increased salinity*, there would be no way for the people to survive without massive international aid. In addition, an increased prevalence and severity of storms linked to climate change would be especially devastating in such regions, as would be the inevitable *loss of biodiversity for ocean species*, including the *loss of coral reefs and the fisheries* in these areas.<sup>504</sup>

Simultaneously, at risk to SIDS is culture associated with the environment, such as the ancient navigation and voyage traditions of the Micronesian nations.<sup>505</sup> To reformulate the existing legal discussion on legal protection regimes for this phenomena, rather than focusing on the climate change impacts and analyzing climate change regimes, this Article calls attention to the ecosystem changes causing the displacement and a resurfaced view of humans in biological diversity.

#### F. *Lingering Gaps in Protection for Climate Refugees*

The greater relevance of the Refugee Convention framework to climate refugees, rather than international legal regimes governing human systems, is that it relates to cross-border movement and recognizes the *human* element of migration-causing harm—i.e., *anthropogenic*

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<sup>502</sup> *Id.* at 19.

<sup>503</sup> *Id.* at 20–21.

<sup>504</sup> Rebecca Tsosie, *Indigenous People and Environmental Justice: The Impact of Climate Change*, 78 U. COLO. L. REV. 1625, 1636–37 (2007).

<sup>505</sup> *Id.* at 1638. See also Badrinarayana, *supra* note 446, at 258.

climate change. While not fitting within the traditional notions of the Refugee Convention elements, climate refugees could potentially fit within the evolving scope of the Refugee in the future. However, with increasing recognition of climate change impacts on migration and its presence in discussions on large movements of refugees and migrants and international climate change negotiations, climate refugees are being addressed within broader state and UN agency-led international collaboration frameworks. Demanding a revised Refugee definition under an amendment to the Refugee Convention or a new convention or framework specifically for climate refugees would be a duplicative effort and divert the traction already gained in these agendas.

This Article argues that the loss of habitat as a cause of displacement must be addressed. The disappearance of homes and states, as well as the loss of ecosystem—, as this Article proposes in the next section, climate refugees may find protections afforded through the international biodiversity legal regime.

#### IV. INDICATIONS OF AND POSSIBILITIES FROM A RESURFACED VIEW OF HUMANS AS *HOMO SAPIENS*

The need to redirect and tidy up international environmental law is apparent;<sup>506</sup> but optimistically, it simultaneously provides opportunity to take a renewed look at the international biodiversity regime for applications to fill in gaps in protection for climate refugees. Climate refugees are the ultimate expression of the combination between natural and human systems, but as explained in Section III.V.A, lack categorical protection under the existing international refugee law regime (intended for those facing political or other forms of persecution) or adequate protection under the international human rights regime (which provides neither definite nor comprehensive coverage). In developing “[the] new generation of international environmental governance,”<sup>507</sup> there is a “call[] for multimodality and integration” of relevant environmental regimes.<sup>508</sup> In both the scientific and legal world surrounding the environment, there is a movement towards integration. In assessing climate change vulnerability, researchers integrate both human socio-economic and biophysical processes.<sup>509</sup> Climate change must be characterized as

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<sup>506</sup> Carlarne, *supra* note 467, at 9–11.

<sup>507</sup> Lyman, *supra* note 41, at 5, n.22, 19.

<sup>508</sup> *Id.*

<sup>509</sup> McLeman & Smit, *supra* note 33, at 31.

beyond simply an environmental issue but also “big economic issues; big health issues; big human rights issues; big human issues.”<sup>510</sup> The move beyond international environmental law recognizes the regime’s shortcomings in addressing the interconnectedness between human and natural systems,<sup>511</sup> and in particular, climate refugees. Yet, there is hope to “breathe life into a faltering system.”<sup>512</sup>

Compatible with the ecosystem approach endorsed by the CBD, the functionalist view goes beyond the call for multimodality and integration, and views humans “as a part of nature and that *Homo sapiens* is no less natural than any other species.”<sup>513</sup> The divergent views of humans “as apart from nature” as opposed to “as a part of nature” are traditionally associated with two schools of conservation: the entity-oriented biological approach of the compositionists, and the process-oriented thermodynamic approach of functionalists.<sup>514</sup> The unique contribution of the functionalist view to contemporary conservation is the view of “human economies as embedded in the larger and more enduring economy of nature” and the objective “to adapt human economies to ecological exigencies, thus achieving a mutually sustaining relationship between human cultures and the ecosystems in which they are situated and on which they depend.”<sup>515</sup>

Environmental laws lack consistency in conceptual approach and lag behind a movement toward the functionalist approach. Humans, or *Homo sapiens*, as a species and part of terrestrial ecosystems and its ecological complexes<sup>516</sup> need to be recognized in the biodiversity narrative.

The ecosystems we call home are diverse, complex, and dynamic . . . . Traditional (disciplinary) science, while necessary, is not by itself sufficient for understanding and dealing with ecosystems, especially if these are understood to have embedded in systems and organizations created by that peculiar species, *Homo sapiens*. As ecologists and environmental managers were among the first

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<sup>510</sup> Carlarne, *supra* note 467, at 13.

<sup>511</sup> *Id.* at 29.

<sup>512</sup> *Id.* at 29.

<sup>513</sup> Lyman, *supra* note 41, at 24.

<sup>514</sup> Callicott et al., *supra* note 57, at 23–24. However, this dichotomy is not intended to be rigid. *Id.* at 30.

<sup>515</sup> *Id.* at 32.

<sup>516</sup> Global Mammal Assessment Team, *supra* note 119.

to recognize, a new, broadened, and interdisciplinary approach bridging science and management is essential.<sup>517</sup>

In the realm of climate change, there are political difficulties to address the problem and the need for immediate actions due to “the inability to discreetly visualize climate change, and the disconnect between cause and effect and temporal challenges.”<sup>518</sup> The CBD COP does not explicitly identify humans as any other species—i.e., as its *Homo sapiens* identity, which would be the logical association using the ecosystem approach. Meanwhile, the legal response to climate refugees has yet to acknowledge the necessary integration and the ecocentric view under the ecosystem approach, leaving legal protections inadequate.

Therefore, this Article proposes to apply the functionalist view of “humans as part of nature” within the biodiversity framework—i.e., the “*Homo sapiens* approach to biodiversity.” While appearing to focus on and to benefit humans (as one of any other species), it actually rebalances the status of humans (as amongst, rather than superior to, other species). This approach recognizes the planetary boundaries within which humans are situated—i.e., the extent to which humans can continue to operate within the existing and future state of the environment. As the ultimate expression of the integration between the natural and human systems (climate representing the physical environmental cause, while refugees describing the political and societal attributes of the predicament), an extended application of this approach to climate refugees reveals the potential for new protections and tools from existing international environmental law.

A grundnorm, the ultimate purpose for international environmental law, must be articulated and premised on planetary boundaries and protection of global ecological integrity.<sup>519</sup> The regime must protect “the biophysical preconditions that are essential for long-term sustainable development.”<sup>520</sup> For this undertaking, a resurfaced interpretation of biodiversity, one that includes humans under its *Homo sapiens* identity, could provide a creative preservation alternative for climate refugees, and potentially, international environmental law. First, this section will reveal the tension between the movement towards “multimodality and

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<sup>517</sup> THE ECOSYSTEM APPROACH: COMPLEXITY, UNCERTAINTY, AND MANAGING FOR SUSTAINABILITY xii (David Waltner-Toews, James J. Kay & Nina-Marie E. Lister eds., 2008).

<sup>518</sup> Carlarne, *supra* note 467, at 39.

<sup>519</sup> *Id.* at 29.

<sup>520</sup> *Id.*

integration” and the ecosystem approach on one hand, and the lingering compositionalist view of humans as being separate from nature on the other hand. As illustrative of the potential application of the international biodiversity regime to humans, it will also discuss a previously proposed opportunity for the regime to protect human rights implicated from climate change. This will lay the groundwork for the proposal of this Article, to fill in the gaps left by prior legal attempts to address climate refugees by applying the *Homo sapiens* approach to biodiversity under the international biodiversity legal regime.

A. *Integration in International Environmental Law*

International environmental law is evolving to become more effective, by identifying and creating “linkages or interlinkages.”<sup>521</sup> As illustrated earlier in Part II, the relationship between climate change and biodiversity exists and must be addressed in adaptation and mitigation action. However, the relationship is also complex and multi-scalar.<sup>522</sup> Connections between multilateral regimes and expansion of new law are being used to shape international environmental law on two levels: first, overlapping *administrative bodies* are becoming streamlined for coordination, and second, overlapping *issues* are being addressed through soft law.<sup>523</sup> These developments moderate the fragmentation problem, and may be representative of “a new generation of international environmental governance that is multimodal and integrationist and ostensibly more effective in producing the desired on-the-ground results.”<sup>524</sup>

Traditionally, an environmental issue would first be identified, and then a particular governance and law would be built to address its particular nature and scale.<sup>525</sup> Therefore, there was a proliferation of environmental treaties beginning with the 1972 United Nations Conference of the Human Environment and its resulting Stockholm Declaration.<sup>526</sup> It called for environmental problems to be addressed through the development of multilateral treaties,<sup>527</sup> and produced 3,000 international

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<sup>521</sup> Lyman, *supra* note 41, at 4.

<sup>522</sup> *Id.*

<sup>523</sup> *Id.* at 4–5.

<sup>524</sup> *Id.* at 5.

<sup>525</sup> *Id.* at 7–10.

<sup>526</sup> The Stockholm Declaration on the Human Environment was adopted at the United Nations Conference on the Human Environment. U.N. Doc. A/CONF.48/14/Rev.1 (1972) ¶ 3, *reprinted in* 11 I.L.M. 1417 (1972).

<sup>527</sup> Lyman, *supra* note 41, at 7–10.

environmental law treaties; the Declaration represents the increasing global attention necessary to address the international nature of environmental concerns.<sup>528</sup> Meanwhile, the overdevelopment of this area of law has resulted in “treaty congestion,” a bottleneck that limits the regime’s effectiveness both in procedure (relating to participation) and substance (also known as “fragmentation” or diversification of the law).<sup>529</sup> International environmental law could consider the increasingly complex and multidimensional nature of environmental problems in the lawmaking phase.<sup>530</sup> However, this consideration could also have utility in the implementation of law.<sup>531</sup> This way, this “treaty congestion” can be resolved through a renewed analysis of existing international environmental law.

In order to address governance difficulties, the recent trend is to identify interlinkages, capture synergies, and cultivate crossover relationships amongst Secretariats.<sup>532</sup> The interlinkages solution has also expanded to apply to crossover substantive issues.<sup>533</sup> The UNFCCC and the CBD are the most notable treaties that underpin their multilateral nature in the principle of “common concern of humankind.”<sup>534</sup> The IUCN Draft International Covenant on Environment and Development and its related commentary similarly reflect the concern generally for other environmental matters, as the world’s ecosystems are interdependent and “the global environment is a common concern of humanity” requiring global solutions.<sup>535</sup> Solutions must likewise address the complexities in an integrated and multimodal manner, and be part of a new governance model that captures linkages and synergies.<sup>536</sup>

The themes of climate change and biodiversity conservation naturally overlap in substance and “lend themselves to harmonization.”<sup>537</sup> The relationship between the relevant international agreements has also produced extensive institutional and substantive collaborations.<sup>538</sup> The overlapping goals of the UNFCCC and CBD have been recognized through

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<sup>528</sup> *Id.* at 8–9.

<sup>529</sup> *Id.* at 10–11.

<sup>530</sup> *Id.* at 4–7.

<sup>531</sup> *Id.* at 5–6.

<sup>532</sup> Lyman, *supra* note 41, at 17.

<sup>533</sup> *Id.* at 17.

<sup>534</sup> *Id.* at 9.

<sup>535</sup> *Id.* at 9–10 (citing IUCN COMMISSION ON ENVIRONMENTAL LAW, DRAFT INTERNATIONAL COVENANT ON ENVIRONMENT AND DEVELOPMENT (4th ed. 2010), <https://portals.iucn.org/library/sites/library/files/documents/EPCCP-031-rev3.pdf> [<https://perma.cc/U8MC-XLXL>]).

<sup>536</sup> Lyman, *supra* note 41, at 6.

<sup>537</sup> *Id.* at 19.

<sup>538</sup> *Id.* at 19.

the Joint Liaison Group (“JLG”) of the Rio Conventions in 2001<sup>539</sup> in order to coordinate collaborative work and implementation of the Conventions.<sup>540</sup> Further, the CBD has been aggressive in realizing the mutually enhancing potentials of climate change and biodiversity conservation, and played on its ability to establish agendas on policy to develop “bottom-up, country-, regional-, and species-driven approaches to conservation of species affected by climate change.”<sup>541</sup> Most importantly, at the center of CBD’s work is the ecosystem approach, which recognizes the critical role of humans and culture to the ecosystem, and as significant to the biodiversity–climate change context by way of actions for mitigation and adaptation.<sup>542</sup>

Other relevant actors in the international biodiversity regime have also acknowledged the linkages between climate change and biodiversity. Parties to the CMS, while not members of the JLG, recognized the impacts of climate change on migratory species and urged the CMS Secretariat to collaborate with JLG and other conventions such as the World Heritage Convention and the Ramsar Convention.<sup>543</sup> The CMS has created a policy framework to address climate change through its species conservation work, focused on “habitat protection, ecological networks, and landscape protection” relating to *in-situ* conservation.<sup>544</sup> The Ramsar Convention COP’s resolution on wetlands and climate change recognizes that sustainable use and conservation of wetlands benefit biodiversity in climate change adaptation by providing migratory pathways.<sup>545</sup> Therefore, representative of their integration in international environmental law, climate change and biodiversity regimes are increasingly being addressed together in acknowledgment of their compatible agendas for mutual benefit.

### *B. Realization of Human Rights Through International Biodiversity Regime*

Since IUCN’s publication entitled “Caring for the Earth: A strategy for sustainable living, recognizing the right to nature’s benefits can

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<sup>539</sup> *Id.* at 20 (citing 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)).

<sup>540</sup> *Id.* at 20–21.

<sup>541</sup> Lyman, *supra* note 41, at 25–26.

<sup>542</sup> *Id.* at 26. This author acknowledges, but does not address in this Thesis, the weaknesses of the ecosystem approach due to the breadth of issues that are related to the CBD.

<sup>543</sup> *Id.* at 22.

<sup>544</sup> *Id.* at 28.

<sup>545</sup> *Id.* at 30.

only be guaranteed with proper care for natural systems” from 1994, the link between biodiversity and ecosystems for the realization of human rights has been overtly recognized.<sup>546</sup> Beyond the interplay between the climate change and biodiversity nexus (both grounded in ecological terms), the “biodiversity and community livelihoods” connection and the “ecosystem approach to climate change mitigation and adaptation” already introduce a people-centered approach to the biodiversity–climate change duality (in human terms).<sup>547</sup> Constructively, this reveals opportunity for a new form of a human rights–based approach to the international climate change regime.<sup>548</sup> However, CBD developments have yet to realize the opportunities for “innovative, environmentally holistic and people-centered approaches that can usefully apply for climate change–related purposes.”<sup>549</sup> The CBD has unfulfilled potential to fill in the existing gap in human rights and climate change debates.<sup>550</sup>

In law, legal scholars and parties to biodiversity-related legal instruments have already reached integration, both in application and interpretation, of international biodiversity law and climate change law.<sup>551</sup> In embracing the input of 193 states, and in particular, those of indigenous and local communities, the CBD COP already layers human rights law into the interplay between climate change law and biodiversity law.<sup>552</sup> The CBD’s ecosystem approach benefits both ecosystem resiliency and *human well-being* through its focus “on the interconnectedness among species and between species and their habitats, on long-term time frames and on the integrity of the structure and functions of genetic, species, population and ecosystem diversity.”<sup>553</sup> Further, the elements of human well-being are recognized as universal human rights under international law.<sup>554</sup>

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<sup>546</sup> IUCN welcomes first-ever UN report acknowledging healthy ecosystems as a human right, IUCN (Mar. 16, 2017), <https://www.iucn.org/news/secretariat/201703/iucn-welcomes-first-ever-un-report-acknowledging-healthy-ecosystems-human-right> [https://perma.cc/Q3HV-HWFP].

<sup>547</sup> Morgera, *supra* note 1, at 360.

<sup>548</sup> *Id.*

<sup>549</sup> *Id.*

<sup>550</sup> *Id.* at 361.

<sup>551</sup> *Id.* at 359–60.

<sup>552</sup> Morgera, *supra* note 1, at 361.

<sup>553</sup> *Id.* at 368.

<sup>554</sup> U.N. Doc. A/HRC/34/49 (Jan. 19, 2017) ¶ 7, <https://documents-dds-ny.un.org/doc/UNDOC/GEN/G17/009/97/PDF/G1700997.pdf?OpenElement> [https://perma.cc/WXY5-9G6T].

Most recently, in March 2017, the United Nations acknowledged the necessity of ecosystem services and biodiversity for the realization of human rights in its Report (of John Knox, the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy, and sustainable environment).<sup>555</sup> The Report further explicates the role of biodiversity and its ecosystem services to realize the “rights to life and health; the right to an adequate standard of living; and the right to non-discrimination in the enjoyment of rights,”<sup>556</sup> as well as the rights of those most vulnerable to the loss of biodiversity.<sup>557</sup> Corresponding to those rights, there are obligations under human rights law to conserve and sustainably use biodiversity, which include a range of procedural and substantive obligations.<sup>558</sup> However, this narrative still extrapolates the human being from the ecosystem and “the millions of different species on Earth,”<sup>559</sup> characterizing biodiversity as “the foundation of ecosystem services to which human well-being is *intimately linked*,”<sup>560</sup> but not a part.

To protect against the potential for and formulate response measures to address biodiversity loss,<sup>561</sup> adaptation and mitigation must fully incorporate the ecosystem approach.<sup>562</sup> Mitigation measures must ensure that any proposed use of or impact to biodiversity respects ecosystem variability and viability.<sup>563</sup> CBD parties are called on “to incorporate climate change adaptation into development and disaster-reduction planning, particularly in coastal areas.”<sup>564</sup> Adaptive management should be based on both science on the one hand, and local and traditional knowledge on the other, as provided by the Addis Ababa Principles and Guidelines on the Sustainable Use of Biodiversity.<sup>565</sup> Endorsed by the CBD COP, and reflected by the Parties to the CMS COP and the Ramsar Convention, the ecosystem approach for climate change adaptation is

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<sup>555</sup> John H. Knox, the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, transmitted its Report relating to the conservation and sustainable use of biological diversity to the Human Rights Council. U.N. Doc. A/HRC/34/49, *supra* note 554.

<sup>556</sup> U.N. Doc. A/HRC/34/49, *supra* note 554, ¶ 10.

<sup>557</sup> *Id.* ¶ 22.

<sup>558</sup> *Id.* ¶ 55.

<sup>559</sup> *Id.* ¶ 9.

<sup>560</sup> *Id.* ¶ 10 (emphasis added).

<sup>561</sup> Morgera, *supra* note 1, at 372–79.

<sup>562</sup> See generally *id.* at 373–89.

<sup>563</sup> *Id.* at 378.

<sup>564</sup> *Id.* at 382.

<sup>565</sup> *Id.* at 379.

applied to “protected areas, mountain, forests, inland waters and marine ecosystems, and ex situ conservation.”<sup>566</sup>

Climate change and degraded or destroyed natural habitats are driving biodiversity loss.<sup>567</sup> The benefit of the human rights perspective is that it:

- (a) Helps to clarify that the loss of biodiversity also undermines the full enjoyment of human rights;
- (b) Heightens the urgent need to protect biodiversity;
- (c) Helps to promote policy coherence and legitimacy in the conservation and sustainable use of biodiversity.<sup>568</sup>

To further realize these benefits, the CBD COP has the following tools applicable to the protection of human rights:

environmental and social impact assessments, the integration of traditional knowledge and community concerns in management plans, the legal recognition and active support of community-based management arrangements, the setting-up of benefit-sharing mechanisms when revenue generated through conservation and sustainable use activities is accrued by the State or outside investors, the provision of livelihood-based mitigation and compensatory measures, the use of other incentives such as payments for ecosystem services, as well as the re-investment of benefits in the protection of traditional knowledge and traditional sustainable practices.<sup>569</sup>

These tools may protect human rights affected by climate change, including “the right to life, adequate food, health, adequate housing, self-determination, access to safe drinking water and sanitation, and access to means of subsistence.”<sup>570</sup> However, a functionalist view of humanity can only be successful “if disentangled from the hegemonic closures of anthropocentrism . . . [or else] will facilitate the further and more effective exploitation of nature.”<sup>571</sup> Benefits of this application can be amplified through

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<sup>566</sup> Morgera, *supra* note 1, at 379.

<sup>567</sup> U.N. Doc. A/HRC/34/49, *supra* note 554, ¶ 37.

<sup>568</sup> *Id.* ¶ 66.

<sup>569</sup> Morgera, *supra* note 1, at 382–83.

<sup>570</sup> *Id.*

<sup>571</sup> De Lucia, *supra* note 3, at 116.

a functionalist perspective of humans in nature, which could better reflect the full expression of the ecosystem approach, and fill in the gap in international law concerning climate refugees.

C. *Protections for Climate Refugees In and Through the International Biodiversity Regime*

As discussed in the previous Part II, the precautionary and ecosystem approaches that underpin CBD COP development can address the gaps of the international climate change and human rights regimes.<sup>572</sup> “By focusing on local and indigenous communities, the CBD clearly ‘gives a human face’ to these issues and offers a bottom-up approach to building a true partnership with communities in preventing biodiversity loss and fighting climate change by proactively combining economic and non-economic benefits.”<sup>573</sup> Further, the ecosystem approach provides a framework to analyze the relationship between natural systems and human systems.<sup>574</sup> Beyond the integration, however, what could a view of humans any other species within biodiversity—say, as *Homo sapiens*—realize? Could this address the gap recognized under international law to protect humans affected by climate change, and in particular, climate refugees? Is there further utility to this approach?

The international legal regimes that have been analyzed with reference to climate refugees cover separately the governance of natural systems—i.e., international environmental law and climate change law—and human systems—i.e., international human rights law, refugee law, and other related frameworks. Some scholars have proposed adoption of new or amended frameworks, or a hybridization of international law to fill in the gap of protection for climate refugees. While the biodiversity and climate change nexus has increasingly been explored, as has the recently recognized connection between biodiversity and human rights, none<sup>575</sup> have addressed the position of the human as its *Homo sapiens* identity within the biodiversity regime [hereinafter “*Homo sapiens* approach”<sup>576</sup>].

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<sup>572</sup> Morgera, *supra* note 1, at 384.

<sup>573</sup> *Id.* at 384–85 (emphasis added).

<sup>574</sup> MEA Working Group, Ecosystems and Human Well-being: A Framework for Assessment, *supra* note 69, at 52.

<sup>575</sup> At least, not to the knowledge of this author.

<sup>576</sup> The climate refugee as a human or *Homo sapiens*, within the biodiversity regime [hereinafter *Homo sapiens* approach].

Acknowledging that the *Homo sapiens* approach can be viewed as anthropocentric, rather than ecocentric, and for the benefit of human beings, there is potential for wide-reaching implications for further exploration. This concept is a culmination of the following observations: the inability to either parse out humans from the natural world or separate natural systems and human systems from each other; the mutual compatibilities between the international biodiversity, climate change, and human rights regimes; and the effectiveness and necessity of the ecosystem and precautionary approaches. By reconceptualizing the human, and in particular, the climate refugee, as a *Homo sapiens*, it takes its place in the international biodiversity regime and further permeates through the wide reach of biodiversity discourse—e.g., biodiversity protection and sustainable development. Under the umbrella of a legally binding international treaty, the CBD's ecosystem and precautionary approach pull in management tools with a proactive rather than reactive approach necessary to mitigate harms climate change imposes on humans. Further, biodiversity and CBD references are integral to the 2030 Agenda's Sustainable Development Goals,<sup>577</sup> returning to the sustainable development underpinning of the Earth Summit and having potential applications to climate refugees.

The gaps left by the existing applications of international law to climate refugees lie in the lack of universal applicability of refugee law, and the reactive or ineffective nature of human rights law, international environmental law, climate change law, and the other frameworks discussed herein.<sup>578</sup> Whether it is protecting the ecosystem where populations inhabit to prevent climate change-induced migration, or modeling conditions in new ecosystems to guarantee human rights of climate refugees, reactive action is action too late.

Fulfilling the CBD's priority on and obligation to craft management measures for *in-situ* conservation, the ecosystem approach and ecosystem-based management of the CBD could be used to prevent the escalation of ecosystem or regime changes that would otherwise force populations to migrate and create climate refugees. The CBD's 12 Principles of the Ecosystem Approach are more consistent with the current state of science and its understanding of interactions between natural and human systems. Importantly, Principle 5 acknowledges the priority target as

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<sup>577</sup> U.N. Dep't of Econ. & Soc. Affairs, Div. for Sustainable Dev., *Biodiversity and Ecosystems*, SUSTAINABLE DEVELOPMENT KNOWLEDGE PLATFORM, <https://sustainabledevelopment.un.org/topics/biodiversityandecosystems> (last visited Mar. 19, 2018).

<sup>578</sup> See *supra* Part II.

“conservation of ecosystem structure and functioning, in order to maintain ecosystem services,” and Principle 9 recognizes the inevitability of change.<sup>579</sup> To prevent the amplified impact of forced migration on society and the environment, focus should be placed on conservation to preclude the need for migration, all while recognizing that the impacts of climate change are already underway and forced migration remains inevitable.

When forced migration is unavoidable, there needs to be proactive planning to ensure the ecosystems to which humans migrate are supportive of human well-being, as well as respectful and inclusive of the local and indigenous knowledge, culture, and practices of both the climate refugees and existing population of the new ecosystem. “Sustainable use” obligations of Article 10 (potentially reaching both public and private sector actors) recognize the planetary boundaries within which *Homo sapiens* are situated.<sup>580</sup> They also ensure that indigenous and local communities are included in decision-making and management processes.

Importantly, the Outcome Document to the 2015 UN Summit, “Transforming Our World: 2030 Agenda for Sustainable Development,” and in particular, Sustainable Development Goal (SDG) 15, reasserts the international acceptance of the essential role of biodiversity for human well-being and survival.<sup>581</sup> The SDGs are “an integrated, indivisible set of global priorities for sustainable development.”<sup>582</sup> There are 17 SDGs with 169 targets that serve as indicators for implementation, integrating “economic, social and environmental aspects and [recognizing] their interlinkages in achieving sustainable development in all dimensions”; at the center of all the goals, targets, and indicators is human rights.<sup>583</sup>

The essential role assigned to biodiversity for humans is consistent with the reliance that any other species has on biodiversity (i.e., the ecological complexes) of which they are part. SDG 15 specifically addresses biodiversity and seeks to “protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.”<sup>584</sup> While the purpose of the SDGs are for human development,

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<sup>579</sup> Secretariat, CBD Guidelines: The Ecosystem Approach, *supra* note 288 (citing Table 1 of COP 7 Decision VII/11).

<sup>580</sup> CBD, *supra* note 237, at art. 10.

<sup>581</sup> UNGA, The 2030 Agenda, *supra* note 198, at 24–25.

<sup>582</sup> Ved P. Nanda, *The Journey from the Millennium Development Goals to the Sustainable Development Goals*, 44 DENV. J. INT'L L. & POL'Y 389, 404 (2016).

<sup>583</sup> *Id.* at 404.

<sup>584</sup> UNGA, The 2030 Agenda, *supra* note 198, at 24.

the *Homo sapiens* approach to biodiversity is also applicable in the context of sustainable development. In other words, the SDGs have potentially two applications to the *Homo sapiens* approach of this Article: first, the standalone SDG 15 emphasizes the critical importance of biodiversity for the realization of sustainable development; second, the SDGs acknowledge that *Homo sapiens*, as part of biodiversity, are mutually reliant on the other SDGs for their own survival, and therefore could serve to develop sustainable settlements in the areas to which climate refugees migrate. To ensure the ecosystems to which climate refugees migrate (voluntarily or involuntarily) are comprehensively adequate for settlement, there is a need to employ the SDGs.<sup>585</sup>

Since ecosystem services provide the “critical foundations for sustainable development and human well-being” through the provision of “food security, nutrition, access to water, health of the rural poor and people worldwide,”<sup>586</sup> biodiversity must be a central consideration; yet, it should be considered with all other SDGs upon which sustained biodiversity relies. In this way, the SDGs can serve a critical role in addressing needs of climate refugees from SIDS in the countries in which they land, consistent with the 2030 Agenda goal to “leave no one behind.”<sup>587</sup>

#### D. Case Study: Small Island Developing States

The SIDS inhabitants are inherently dependent on their ecosystems. The most obvious dependencies include reliance on land for socio-economic activities,<sup>588</sup> freshwater resources for human habitation,<sup>589</sup> and fisheries resources for food security.<sup>590</sup> Inshore ecosystems also serve a critical role for coastal protection and resilience against climate change impacts, such as extreme events.<sup>591</sup> Ecosystems underpin the viability of SIDS, yet highlight what is most at risk: the flora and fauna unique to the islands, as well as the diverse cultures and origins throughout the

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<sup>585</sup> See *id.* at 4–5, 8, 21.

<sup>586</sup> U.N. Dep’t of Econ. & Soc. Affairs, Div. for Sustainable Dev., *supra* note 577.

<sup>587</sup> U.N. General Assembly, *The Road to Dignity by 2030: Ending Poverty, Transforming All Lives and Protecting the Planet, Synthesis Report of the Secretary-General on the post-2015 sustainable development agenda*, U.N. Doc. A/69/700 and Corr. 1 9/34, 11/34 (Dec. 4, 2014).

<sup>588</sup> UNITED NATIONS ENVIRONMENT PROGRAMME (UNEP), EMERGING ISSUES FOR SMALL ISLAND DEVELOPING STATES: RESULTS OF THE UNEP/UN DESA FORESIGHT PROCESS 29 (2014), <http://hdl.handle.net/20.500.11822/9111> [hereinafter UNEP, EMERGING ISSUES FOR SIDS].

<sup>589</sup> *Id.* at 25.

<sup>590</sup> *Id.* at 21.

<sup>591</sup> *Id.*

Pacific Ocean to the Indian Ocean.<sup>592</sup> People are already migrating from SIDS as a result of climate change impacts.<sup>593</sup> The IPCC reports that environmental change has historically driven migration in the Pacific and that “it is clear that there is the potential for human movement as a response to climate change.”<sup>594</sup> Thus, there is an “urgent need” to better study the relationship between climate change and migration.<sup>595</sup>

With the *Homo sapiens* approach to biodiversity, the CBD would create an obligation for CBD Parties to craft conservation management strategies consistent with the ecosystem approach to address climate change impacts impacting SIDS ecosystems, including humans and those that may potentially become climate refugees. To minimize the need for migration from SIDS, there is potential to use ecosystem based management strategies. The United Nations Food & Agriculture Organisation’s Code of Conduct for Responsible Fisheries provides a strong framework for ecosystem-based fisheries management.<sup>596</sup> Ecosystem-based management for food security can address adequate supply and quality that uses sustainable methods and includes local communities.<sup>597</sup> Integrated water management such as water recycling can reduce the risk of water scarcity in light of “sea level rise, salt water intrusion, and extreme water events.”<sup>598</sup>

Ecosystem-based climate change adaptation can be promoted for “the conservation, restoration, and use of coastal habitats in eco-engineering solutions (‘green solutions’) for coastal protection.”<sup>599</sup> SIDS can

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<sup>592</sup> Stahl, *supra* note 194, at 7.

<sup>593</sup> UNEP, EMERGING ISSUES FOR SIDS, *supra* note 588, at 59. Ioane Teitiota, a migrant farmworker from Kiribati, claimed climate change impacts to his homeland forced inhabitants to leave their islands and seek Refugee or protected status, but were denied by the Supreme Court of New Zealand. *Teitiota v Ministry of Business Innovation and Employment* [2015] NZSC 107 [5] (N.Z.). The Immigration and Protection Tribunal found Teitiota’s concerns to be justified, but held he was not a Convention Refugee or a protected person under the ICCPR. *Id.* at 6. On leave for appeal, the Supreme Court held that if returned to Kiribati, there was no “serious harm” per the Convention, nor evidence that Kiribati’s government is failing to protect citizens to the extent it can. *Id.* at 12. However, the Court noted that its ruling doesn’t preclude the possibility that environmental degradation from climate change could create a pathway into Refugee Convention or protected person jurisdiction in the future. *Id.* at 13.

<sup>594</sup> The IPCC’s 2014 statement that “there is no unequivocal evidence that reveals migration from islands is being driven by anthropogenic climate change” is only a statement applicable *to date*. The IPCC is explicit that there is clear *potential* for climate changed induced migration. NURSE ET AL., *supra* note 193, at 1625.

<sup>595</sup> *Id.*

<sup>596</sup> UNEP, EMERGING ISSUES FOR SIDS, *supra* note 588, at 21.

<sup>597</sup> *Id.* at 21–22.

<sup>598</sup> *Id.* at 57.

<sup>599</sup> *Id.* at 44.

adopt mangrove rehabilitation measures currently implemented in the Philippines to preserve the ecosystem services they provide coastal communities—in the form of regulating (protects beaches and coastlines from storm surges, erosion; stabilizes land by trapping sediments; maintains water quality; regulates water; and regulates climate—maintains air quality, temp, and precipitation), provisioning, and providing cultural and supporting functions.<sup>600</sup>

Further, the Pacific Islands are engaged in a regional program called “Ridge-to-Reef National Priorities” that integrates “water, land, and coastal management to preserve biodiversity, ecosystem services, store carbon, improve climate resilience and sustain livelihoods.”<sup>601</sup> This broader regional program integrates holistic natural resource management methods coupled with a participatory process that emphasizes government capacity and stakeholder engagement.<sup>602</sup> For example, Nauru, the smallest island nation in the Oceania region, has a water resources management pilot program to enhance resilience in the face of climate change.<sup>603</sup> These conservation measures could serve to alleviate the need for migration from SIDS as they remain under an existential threat.

Proactive planning for SIDS could also benefit from application of the *Homo sapiens* approach to biodiversity while implementing the SDGs. Currently, “[a]s an example, citizens of the Marshall Islands and other States parties to the Compact of Free Association with the United States may immigrate to the United States, although there are no guarantees with respect to permanent residence or citizenship and there are no provisions relating to climate change.”<sup>604</sup> The SDGs, especially SDG 15 on biodiversity, serve as a useful template to ensure the range of biodiversity factors impacting human livelihood and potential for sustainable

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<sup>600</sup> Jurgenne H. Primavera et al., *Manual on community-based mangrove rehabilitation*, MANGROVE MANUAL SERIES NO. 1 (2012), <http://www.mangroverestoration.com/pdfs/Primavera%20et%20al%202013%20ZSL-CMRP%20Manual%20incl%20cover.pdf>; Zoological Soc’y of London, *Rehabilitating Mangroves in the Philippines*, <https://www.zsl.org/conservation/regions/asia/rehabilitating-mangroves-in-the-philippines> (last visited Mar. 19, 2018).

<sup>601</sup> U.N. Development Programme, *Nauru R2R STAR Project Document*, PACIFIC R2R—RIDGE TO REEF 2 (2014), <http://www.pacific-r2r.org/resources/r2r-documents/programme-documents/nationalprogramme-documents/39-nauru-r2r-star-project-document/file> [<https://perma.cc/93LT-45ET>].

<sup>602</sup> *Id.*

<sup>603</sup> U.N. Development Programme, *Nauru: GEF Pacific National R2R STAR Project*, PACIFIC R2R—RIDGE TO REEF, <http://www.pacific-r2r.org/partners/member-countries/nauru> [<https://perma.cc/PKB9-3VXE>] (last visited Mar. 19, 2018).

<sup>604</sup> Susin Park, *Climate Change and the Risk of Statelessness: The Situation of “Sinking Island States,”* UNHCR DIVISION OF INTERNATIONAL PROTECTION, PPLAS/2010/01 13, fn. 101 (2011), <http://www.refworld.org/pdfid/4fdf1e572.pdf> [<https://perma.cc/V85X-RRXF>].

development are present. Anticipated climate refugees, such as those from the Marshall Islands, could be considered in national plans to implement SDGs. To do so, further research is necessary to determine where climate refugees from SIDS are most likely to migrate to, as well as the capacities of countries to welcome them with the guarantee of conditions necessary for human well-being. This would facilitate full well-being of the *Homo sapiens* climate refugee, from SIDS or beyond.

#### CONCLUSION

The “Anthropocene” emphasizes human interference on the environment and that humans and nature are inextricably linked,<sup>605</sup> yet the anthropocentric view does not see humans as part of nature. The CBD COP has “actively sought to manage the interactions” between the CBD and UNFCCC and made “significant conceptual progress . . . related to environmentally holistic and human rights–based approaches to climate change mitigation and adaptation.”<sup>606</sup> When “demographic pressure and chronic poverty” are paired with environmental degradation, political, ethnic, social and economic tensions can easily escalate and lead to violence and persecution, forcing people to find new places for survival.<sup>607</sup> There exists potential for the CBD to facilitate the realization of human rights that are implicated in the face of climate change.

The functionalist school of conservation goes beyond the call for integration, and views humans “[as a] part of nature and that *Homo sapiens* is no less natural than any other species.”<sup>608</sup> International environmental law still lags in fully realizing the theoretical underpinning of the ecosystem approach—i.e., identification of humans as *Homo sapiens*, through which there is potential for explicit CBD applications to human society and the human individual, in particular, the “climate refugee.” This view of humans is reflected in the ecosystem approach, which has proved successful in ecosystem protection but the view itself has not been fully operationalized under the CBD or the international biodiversity regime.

The *Homo sapiens* approach to the international biodiversity regime proposed by this Article has potential to fill in gaps in protection

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<sup>605</sup> See Carlarne, *supra* note 467, at 27–28.

<sup>606</sup> Morgera, *supra* note 1, at 388.

<sup>607</sup> U. N. HIGH COMMISSIONER FOR REFUGEES (UNHCR), THE STATE OF THE WORLD'S REFUGEES 1993: THE CHALLENGE OF PROTECTION 18 (Jan. 1, 1993).

<sup>608</sup> Callicott et al., *supra* note 57, at 24.

for climate refugees under international law. The international legal regimes governing the natural systems and human systems are limited in providing proactive universal coverage to ensure climate refugees are adequately protected and ensured conditions for human well-being. The general movement in international environmental law towards integration and multimodality represents recognition that the natural and human systems can no longer be addressed separately. Further, the compatibility and harmonization between the international climate change and biodiversity regimes are representative of that integration.

The international biodiversity regime, and the Convention on Biological Diversity in particular, has elements that can be further utilized to realize human rights, and through the *Homo sapiens* approach, address climate refugees. However, this Article is limited and requires further analysis into the feasibility of this approach in actual implementation. Which mechanisms of the CBD and other international biodiversity regimes could use this approach and would it change existing measures? What applications could this have for climate refugees in transit and which international laws would be implicated? Are there any conflicts between this approach and other existing agreements or approaches? When displaced human species arrive in a new country, what does this mean for ex situ policy and maintaining their cultures and systems? Climate refugees are only those *Homo sapiens* forced to flee across international borders as a result of climate change: how does this framework apply to *Homo sapiens* otherwise affected by climate change?

Also necessary is a note of precaution that this approach may lead to misinterpretations or unintended applications of the status amongst human beings or the suggestion that all laws should be interpreted for the benefit of humans over the environment. Is this view of climate refugees welcome or does it cause offense? What are the scientific criticisms to this approach that humans should be seen as any other species in biodiversity and can they be overcome? These are questions that must be further explored, but perhaps this exploration is an endeavor worth pursuing to recycle existing legal resources for new applications for *Homo sapiens* in particular, protections for climate refugees.

