An Analysis of the International Climate Change Adaptation Regime and its Response to Global Public Health Concerns

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Abstract

Since climate change action has been on the international agenda, policies have focused on mitigating the issue with proposals to reduce emissions and increase sinks of greenhouse gases in an attempt to limit the extent of climate change damages. However, the likelihood of slowing down climate change enough to prevent detrimental changes is quickly diminishing. The recognition of this problem is exemplified by the international climate change regime's growing focus on measures that seek to encourage capacity-building efforts to face climate change impacts and strengthen resilience. Existing climate change impacts are especially apparent in the context of global public health. Impacts on health can be seen through victims of severe weather, heat waves, air pollution, malnutrition, and the rise in infectious diseases. Protection against global health problems requires international cooperation and governance. The United Nation's Framework Convention on Climate Change has the potential to make significant advancements in addressing global health problems through its institutions, work programmes, and reporting commitments, especially those being developed under its growing adaptation regime. This Article argues that the adaptation regime is the most feasible option for alleviating climate change impacts on global public health and addresses remaining obstacles to the implementation of that regime, such as lack of funding and incentives.

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Introduction

Since climate change action has been on the international agenda, policies have focused on climate change mitigation.[1] Unfortunately, it is becoming more and more unlikely that mitigation alone will work quickly enough to prevent devastating impacts, especially in the global health context.[2] In October 2018, the Intergovernmental Panel on Climate Change (IPCC) released a report warning that, without drastic reductions in greenhouse gases (GHGs), global warming will reach catastrophic levels in just over a decade from now.[3] In recognition of this problem, the international climate change regime[4] has increased its focus on climate adaptation as a method of addressing global health problems, encouraging capacity-building measures that help communities face climate change impacts and strengthen their resilience.[5]

The World Health Organization has estimated that between 2030 and 2050, climate change could cause approximately 250,000 deaths *per year*.[6] Severe weather events, worsening air pollution, malnutrition, and a rise in infectious diseases are all but guaranteed as temperatures continue to rise.[7] It is clear that protection against global health problems like these requires international cooperation and governance.[8]

1. Lindsay F. Wiley, *Moving Global Health Law Upstream* 22 Geo. Intl. Envtl. L. Rev. 439, 452 (2009); Sara C Aminzadeh, Note, *A Moral Imperative: The Human Rights Implications of Climate Change*; 30 Hastings Int'l & Comp. L. Rev. 231, 232 (2006).

2. Wiley, *supra* note 1, at 452; Aminzadeh, *supra* note 1, at 232; Peter P.J. Driessen & Helena F.M.W. van Rijswick, *Normative Aspects of Climate Adaptation* Policies, 2 Climate L. 559, 559 (2011); Lisa Heinzerling, *Climate Change, Human Health, and the Post-Cautionary Principle*, 96 Geo. L.J. 445, 449–50 (2007); Smith, K.R. et al., Int'l Panel on Climate Change, *Human Health: Impacts, Adaptation, and Co-benefits*, *in* AR15 Climate Change 2014: Impacts, Adaptation, and Vulnerability 709–754 (Ulisses Confalonieri et al., eds., Cambridge Univ. Press, 2014).

3. Jonathan Watts, *We have 12 years to limit climate change catastrophe, warns UN*, Guardian, (Oct. 8, 2018) https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report [https://perma.cc/4T27-F95V] (stating that the world has twelve years before global warming will exceed the 1.5 degrees Celsius tipping point, "beyond which even half a degree will significantly worsen the risks of droughts, floods, extreme heat and poverty for hundreds of millions of people").

4. Daniel Bodansky, *The Emerging Climate Change Regime*, 20 Ann. Rev. Energy & Env't 425, 427 (1995) (describing the climate change regime—with the UNFCCC at its core—as "the network of rules, institutions, programs and decision-making procedures that, internationally, shape expectations and structure and guide activities related to climate change.").

5. E. Lisa F. Schipper, *Conceptual History of Adaptation in the UNFCCC Process*, 15 Rev. of European Comparative & Int'l Env'l L. 82, 83 (2006); A. Pielke, *Rethinking the Role of Adaptation in Climate Policy* 8 Glob. Envtl. Change: Human & Pol'y Dimensions 159, 160 (1998).

6. World Health Org., Quantitative Risk Assessment of the Effects of Climate Change on Selected Causes of Death, 2030s and 2050s, at 13 (2014).

7. Wiley, *supra* note 1, at 444; Smith, K.R. et al., *supra* note 2.

8. Lawrence O. Gostin, *Meeting Basic Survival Needs of the World's Least Healthy People*, 96 Geo. L.J. 331, 333 (2008).

The international climate change regime has the potential to make significant advancements in addressing global health problems through its institutions, work programmes, and reporting commitments, particularly those being developed under its adaptation regime.[9] Adaptation to climate change requires many of the same strategies as traditional health initiatives, such as disease monitoring and surveillance.[10] Utilizing the adaptation regime is the most feasible option for alleviating climate change impacts on global public health as quickly and effectively as possible .

This Article evaluates legal efforts to respond to public health problems arising from climate change. Part I will provide a brief overview on climate change's impacts on health, how the health community has already responded, and why it is important for international law and policy makers to address this problem. Part II will discuss how advocates have used climate change law as a way to address global health problems through climate change litigation and the mitigation regime, ultimately concluding that those methods cannot tackle the issue alone. Part III will provide a detailed description of the adaptation regime as a precursor for showing why this is the most efficient option for addressing global health problems. Part IV will then illustrate how the adaptation regime is working to respond to climate change impacts on health. Finally, Part V will discuss the benefits of incorporating the health community into the adaptation regime, as well as the barriers preventing advancements in health adaptation.

I. Climate Change and Global Public Health

Climate change not only creates health vulnerabilities, but also magnifies and intensifies existing health hazards.[11] The global health community has acknowledged these health impacts, prompting health advocates and policymakers to develop a relationship between health and climate change law. Still, it is necessary to strengthen the relationship between health advocates and policymakers in order to prepare countries for deteriorating health systems and the transboundary problems that could result.

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9. The adaptation regime can be described by the series of rules, institutions, working programs, efforts and policies that have developed in relation to building resilience to climate change, primarily through the UNFCCC. Wiley, *supra* note 1, at 441; *see also* Melanie Böckmann, Exploring the Health Context: A Multimethod Approach to Climate Change Adaptation Evaluation (Apr. 2015) (Ph.D. dissertation, University of Bremen), https://d-nb.info/1077864329/34 [https://perma.cc/QM3Y-V7WX].

10. Kristie L. Ebi et al., *An Approach for Assessing Human Health Vulnerability and Public Health Interventions to Adapt to Climate Change*, 114 Envtl. Health Perspectives 1930, 1931 (2006); Lindsay F. Wiley, *Healthy Planet, Healthy People: Integrating Global Health into the International Response to Climate Change*, 24 J. of Env't L. & Litig. 203, 239 (2009).

11. James D. Fry & Inna Amesheva, *Cleaved International Law: Exploring the Dynamic Relationship between International Climate Change Law and International Health Law*, 40 The Fletcher Forum of World Affairs 73, 78 (2016); Human Rights Council, Analytical Study on the Relationship Between Climate Change and . . . Physical and Mental Health, U.N. Doc. A/HRC/32/23 (May 6, 2016) [hereinafter Human Rights Council Study].

A. *Climate Change Impacts on Human Health*

Climate change will inevitably affect almost all aspects of human health.[12] Anthropogenic activities which have contributed to the rise of GHGs in the atmosphere and climate impacts, have led to problems such as air pollution, soil and water contamination, and ecosystem collapse.[13] These problems, in turn, then cause adverse impacts on health worldwide, including threats to food security, infectious diseases, sea level rise and extreme weather events.[14] In addition, climate change not only creates health problems, but it also exacerbates existing health concerns.[15] For instance, climate change creates irregular irrigation patterns, which could lead to a decline in crop yields and increase strain on regions already facing malnourishment and poverty.[16]

Water-related events provide a clear example of the connection between climate change and health.[17] This was recognized in the UN's Sustainable Development action plan, Agenda 21.[18] Agenda 21 stipulates that "[s]afe water-supplies and environmental sanitation are vital for protecting the environment, improving health and alleviating poverty."[19] Devastating floods in flood-prone regions can destroy homes, crops, and infrastructure.[20] In drier regions, ongoing droughts limit access to water for drinking and sanitation purposes.[21] Scarcity of clean, safe water can be devastating to health due to an increase in water-borne diseases as a result of droughts and inadequate sanitation practices.[22]

Climate change has also been associated with an increase in the frequency and intensity of extreme weather events.[23] Sea level rise, increases in storm surges, and severe storms cause direct injuries to many people, especially

12. Heinzerling, *supra* note 2, at 448.
13. Fry & Amesheva, *supra* note 11, at 75.
14. *Id.* at 75–76; Subsidiary Body for Sci. & Tech. Advice, Human Health and Adaptation: Understanding Climate Impacts on Health and Opportunities for Action, U.N. Doc. FCC/SBSTA/2017/2, at 6 (Mar. 3, 2017) [hereinafter Secretariat Synthesis Paper on Health & Adaptation]; U.N. Secretary-General, *Health and Sustainable Development*, ¶¶ 12–13, 31 U.N. Doc. E/CN.17/2001/PC/6 (Mar. 2, 2001) [hereinafter *UNESC Health & Sustainable Development Report*].
15. Wiley, *supra* note 10, at 210.
16. Fry & Amesheva, *supra* note 11, at 76; Aminzadeh, *supra* note 1, at 243.
17. *See UNESC Health & Sustainable Development Report*, *supra* note 14, ¶¶ 18, 31; Fry & Amesheva, *supra* note 11, at 77.
18. U.N. Conference on Environment & Development, Agenda 21, U.N. Doc. A/CONF.151/26/Rev.I (Vol.I) (June 14, 1992) [hereinafter Agenda 21]; Fry & Amesheva, *supra* note 11, at 77.
19. Agenda 21, *supra* note 18, at ch. 18, ¶ 47.
20. Fry & Amesheva, *supra* note 11, at 77.
21. *Id.*
22. Wiley, *supra* note 10, at 214–215.
23. Heinzerling, *supra* note 2, at 448; Aminzadeh, *supra* note 1, at 243; Wiley, *supra* note 10, at 210–211.

those from Small Island Developing States (SIDS).[24] Heat waves in Europe and North America have resulted in the deaths of tens of thousands of people.[25]

But equally concerning as these high-profile events are the "gradually emerging" effects on health.[26] Rising temperatures result in higher levels of pollution, such as smog, which can weaken human lung functions.[27] Intensified air pollution impacts cardiovascular and respiratory health leading to more asthma attacks and heat strokes.[28] These impacts have been felt the most by people in developing countries, and even more disproportionately, by children and the elderly in those countries.[29] Moreover, vulnerable communities typically lack access to regular medication and treatment, so an increase in natural disasters will only further disrupt the healthcare infrastructure in those regions.[30]

B. *The Global Health Community's Recognition of the Problems Caused by Climate Change*

The health organizations, advocates, and experts that make up the global health community have recognized the problems caused by climate change and have begun to take necessary steps to integrate the regimes of international climate change and public health.[31] For example, the World Health Assembly (WHA) has sought to obtain a greater role within the United Nations Framework Convention on Climate Change (UNFCCC).[32] In 2008, the organization issued a resolution calling on the Director General to work with member nations and U.N. entities, including the UNFCCC, "to ensure that health impacts are taken into account in the international response to

24. Wiley, *supra* note 10, at 210–211.

25. *Id.* at 210; Ann E. Carlson, *Heat Waves, Global Warming, and Mitigation*, 26 UCLA J. Envtl. L. & Pol'y 169, 170–171, 175–176 (2008).

26. Wiley, *supra* note 10, at 212.

27. *Id.* at 212–13.

28. Aminzadeh, *supra* note 1, at 252; Wiley, *supra* note 10, at 212.

29. Wiley, *supra* note 1, at 444; Annette Prüss-Üstün & Carlos F. Corvalán, World Health Org. *Preventing Disease Through Healthy Environments: Towards an Estimate of the Environmental Burden of Disease* (2006), http://www.who.int/quantifying_ehimpacts/publications/preventingdisease.pdf [https://perma.cc/UEY9-UUF2] (estimating that more than four million child deaths each year are caused by environmental problems, and that "[t]he infant death rate from environmental causes is 12 times higher in developing countries than in developed countries . . . ").

30. Lindsay F. Wiley & Lawrence O. Gostin, *The International Response to Climate Change: An Agenda for Global Health*, 302 JAMA 1218, 1219 (2009); Fry & Amesheva, *supra* note 11, at 76–77; Wiley, *supra* note 10, at 235.

31. Marlies Hesselman & Brigit Toebes, *The Human Right to Health and Climate Change: A Legal Perspective*, (Global Health Law Groningen, Working Paper No. 2015/1, 2015), https://papers.ssrn.com/abstract=2688544 [https://perma.cc/76R4-AFS7]; Fry & Amesheva, *supra* note 11, at 91.

32. World Health Assembly Resolution WHA61.19, Climate Change and Health (May 24, 2008), https://www.who.int/globalchange/A61_R19_en.pdf [https://perma.cc/R6P7-TF6R].

climate change."[33] Moreover, the WHA has urged its member nations to integrate public health measures into their national climate change plans.[34]

The World Health Organization (WHO) has shown the most initiative in strengthening the relationship between health and the procedures and institutions established within the climate change regime. The WHA issued two resolutions requesting WHO to develop the capacity to assess the health risks from climate change, implement response measures, and help member nations strengthen their partnerships and health systems.[35] WHO has advocated for "better integration of health concerns" into climate change policies, stating that "[c]limate change is the defining issue for health systems in the 21st century."[36] The organization refers to the Paris Agreement as a fundamental health agreement and has called it "the most important public health agreement of the century."[37] Although WHO should be leading the fight against climate impacts on global health, it has "shied away" from the politics of international law and taken a more subservient, guiding role.[38] This is likely because the environmental advocacy community has dominated international climate change negotiations.[39] Regardless, while WHO can generally address health problems efficiently, it lacks the ability to comprehensively address climate change on its own. The organization is spread too thin, and cannot focus on climate change impacts since it also needs to work in policy areas outside of climate change, such as trade and foreign policy.[40]

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33. Wiley, *supra* note 1, at 481–82; Kathryn J. Bowen, Kristie Ebi & Sharon Friel, *Climate Change Adaptation and Mitigation: Next Steps for Cross-Sectoral Action to Protect Global Health*, 19 Mitigation & Adaptation Strategies for Glob. Change 1033, 1035 (2014).

34. Wiley, *supra* note 1, at 481–82.

35. World Health Assembly Resolution WHA51.29, Protection of Human Health from Threats Related to Climate Change and Stratospheric Ozone Depletion, (May 16, 1998), https://apps.who.int/iris/bitstream/handle/10665/258896/WHA51-1998-REC-1-eng.pdf;-jsessionid=2CAAAA65E2F1FD62B9B9A064127FC311 [https://perma.cc/MF47-TXHF]; World Health Assembly Resolution WHA61.19, *supra* note 32; World Health Organization Executive Board Resolution EB124.R5, Climate Change and Health, (Jan. 22, 2009), http://apps.who.int/gb/ebwha/pdf_files/EB124-REC1/2B124_REC1-en.pdf [https://perma.cc/MT99-UL65]; Fry & Amesheva, *supra* note 11, at 86.

36. Fry & Amesheva, *supra* note 11, at 91; World Health Organization Director-General, *WHO Director-General addresses event on climate change and health* (Dec. 8 2015), http://www.who.int/dg/speeches/2015/climate-change-paris/en [https://perma.cc/8FYQ-T8W5]

37. *The Paris Agreement Is a Health Agreement—WHO*, U.N. Climate Change News (May 3, 2017), https://unfccc.int/news/the-paris-agreement-is-a-health-agreement-who [https://perma.cc/C29K-8JS2].

38. Gostin, *supra* note 8, at 378–79.

39. *See* Wiley, *supra* note 10, at 208.

40. *See* Ilona Kickbusch, Wolfgang Hein & Gaudenz Silberschmidt, *Addressing Global Health Governance Challenges Through a New Mechanism*, 38 J.L. Med. & Ethics 550, 551 (2010).

C. *Why Global Health Should Be a Leading Concern Within International Climate Change Law*

One of the largest problems posed by climate change is that the nations that are the most vulnerable to climate change and that bear a disproportionate burden of its health impacts have the least capacity to manage those impacts.[41] The world's most vulnerable populations typically have the weakest health systems.[42] These nations also have very limited access to the technology and funding needed to mitigate the consequences of climate change.[43] On the other hand, wealthier nations that have the necessary technology and funding are acutely resistant to providing poorer nations with resources.[44] When wealthier countries do act, it is typically related to a "narrow self-interest" rather than a legal obligation.[45] In addition, countries that are likely to suffer the least from climate change impacts have spent more money addressing climate impacts within their own borders than they have donated to countries in need.[46] Unfortunately, this continued lack of contribution by wealthier countries results in "a spiraling deterioration of health in the poorest regions," which can raise transboundary implications such as territorial disputes caused by land changes and the transmission of infectious diseases across borders.[47]

"[N]o country can insulate itself" from these impacts.[48] Declining health is a matter of concern even for nations whose public health is not as severely affected by climate change.[49] Communities around the world are interdependent and rely on each other for health security because of potential transboundary issues.[50] All countries have both a national and global interest in preparing for climate change impacts on health because health problems in a neighboring country often become a domestic problem.[51] Take the case of infectious diseases.[52] Researchers have predicted an increase in the number of infectious diseases due to shifting weather patterns, increased rainfall,

41. Gostin, *supra* note 8, at 333–34; Heinzerling, *supra* note 2, at 450; Fry & Amesheva, *supra* note 11, at 76; Aminzadeh, *supra* note 2, at 243.

42. Gostin, *supra* note 8, at 333–34; Heinzerling, *supra* note 2, at 450; Wiley & Gostin, *supra* note 30, at 1219; Fry & Amesheva, *supra* note 11, at 76–77; *see also* Aminzadeh, *supra* note 1, at 243.

43. Wiley & Gostin, *supra* note 30, at 1219. See Fry & Amesheva, *supra* note 11, at 76–77, for discussion of impacts.

44. Gostin, *supra* note 8, at 333–34; Daniel Bodansky, *The United Nations Framework Convention on Climate Change: A Commentary* 18 Yale J. Int'l L. 451, 527 (1993).

45. Gostin, *supra* note 8, at 334; Bodansky, *supra* note 44, at 527–28.

46. Wiley, *supra* note 10, at 223 ("While developed nations are currently spending about $40 million per year to fund adaptation in developing countries, they are spending about $40 billion per year on their own adaptation projects.").

47. Gostin *supra* note 8, at 334; Wiley, *supra* note 10, at 239–40.

48. Gostin, *supra* note 8, at 347.

49. *Id.*

50. Gostin, *supra* note 8, at 347; Wiley, *supra* note 10, at 239–40.

51. Gostin, *supra* note 8, at 334; Wiley, *supra* note 10, at 239–40.

52. Heinzerling, *supra* note 2, at 447.

and rising temperatures.[53] Thirty newly discovered infectious diseases have emerged over the past twenty to thirty years.[54] These diseases are not only impacting the nations where they were discovered, but they also are spreading across national borders.[55] DNA fingerprinting has proven that disease-causing pathogens have been migrating from less-developed to more-developed countries.[56] Thus, disease transmission is one example of the transboundary impacts that deteriorating health in one country will have on neighboring nations. This can lead to further impacts on international relations and trade.[57] For example, if an outbreak occurs in a country that does not have the health infrastructure to manage it, they will likely put a lot of pressure on neighboring countries to provide assistance and support. This, in turn, can interfere with the relationship these countries have formed. In addition, outbreaks can devastate the economies of certain countries, thereby thwarting their ability to develop and impairing their status as a reliable trader partner.

Moreover, declines in health often correlate with the rise of other national security issues such as government instability, mass migrations, civil unrest, and, in some instances, war.[58] For example, the genocide in Darfur has been linked with territorial disputes caused by recurring droughts.[59] Also, the rise in the number of infectious diseases that are "overwhelmingly concentrated" in Sub-Saharan Africa has been linked with the political and military disorder in that region.[60] As climate change related health impacts become increasingly worse, even areas with stronger political and military economies, such as China, India, or Russia, may experience disorder due to emerging health crises.[61] Thus, it serves the interests of all states to respond to these health threats, even if the threats currently exist outside of national borders.[62]

A consistent point raised by policymakers and scholars is that "putting a human face on climate change" can be a key factor in motivating political will.[63] Typically, environmental threats do not attract the attention of policymakers until they are linked with human health.[64] For example, early studies

53. Wiley, *supra* note 10, at 213–14; Human Rights Council Study, *supra* note 11, at 6; Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 7–8.

54. Wiley and Gostin, *supra* note 30, at 353.

55. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 7–8; *UNESC Health & Sustainable Development Report*, *supra* note 14, at 29.

56. Gostin, *supra* note 8, at 353.

57. Gostin, *supra* note 8, at 334, 357; Wiley, *supra* note 10, at 239–40; WTO Agreements & Pub. Health: A Joint Study by the WHO and the WTO Secretariat (2002).

58. Gostin, *supra* note 8, at 358; Heinzerling, *supra* note 2, at 448–49; Wiley, *supra* note 10, at 208.

59. Heinzerling, *supra* note 2, at 450.

60. Gostin, *supra* note 8, at 359.

61. *Id.*

62. *Id.* at 361.

63. Heinzerling, *supra* note 2, at 447; Wiley, *supra* note 10, at 223–24.

64. Heinzerling, *supra* note 2, at 451.

found that the pesticide DDT caused harm to wildlife, but the substance was not banned by the U.S. government until it was tied to increased cancer risk in humans.[65] The climate change legal regime has suffered due to lack of interest and disbelief; however, emphasizing that the health of a large portion of the world's population is threatened will make "the moral case for aggressive action on climate change unimpeachable."[66] Incorporating health impacts within climate change law can help motivate policymakers and advocates to strive for more aggressive climate change commitments.

II. Using Climate Change Law to Address Health Impacts

Although the link between climate change and health is verifiable,[67] the most effective method for addressing health impacts on a global scale has yet to be discovered. Some advocates have taken the issue to the courtroom by arguing that their right to health has been violated. While litigation may help address climate change impacts on health, the litigation process is generally too slow to address the urgency of global health hazards.[68] Other climate change advocates have attempted to use the mitigation regime developed under UNFCCC to promote health co-benefits. Both approaches have advantages but have failed to give health the status it needs to provide the quick, efficient, and widespread response that is necessary.

A. *Climate Change Litigation: A Slow and Narrow Option for Global Health Advocacy*

Although the UNFCCC is the core of the international climate change regime, litigation has provided a method for addressing climate impacts on health, and therefore deserves mention.[69] Climate change litigants seek relief that can provide a range of health benefits, such as shutting down power plants

65. *Id.*

66. Kickbusch, Hein & Silberschmidt, *supra* note 40, at 553; Heinzerling, *supra* note 2, at 451; Wiley, *supra* note 10, at 226.

67. Many countries, organizations, and agreements have recognized the link between climate change and health. *See* Aminzadeh, *supra* note 1, at 241–42; *UN Launches New Coalition on Health, Environment and Climate Change*, UNFCC (May 30, 2018), https://unfccc.int/news/un-launches-new-coalition-on-health-environment-and-climate-change [https://perma.cc/SP2S-HW7J]; *WMO and WHO Tackle Health Impacts of Pollution, Extreme Weather, Climate Change*, World Meteorological Org. (May 31, 2018), https://public.wmo.int/en/media/press-release/wmo-and-who-tackle-health-impacts-of-pollution-extreme-weather-climate-change [https://perma.cc/SP2S-HW7J]; United Republic of Tanzania Vice President's Office, Division of Enforcement, National Climate Change Strategy 30–31 (2012); United Nations Framework Convention on Climate Change, art. 1(1), 4(1)(f), May 9, 1992, S. Treaty Doc. No. 102–38, 1771 U.N.T.S. 107 [hereinafter UNFCCC].

68. Saheed A. Alabi, *Climate Change and the Aging Population: Enforcing the Rights to Life and Health Under Human Rights, Health and Climate Change Regimes*, 7 Pitt. J. of Envtl & Pub. Health L. 79, 112 (2012); Aminzadeh, *supra* note 1, at 232.

69. Daniel Bodansky, *The Emerging Climate Change Regime*, 20 Ann. Rev. Energy & Env't 425 (1995).

emitting harmful pollutants or preventing urban development that could increase flooding.[70] For instance, in *Guerra v. Italy* the court held a fertilizer production factory emitting large quantities of toxic fumes accountable for the health impacts on people living nearby.[71]

Many international courts have recognized the link between health impacts and the human activities which have contributed to an imbalanced climate system.[72] These courts have held that anthropogenic activities affecting the climate may threaten a population's standard of living and impinge on recognized human rights.[73] Individuals can bring lawsuits asserting a violation of these human rights, such as the right to health, found under international treaties.[74] For example, the Universal Declaration of Human Rights states that people are entitled to a "standard of living adequate for . . . health" and the International Covenant of Economic, Social, and Cultural Rights (ICESCR) protects the "highest attainable standard of physical and mental health."[75] Other countries have a similar right set forth in their national or regional charters.[76] Under a right to health, countries must ensure adequate access to the fundamental elements of health, including adequate sanitation and access to safe, drinkable water.[77]

SERAC & CESR v. Nigeria provides an example of enforcing the human right to a clean and healthy environment in the face of detrimental anthropogenic activities.[78] The case was filed on behalf of the Ogoni people against

70. *See* Sabrina McCormick et al., *The Role of Health in Climate Litigation*, 108 Am. J. Pub. Health 104, 106 (2018).

71. *See* Guerra v. Italy, 26 Eur. Ct. H.R. 357 (1998); Alabi, *supra* note 68, at 125; *see also* Taskin v. Turkey, 42 Eur. Ct. H.R. 50 (2006) (noting that the court held a gold mine accountable for pollution caused by the use of explosives and a cyanidation operation process); Fadeyeva v. Russia, 45 Eur. Ct. H.R. 376 (2005) (noting that the court held the Russian Government liable for the air and noise pollution caused by a steel plant).

72. Fry & Amesheva, *supra* note 11, at 81.

73. *Id.*; Gostin, *supra* note 8, at 381; Aminzadeh, *supra* note 1, at 253; The International Covenant on Economic, Social and Cultural Rights art. 12, Dec. 19, 1966, 6 I.L.M. 362 [hereinafter ICESCR].

74. *See* Gostin, *supra* note 8, at 381; Aminzadeh, *supra* note 1, at 253; Sumudu Atapttu, *The Public Health Impact of Global Environmental Problems and the Role of International Law*, 30 Am. J.L. & Med. 283 (2004); ICESCR, *supra* note 73, at art. 12.

75. Gostin, *supra* note 8, at 381; Aminzadeh, *supra* note 1, at 253; ICESCR, *supra* note 73, at art. 12.

76. *See* Patricia Birnie et al., International Law & The Environment 273 (Oxford University Press 3rd ed. 2009); Alan Boyle, *Human Rights or Environmental Rights? A Reassessment*, 18 Fordham Envtl. L. Rev. 471, 474 (2008); *see also* African Charter on Human and Peoples' Rights art. 24, June 19, 1981, 21 I.L.M. 58 (recognizing a right to a "satisfactory environment") [hereinafter ACHPR]; Additional Protocol to the American Convention on Human Rights art. 11, Nov. 14, 1988, 28 I.L.M. 156 ("Everyone shall have the right to live in a healthy environment and to have access to basic public services.").

77. Hesselman & Toebes, *supra* note 31, at 4; Atapttu, *supra* note 74, at 286.

78. Social & Economic Rights Action Centre (SERAC) & the Centre for Economic and Social Rights (CESR) v. Nigeria, Communication 115/96, African Commission on

Nigeria's federal government for permitting Shell Petroleum to conduct oil and gas explorations causing environmental degradation.[79] Their claim was based on the African Charter on Human and Peoples' Rights which states that the government "shall take the necessary measures to protect the health of their people . . . ."[80] The African Commission on Human & Peoples' Rights found that Shell's activities affected the Ogoni people's right to health because the operations contaminated the water, soil, and air causing short-term and long-term health problems.[81]

Including health allegations in climate change cases can also provide compelling narratives, and "putting a human face on the issue" can help bring urgency and awareness to the detrimental impacts climate change can have on human health.[82] Unfortunately, even without addressing health, climate change litigation "faces significant barriers to justiciability."[83] For example, climate change lawsuits raise complicated issues of causation and redressability.[84] Climate change happens in the atmosphere, therefore it is nearly impossible to show that a specific actor or activity caused a specific injury.[85] For instance, how could it be proven that a coal mine in Australia is the direct cause of an increase in incidents of malaria in South America? The evidentiary standard for a legal claim, such as asserting the right to health, requires the litigant to prove that the litigant's right was violated, and the litigant's health was harmed by the state or the other party's failure to restrict polluting activities.[86] Litigants lose if they cannot prove that the particular activity caused his or her specific health problems.[87] Additionally, barriers to identifying the responsible actor, the victim, and the proper remedy make it even more difficult to address the issue.[88] This is likely why few litigators rely on health-related impacts in climate change lawsuits.[89]

Additionally, lawsuits establish vague norms that are unlikely to become common standards, do not create implementation or compliance mechanisms, and "are silent on critically important aspects of global health."[90] For example,

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Human and Peoples' Rights [Afr. Comm'n H.P.R.], (Oct. 27, 2001), http://www.achpr.org/files/sessions/30th/comunications/155.96/achpr30_155_96_eng.pdf [https://perma.cc/3EQM-AZ6W]; ACHPR, *supra* note 76, at art. 24; Alabi, *supra* note 68, at 113–14; Aminzadeh, *supra* note 1, at 254.

79. Alabi, *supra* note 68, at 113–14.
80. Afr. Comm'n H.P.R., *supra* note 78.
81. Alabi, *supra* note 68, at 113–14; Aminzadeh, *supra* note 1, at 254.
82. McCormick et al., *supra* note 70, at 106; Aminzadeh, *supra* note 1, at 261.
83. Aminzadeh, *supra* note 1, at 233.
84. Aminzadeh, *supra* note 1, at 233; McCormick et al., *supra* note 70, at 104.
85. Aminzadeh, *supra* note 1, at 233.
86. *Id.* at 264.
87. *Id.*
88. *Id.*
89. McCormick et al., *supra* note 70, at 107.
90. Gostin, *supra* note 8, at 379.

some courts have determined that there is a duty to take appropriate measures to prevent environmental pollution from interfering with the right to health or the enjoyment of life.[91] However, the standards that countries must follow from these decisions are not always clear outside of the specific factual scenario set forth in the cases. Other courts have hinted at the existence of a right to a healthy environment, but, again, there are discrepancies and a lack of consistent meaning among countries which have hindered the clear development of this right.[92] Moreover, the jurisprudence associated with a right to health typically focuses on the impacts faced by the citizens of a particular country, and is tailored to address a narrow factual scenario.[93] Considering the complex issues climate change litigation already faces, the courtroom is not often a viable option to provide the necessary response. To address global health problems caused by climate change, litigation would need to proceed more quickly and set standards that can become binding, customary international law.[94] Thus, litigation may be too slow a mechanism to tackle the urgent and widespread health issues posed by climate change.

B. *The International Climate Change Regime: A Better Way to Address Global Health*

Scholars have proposed different governance mechanisms for addressing global health concerns, such as a framework convention on global health and a task-specific committee developed within the WHA.[95] Most of these proposals, however, fail to consider the benefits of using the existing mechanisms established within the international climate change regime.

1. UNFCCC: A Framework Structure for Addressing Global Health Concerns

Countries establish treaty regimes when they realize they have a common interest requiring continuous coordination at the international level.[96] With

91. *See, e.g.*, López Ostra v Spain, 20 EHRR 277 (1994).

92. Social & Economic Rights Action Centre (SERAC) & Centre for Economic & Social Rights (CESR) v. Nigeria, Communication 115/96, African Commission on Human and Peoples' Rights [Afr. Comm'n H.P.R.], (Oct. 27, 2001), http://www.achpr.org/files/sessions/30th/comunications/155.96/achpr30_155_96_eng.pdf [https://perma.cc/3EQM-AZ6W]; Dinah Shelton, *What Happened in Rio to Human Rights?*, 3 Yearbook of Int'l Envtl. L. 75, 80–81 (Dec. 1, 1993); Karrie Wolfe, *Greening the International Human Rights Sphere? Environmental Rights and the Draft Declaration of Principles on Human Rights and the Environment*, 9 Appeal: Rev. of Current L. & L. Reform 45, 46 (2003); Sarah Baker, *Environmental Protection at the Intersection of International Human Rights and International Environmental Law* 7 Asia Pac. J. of Envtl. L. 51, 64–65 (2002); Thomas Ng, *Environmental Rights: Progressive Development or Obfuscation of International Human Rights Law?* (2011) 7 Original L. Rev. 72, 83–84.

93. *Id.* at 382.

94. Birnie et al., *supra* note 76, at 22–23.

95. Gostin. *supra* note 8; Kickbusch, Hein & Silberschmidt, *supra* note 40.

96. *See* Kickbusch, Hein & Silberschmidt, *supra* note 40, at 557.

regards to health, Lawrence Gostin has proposed a Framework Convention on Global Health (FCGH).[97] Gostin's convention focuses on what he calls "basic survival needs."[98] By focusing on these basic needs, the international community can agree to a shared set of responsibilities to tackle the major causes of disease and death.[99] However, Gostin's FCGH will "not be easy to achieve politically or provide an ideal solution."[100] Forming an entirely new agreement among different countries and regions with varying health needs is a difficult task.[101] In addition, the process of forming a new convention is lengthy, potentially contentious, and unlikely to be implemented quickly enough.[102] Fortunately, there is a structure already established within the UNFCCC.

Under a framework convention like the UNFCCC, states commit to a set of goals and targets and provide forums for constructive engagements to take place among various stakeholders, both private and public, at multiple levels.[103] The UNFCCC provides a prime example of the type of global health governance mechanism necessary, not only because of its framework structure, but because of the health co-benefits associated with its objectives on mitigation and adaptation.[104] Therefore, as will be further explained in Part III, health advocates should use the structure and collective action already established under the UNFCCC to combat global climate change.

2. The Mitigation Regime and the Failure to Capitalize on Global Health Co-Benefits

According to Article 2, the objective of the UNFCCC is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[105] In order to meet this objective, the international community has primarily focused on mitigation actions including reducing GHG emissions and increasing carbon sinks to avoid the harmful consequences of climate change.[106] Mitigation measures, such as carbon-reduction efforts, can provide many positive benefits for global health.[107] For example, some of the most prevalent and expensive illnesses in developed countries, such as respiratory and

97. Gostin, *supra* note 8.
98. *Id.* at 334.
99. *Id.* at 334, 347.
100. *Id.* at 335.
101. *See id.* at 390–91.
102. *See id.*
103. *See id.* at 335.
104. *See id.* at 386–87.
105. UNFCCC, art. 2., 1771 U.N.T.S. 107, 169 (1992).
106. Wiley & Gostin, *supra* note 30, at 1218; *see* William Onzivu, *Health in Global Climate Change Law*, 4 Carbon & Climate L. Rev.: CCLR, 364 (2010).
107. William Onzivu, *Tackling the Public Health Impact of Climate Change: The Role of Domestic Environmental Health Governance in Developing Countries*, 4 Int'l Lawyer 1311, 1319 (2009); Bowen, Ebi & Friel, *supra* note 33, at 1036–37.

cardiovascular problems, can be prevented through mitigation measures such as transitioning to cleaner energy production.[108]

Sustainable agricultural and land-use practices also offer a vast number of health co-benefits, especially in developing and rapidly industrializing countries.[109] For instance, sustainable agriculture, such as reducing methane emissions through improved management of livestock, will not only increase food security but may also promote poverty reduction while increasing resilience of agro-ecosystems.[110] Avoiding deforestation can provide health co-benefits such as reducing the risk of infectious disease while also improving air, soil, and water quality.[111] Nonetheless, agricultural-based measures have not played a major role in mitigation efforts and there remains a general lack of support for these efforts compared to efforts in other sectors.[112] This is illustrated by the fact that these projects are not currently eligible for project status under the Clean Development Mechanism (CDM) developed under the UNFCCC, which is meant to help Parties meet their Kyoto Protocol emissions.[113]

The UNFCCC Parties' mitigation-focused approach has overwhelmingly favored GHG emissions reductions from the transportation, energy, and industrial sectors, in addition to emissions trading and renewable energy.[114] Yet these mitigation measures rarely are health focused and typically ignore imminent threats to human health.[115] This might be attributable to the belief that emission reductions may "hinder development in the poorer countries of the world," and therefore, could actually be harmful to global health.[116] For example, the U.N. High Commissioner for Human Rights recognized that mitigation

108. Onzivu, *supra* note 106, at 379; Onzivu, *supra* note 107, at 1319 (quoting Michael R. Bloomberg & Rohit T. Aggarwala, *Think Locally, Act Globally: How Curbing Global Warming Emissions Can Improve Local Public Health*, 35 Am. J. Prev. Med. 414 (2008) (asthma and heart disease can be reduced by a transition to cleaner transportation methods and other changes that reduce combustion emissions)).

109. *See* Wiley & Gostin, *supra* note 30, at 1219; Wiley, *supra* note 10, at 208–09.

110. *See* Debra L. Donahue, *Livestock Production, Climate Change, and Human Health: Closing the Awareness Gap*, 45 Envtl. L. Reporter, at 11112, 11116, 11121–22 (Nov. 30, 2015); Wiley, *supra* note 10, at 231; White House, Climate Action Plan: Strategy to Reduce Methane Emissions 1 (Mar. 28, 2014), https://obamawhitehouse.archives.gov/sites/default/files/strategy_to_reduce_methane_emissions_2014-03-28_final.pdf [https://perma.cc/T253-ZHDV].

111. Wiley & Gostin, *supra* note 30, at 1219.

112. *See* Wiley, *supra* note 10, at 231–32; Food & Agric. Org. of the U.N., Enabling Agriculture to Contribute to Climate Change Mitigation 5 (2008), http://unfccc.int/resource/docs/2008/smsn/igo/036.pdf [https://perma.cc/RH4K-B2HC].

113. *See* Wiley, *supra* note 10, at 231–32; Birnie et al., *supra* note 76, at 364–65; Food & Agric. Org. of the U.N., *supra* note 112.

114. Wiley & Gostin, *supra* note 30, at 1219; Onzivu, *supra* note 106, at 379; Onzivu, *supra* note 107, at 1321; Alabi, *supra* note 68, at 85–86.

115. Wiley & Gostin, at *supra* note 30, at 1219; Onzivu, *supra* note at 106, at 379; Wiley, *supra* note 10, at 226–27.

116. Wiley, *supra* note 10, at 234.

efforts like biofuel agro-industry, hydroelectric power, and forest conservation "can contribute to food insecurity and displacement."[117]

Regardless of the potential co-benefits, the mitigation regime has ultimately failed to make adequate strides in addressing global health concerns.[118] Developed at the 13th Conference of the Parties (COP) of the UNFCCC, the Bali Action Plan included a call for adopting multisector approaches to enhance mitigation, which would presumably include the health sector.[119] But, the Bali Action Plan never clarified what should be included within this multisector approach.[120] Thus, the bias for mitigation efforts in favorable sectors such as transportation, energy, and industrial remains a priority for UNFCCC country Parties.[121]

As the climate change impacts are becoming more apparent and felt around the world, scientists and decisionmakers have begun discussing adaptation methods.[122] For example, nations like China and India have insisted that their willingness to commit to mitigation efforts is closely linked with the commitments of developed nations, like the United States, to provide financial and technical assistance to developing nations for adaptation measures.[123] Thus, one of the ways in which the mitigation regime can help promote health measures is by guiding action towards adaptation.

III. The Adaptation Regime: A Shift Away From the Mitigation-Approach

As mentioned above, the international climate change regime has overlooked an adaptation approach in favor of mitigation.[124] This was based on science, as seen in the early Intergovernmental Panel on Climate Change (IPCC) reports, which emphasized that climate change could best be reversed by limiting GHG emissions.[125] Now a "realist view" has emerged as the certainty surrounding climate change and its impacts has increased.[126] This is why some

117. Human Rights Council Study, *supra* note 11.

118. *See* Onzivu, *supra* note 106, at 379.

119. *Id.*

120. *Id.*

121. *Id.*

122. Wiley, *supra* note 1, at 452; Driessen & van Rijswick, *supra* note 2, at 559; Onzivu, *supra* note 106, at 376; *See also* Aminzadeh, *supra* note 1, at 232.

123. *See* Onzivu, *supra* note 106, at 376.

124. Schipper, *supra* note 5, at 82; Robert W. Kates, *Climate Change 1995: Impacts, Adaptations, and Mitigation*, 39 Env't: Sci. & Pol'y for Sustainable Dev. 29, 29 (1997).

125. Emma Lisa Freya Schipper, Exploring Adaptation to Climate Change: A Development Perspective 55 (June 2004) (unpublished Ph.D. dissertation, University of East Anglia).

126. Schipper, *supra* note 5, at 84; Schipper, *supra* note 125, at 49; R. J. T. Klein, *Adaptation to Climate Variability and Change: What is Optimal and Appropriate?*, *in* Climate Change in the Mediterranean: Socio-Economic Perspectives of Impacts, Vulnerability and Adaption 32, 32–33 (Carlo Giupponi & Mordechai Schecter eds., 2003).

scholars have proposed that climate change action should no longer be driven by precautionary principles but rather by postcautionary principles, especially in the context of addressing global human health concerns.[127] Applying a postcautionary approach puts an emphasis on the need to "adapt to the consequences that we cannot now avoid," and acknowledges that reducing GHG emissions alone will not avoid detrimental impacts.[128] These viewpoints are the reason that adaptation is now considered a "crucial" response option.[129] This is reflected in progressive, adaptation-focused responses under the UNFCCC.[130]

Before discussing the ways in which the adaptation regime is addressing health, it is important to describe the structure of the regime. This will provide a better understanding of how and why the regime creates a suitable foundation from which to address the impacts of climate change on global public health. To grasp the legal and political framework of the adaptation regime, it is best to look at the language set forth in the UNFCCC and its associated instruments, as well as decisions adopted by the negotiating body of the UNFCCC.

A. *Language Leading to Adaptation Action*

Although the UNFCCC objective has been viewed as favoring mitigation, it also includes an approach for planned adaptation to increase climate change resiliency.[131] This approach has also developed through the Convention's associated agreements. The progression of adaptation efforts was not as significant within the Kyoto Protocol, but has made greater strides through the Paris Agreement.

The UNFCCC approach to adaptation is not entirely clear from its text. Only two articles in the UNFCCC refer to adaptation, but none of the articles focus explicitly on adaptation.[132] Article 3.3 encourages Parties to take precautionary measures to prevent or minimize the causes of climate change. The Article notes that the measures implemented to achieve this goal should consider "adaptation," but it does not elaborate further.[133] Article 4 contains most of the adaptation provisions and the basis for the regime.[134] Under this Article, parties are asked to "facilitate adequate adaptation to climate change" and "cooperate in preparing for adaptation to the impacts of climate change."[135]

In addition, the UNFCCC's term "adverse effects" has served as a basis for incorporating adaptation considerations.[136] Article 1 of the treaty defines

127. *See* Heinzerling, *supra* note 2, at 459.

128. *Id.*

129. Schipper, *supra* note 5, at 84; Klein, *supra* note 126, at 32.

130. Klein, *supra* note 126, at 32; Schipper, *supra* note 5, at 84.

131. Wiley, *supra* note 1, at 452; Schipper, *supra* note 125, at 55; *see also* Bodansky, *supra* note 44.

132. Schipper, *supra* note 125, at 56.

133. UNFCCC, *supra* note 67, at art. 3.3.

134. *See* Schipper, *supra* note 125, at 61; UNFCCC, *supra* note 67, at art. 4.

135. UNFCCC, *supra* note 67, at art. 4.1(b), 4.1(e).

136. Schipper, *supra* note 125, at 61; UNFCCC, Report of the Conference of the Parties

the adverse effects of climate change as changes in the physical environment, which have significant deleterious effects "on human health and welfare."[137] In turn, the Convention's reporting, planning, and funding requirements to address "adverse effects" have spurred adaptation work.[138] Additionally, when nations act under their Article 4 commitments, they must consider ways to minimize the adverse effects that climate change has on health.[139] For example, implementation of the commitments under Article 4.8 and 4.9 in relation to "the adverse effects of climate change" in developing countries has prompted a lot of the accomplished adaptation work related to funding and technology transfers.[140] While Article 4 creates binding commitments, the Convention does not elaborate on the methods necessary to reach those goals. Yet, as discussed in Part III.B below, the COP decisions provide needed clarification.

The Kyoto Protocol also does not explicitly refer to adaptation.[141] Nevertheless, its Articles 2.3 and 3.14, which refer to "impacts of response measures," recognizes a link between adaptation and GHG emissions.[142] Additionally, Article 12.8 states that a portion of proceeds from certified projects must be used to meet the costs of adaptation, leading to the creation of the Adaptation Fund.[143] This Fund relies on a two percent levy on CDM projects undertaken in developing countries by developed countries seeking to offset their GHG emissions.[144] Even if the Kyoto Protocol were dissolved, the Adaptation Fund would continue to operate under the Paris Agreement.[145]

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on Its Third Session, Held at Kyoto From 1 to 11 December 1997 (Addendum), U.N. Doc. FCCC/CP/1997/7/Add.1, Decision 3/CP.3, (Mar. 25, 1998) [hereinafter Decision 3/CP.3]; UNFCCC, Report of the Conference of the Parties on Its Fourth Session, Held at Buenos Aires From 2 to 14 November 1998 (Addendum), U.N. Doc. FCCC/CP/1998/16/Add.1, Decision 5/CP.4, (Jan. 25, 1999) [hereinafter Decision 5/CP.4]; UNFCCC, Report of the Conference of the Parties on Its Fifth Session, Held at Bonn From 25 October to 5 November 1999 (Addendum), U.N. Doc. FCCC/CP/1999/6/Add.1, Decision 12/CP.5, (Feb. 2, 2000) [hereinafter Decision 12/CP.5]; UNFCCC, Report of the Conference of the Parties on Its Seventh Session, Held at Marrakesh From 29 October to 10 November 2001 (Addendum), U.N. Doc. FCCC/CP/2001/13/Add.1, Decision 5/CP.7, (Jan. 21, 2002) [hereinafter Decision 5/CP.7].

137. United Nations Framework Convention on Climate Change art. 1, May 9, 1992, S. Treaty Doc. No. 102–38, 1771 U.N.T.S. 107.

138. Schipper, *supra* note 125, at 59.

139. *Id.* at art. 4.

140. Schipper, *supra* note 125, at 61; Decision 3/CP.3, *supra* note 136; Decision 5/CP.4, *supra* note 136; Decision 12/CP.5, *supra* note 136; Decision 5/CP.7, *supra* note 136.

141. Schipper, *supra* note 125, at 62.

142. *Id.*

143. Kyoto Protocol to the United Nations Framework Convention on Climate Change art. 12.8, Dec. 11, 1997, 2303 U.N.T.S. 162, art. 12.8 [hereinafter Kyoto Protocol].

144. Wiley & Gostin, *supra* note 30, at 1219.

145. U.N. Framework Convention on Climate Change, Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol, Part Two: Action taken by the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol at its Thirteenth Session, Decision 1/CMP.13, U.N. Doc. FCCC/KP/CMP/2017/7/Add.1 (Feb. 8, 2018).

The Paris Agreement took more significant steps to strengthen the adaptation regime.[146] Under Article 7, the Agreement established a long-term "global goal on adaptation."[147] It calls upon parties to perform adaptation assessments and adopt adaptation plans, among other adaptation-related actions. The Agreement links its adaptation goal with the Nationally Determined Contributions (NDCs) that parties will submit, and other reporting vehicles, such as National Adaptation Programs of Action (NAPAs), National Adaptation Plans (NAPs), and adaptation communications pursuant to the Paris Agreement articles.[148]

The articles set forth in the UNFCCC and its associated instruments, such as the Kyoto Protocol and Paris Agreement, have provided the basis for parties to negotiate on adaptation and further develop the adaptation regime.

B. *Adaptation Endorsed Through COP Decisions*

The UNFCCC functions through the COP, the supreme body made up of the Parties to the Convention.[149] The COP is tasked with promoting the implementation of UNFCCC goals and serves as the "focal point of law-making activities" for the adaptation regime.[150] Thus, the adaptation regime has mostly developed out of COP negotiations.[151] Proponents of adaptation have been speaking out during negotiations since the 1990s.[152] At first, their concerns were overlooked during negotiations because adaptation was then associated with issues of liability and funding, discussions that developed countries sought to avoid.[153] However, the realization that Kyoto Protocol targets would not be achieved, coupled with the United States' rejection of the Protocol, prompted a shift in discussion.[154]

Adaptation "play[ed] a larger role" in negotiations in 2001.[155] COP7, which resulted in the 2001 Marrakesh Accords, was arguably the most important session for adaptation.[156] The mechanisms developed within the Marrakesh

146. Alexandra Lesnikowski et al., *What Does the Paris Agreement Mean for Adaptation?*, 17 Climate Pol'y 825 (2017).

147. Paris Agreement to the U.N. Framework Convention on Climate Change art. 7, Dec. 12, 2015, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 [hereinafter Paris Agreement].

148. Paris Agreement, *supra* note 147, at art. 7.11; *see generally* Lesnikowski et al., *supra* note 146, at 827; Gabrielle Kissinger & Thinley Namgyel, NAPAs and NAPs in Least Developed Countries, European Capacity Building Initiative 1 (2014), https://cdkn.org/wp-content/uploads/2014/05/LDC-briefing_NAPs.pdf [https://perma.cc/GB5T-A6A7]; Bowen, Ebi & Friel, *supra* note 33, at 1035.

149. UNFCCC, *supra* note 67, at art. 7.

150. Jutta Brunnée, *COPing with Consent: Law-Making Under Multilateral Environmental Agreements* 15 Leiden J. Int'l L. 1, 4 (2002); UNFCCC, *supra* note 67, at art. 7.

151. Schipper, *supra* note 125, at 49.

152. *See* Schipper, *supra* note 5, at 84–85.

153. *Id.*; Bodansky, *supra* note 44, at 523.

154. Schipper, *supra* note 5, at 86.

155. *Id.* at 83, 88.

156. *See generally* U.N. Framework Convention on Climate Change, Report of the

Accords initiated a shift in policy towards adaptation to climate change, and adaptation projects have bourgeoned as a result.[157] Decision 5/CP.7 was particularly important as it addressed the implementation of approaches to combat the "adverse effects of climate change," including impacts on health.[158] Parties also discussed major adaptation-related funding, technology transfer, and capacity building issues, such as (i) the development of adaptation technologies and dissemination of information about them;[159] (ii) guidelines for the Green Environment Fund (GEF) and the provision of funding for adaptation activities in developing countries;[160] (iii) the establishment of additional funding mechanisms for projects including the Special Climate Change Fund (SCCF), the Least Developed Country (LDC) Fund, and the Adaptation Fund.[161]

In 2004, the Parties agreed that a work program on adaptation should be adopted.[162] Thereafter, at COP12, the Nairobi Work Programme on Impacts, Vulnerability and Adaptation (NWP) was officially established within the Subsidiary Body for Scientific and Technological Advice (SBSTA), which became responsible for coordinating the NWP and reviewing its progress.[163] The goal of the NWP was to help developing countries improve their understanding of climate change adaptation and make informed decisions about adaptation actions.[164] At COP16, as part of the Cancun Agreements, the Cancun Adaptation Framework (CAF) was created and the Adaptation Committee was formed.[165] CAF explicitly highlighted the importance of adaptation under the UNFCCC by stating that "adaptation must be addressed with the same

Conference of the Parties on its Seventh Session Part Two: Action Taken by the Conference of the Parties, Decisions 1/CP.7–39/CP.7, U.N. Doc. FCCC/CP/2001/13/Add.4 (Jan. 21, 2002); Schipper, *supra* note 125, at 49.

157. Schipper, *supra* note 5, at 83.

158. Schipper, *supra* note 5, at 88; Decision 5/CP.7, *supra* note 136.

159. U.N. Framework Convention on Climate Change, Report of the Conference of the Parties on its Seventh Session, Decision 4/CP.7, U.N. Doc. FCCC/CP/2001/13/Add.1 (Jan. 21, 2002) [hereinafter U.N. Doc. FCCC/CP/2001/13/Add.1].

160. U.N. Doc. FCCC/CP/2001/13/Add.1, *supra* note 159, at Decision 6/CP.7.

161. U.N. Doc. FCCC/CP/2001/13/Add.1, *supra* note 159, at Decisions 2/CP.7, 3/CP.7, 5/CP.7, 7/CP.7, 10/CP.7.; Wiley, *supra* note 1, at 453; Schipper, *supra* note 125, at 65, tbl.3.6; Suraje Dessai, *The Special Climate Change Fund: Origins and Prioritisation Assessment*, 3 Climate Pol'y 295 (2003).

162. Schipper, *supra* note 5, at 88.

163. U.N. Framework Convention on Climate Change, Report of the Conference Parties on its Eleventh Session, Decision 2/CP.11, U.N. Doc. FCCC/CP/2005/5/Add.1 (Mar. 30, 2006); *see generally* U.N. Framework Convention on Climate Change, Report of the Subsidiary Body for Scientific and Technological Advice on its Twenty-Fifth Session, ¶ 11–71, UN Doc. FCCC/SBSTA/2006/11 (Feb. 1, 2007).

164. U.N. Framework Convention on Climate Change, Decision 2/CP.11, *supra* note 163, at annex.

165. U.N. Framework Convention on Climate Change, The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-term Cooperative Action Under the Convention, U.N. Doc. FCCC/CP/2010/7/Add.1, Decision 1/CP.16, at 4–5 (Mar. 15, 2011) [hereinafter The Cancun Agreements].

priority as mitigation."[166] It also stated that the initial structures for supporting enhanced adaptation should work across all Parties.[167]

The COP decisions made it clear that adaptation was becoming a priority and helped put the text of the UNFCCC into practice. Development of financial mechanisms and work programs has allowed the adaptation regime to continue its advancement. Through these mechanisms and negotiations, efforts to address health can be discussed and implemented.

IV. The Adaptation Regime's Response to Global Health Concerns

The UNFCCC has the potential to address the harms of climate change to human health, especially through the framework of its adaptation regime.[168] Through its COP decisions, work programmes, institutional bodies, and adaptation reporting vehicles, a link between the adaptation regime and global human health has developed.

A. *The Gradual Progression of Health Adaptation During the COPs*

As noted above, certain COP decisions have played a special role in advancing the adaptation regime. Within these same decisions, acknowledgement of health as a concern can be seen. The 2001 Marrakesh Accords, for example, made great strides in the development of the adaptation regime, but also advanced health initiatives. During this session, Parties recognized that human health remained at the center of problems deserving global attention.[169] Decision 5/CP.7 noted the importance of health in global climate change policy and stated that health needed to be considered under the new adaptation funding mechanisms.[170] For example, paragraph 8 provides that the implementation of health adaptation activities shall be supported by the SCCF and Adaptation Fund and that this includes "[i]mproving the monitoring of diseases and vectors affected by climate change, and related forecasting and early-warning systems, and in this context improving disease control and prevention."[171]

Unfortunately, adaptation initiatives did not progress from there. In later COP decisions, not only did adaptation actions struggle to gain momentum but the link between climate change and human health also faltered. Countries could have used COP8 to build on the Marrakesh Accords, but failed to do so. In fact, "health" is only mentioned twice in the COP8 decision, and only in accordance with other concerns such as agriculture and energy.[172] This

166. *Id.* at 3.

167. Lesnikowski et al., *supra* note 146, at 827.

168. Wiley, *supra* note 1, at 464; Bowen, Ebi & Friel, *supra* note 33, at 1039.

169. U.N. Framework Convention on Climate Change, The Marrakesh Ministerial Declaration, U.N. Doc. FCCC/CP/2001/13/Add.1, Decision 1/CP.7 (Jan. 21, 2002).

170. *See* Decision 5/CP.7, *supra* note 136.

171. *Id.*

172. *See* U.N. Framework Convention on Climate Change, Delhi Ministerial Declaration

was repeated at the next COP in Milan.[173] By 2004's COP10, the connection between health and climate change was gone.[174] It was not until 2010's COP16 that the relationship between adaptation and health was once again acknowledged in the Cancun Agreements.[175] Still, the connection was relegated to a footnote, demonstrating countries' skepticism about the importance of health in relation to adaptation.[176]

Recent agreements demonstrate that countries are becoming more willing to address the connection between health and adaption. This is illustrated in the Paris Agreement, which includes multiple references to health and emphasizes the importance of health and adaptation co-benefits relating to enhanced action.[177] Nonetheless, the Paris Agreement remains overshadowed by major negotiations where the relationship between health and climate change has been cemented. For example, at COP22, the 10th Focal Point Forum on health and adaptation was held by the NWP.[178] Furthermore, at COP23, a special initiative was launched regarding climate change impacts on health in SIDs with a vision that by the year 2030, all health systems in SIDs would be resilient to climate variability and change.[179] Also at COP23, the President of Fiji requested that the Director of WHO draft a Climate and Health Report for COP24 in Katowice.[180] Thus, addressing global health concerns is best accomplished

on Climate Change and Sustainable Development, U.N. Doc. FCCC/CP/2002/7/Add.1, Decision 1/CP.8 (Mar. 28, 2003).

173. U.N. Framework Convention on Climate Change, Further Guidance to an Entity Entrusted with the Operation of the Financial Mechanism of the Convention, for the Operation of the Special Climate Change Fund, U.N. Doc. FCCC/CP/2003/6/Add.1, Decision 5/CP.9, 1 (Apr. 22, 2004).

174. *See* U.N. Framework Convention on Climate Change, Report of the Conference of the Parties on Its Tenth Session, Held at Buenos Aires from 6 to 18 December 2004, U.N. Doc. FCCC/CP/2004/10/Add.1 (Apr. 19, 2005).

175. The Cancun Agreements, *supra* note 165, at 4.

176. *Id.*

177. *See* U.N. Framework Convention on Climate Change, Adoption of the Paris Agreement, U.N. Doc. FCCC/CP/2015/10/Add.1, Decision 1/CP.21 (Jan. 29, 2016).

178. *See* Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14.

179. On May 2, 2018, I attended a side event at the UNFCCC's SB 48 conference titled "Global Report on Health and Climate Change" presented by the World Health Organization. The webcast for the event is currently unavailable, but will be archived in the near future at https://unfccc.int/about-us/press-and-media/webcast/cop/cmp-and-sb [hereinafter *WHO: Global Report on Health and Climate Change*]; World Health Org., Climate Change and Health in Small Island Developing States (2018), http://www.who.int/globalchange/sids-initiative/180612_global_initiative_sids_clean_v2.pdf?ua=1 [https://perma.cc/K2G9-VZ65]; Frank Bainimarama, President Prime Minister of Fiji, Speech at the Health Actions for the Implementation of the Paris Agreement Event in Bonn, Germany (Nov. 12, 2017), https://cop23.com.fj/need-push-forward-climate-health-cop23-president [https://perma.cc/Y5SD-S88A].

180. *WHO: Global Report on Health and Climate Change*, *supra* note 179; *Global Public Health Community Consultation on COP24 Report*, Clim-HEALTH Africa, http://www.climhealthafrica.org/invitation-to-contribute-cop24-report [https://perma.cc/A78J-R4G5].

through the adaptation regime's collaborative efforts outside of the main negotiations.

B. *Party Reporting on Health Adaptation Strategies and Needs*

Individual nation's reporting tools can be used to identify health adaptation strategies that are necessary for adaptation work programs and funding mechanisms.

1. Nationally Determined Contributions

In accordance with the Paris Agreement, Parties are required to submit NDCs.[181] After being invited by the COP to consider adaptation measures within their NDCs, some nations have included an adaptation component.[182] Of the 174 NDCs that have been submitted, 127 include an adaptation component.[183] Through this component, nations can highlight their climate change vulnerabilities, current adaptation strategies, and areas in which they need additional support for implementing adaptation measures.[184] Nations have used this component to illustrate how climate change is impacting health in their region and to request the support they need in order to properly protect themselves.

For example, in Laos' NDC, the country sets forth its major adaptation priorities, which include health.[185] It noted specific objectives for its health priorities including developing healthcare facilities, improving research on climate change-induced diseases, and improving access to medical supplies and health services.[186] Laos' NDC also notes that projects should focus on increasing the resiliency of public health infrastructure and improving health services for adaptation.[187] In addition to setting forth the country's adaptation strategies, Laos' NDC describes the main barriers it faces, namely a limited budget

181. *See* Paris Agreement, *supra* note 147, at art. 3.

182. *See* U.N. Framework Convention on Climate Change, Lima Call for Climate Action, U.N. Doc. FCCC/CP/2014/10/Add.1, Decision 1/CP.20, at 2 (Feb. 2, 2015) [hereinafter Lima Call for Climate Action]; U.N. Framework Convention on Climate Change, Adaptation-related Information Included in Nationally Determined Contributions, National Adaptation Plans and Recent National Communications, U.N. Doc. FCCC/CP/2017/7/Add.1, Decision 1/CP.16, at 11 (Oct. 2, 2017) [hereinafter UNFCCC Technical Paper on Adaptation].

183. I reviewed every submitted NDC for an adaptation component. *See Search*, Interim NDC Registry, https://www4.unfccc.int/sites/NDCStaging/Pages/Search.aspx?k= (listing search results for every submitted NDC). (accessed Aug. 20, 2018).

184. Lima Call for Climate Action, *supra* note 182; UNFCCC Technical Paper on Adaptation, *supra* note 182.

185. Lao People's Democratic Republic, *Intended Nationally Determined Contribution*, 1, 5 (2015) [hereinafter Lao PDR NDC], https://www4.unfccc.int/sites/submissions/INDC/Published%20Documents/Laos/1Lao%20PDR%20INDC.pdf [https://perma.cc/4HW5-HBG].

186. *Id.* at 19, at annex 2.

187. *Id.* at 6.

and lack of quality human resources.[188] Lastly, it describes the type of support it needs to overcome these barriers, such as increased disease outbreak monitoring capacity and financial support for developing health treatment centers. The cost of these programs, sought to be implemented by 2020, was estimated at $5 million.[189]

While NDCs are a vehicle for countries to provide details about their specific objectives and needs for health-related projects, there is still confusion among countries as to whether the NDCs are the appropriate method for presenting adaptation data. Therefore, not all countries include an adaptation component in their NDC.[190] Additionally, the countries that include adaptation components do not always provide adequately detailed information that accurately reflects their needs with respect to health.

2. National Adaptation Programs of Action

In implementing Article 4.9 of the UNFCCC, the 2001 Marrakesh Accords established a process to help LDCs identify and address their "urgent and immediate adaptation needs."[191] NAPAs, created with the support of the GEF and LDC Fund, are different than NDCs because NAPAs are specifically tailored to adaptation.[192]

NAPAs often identify health as one of the sectors "most vulnerable" to climate change, and this reporting device allows countries to include detailed health information.[193] For example, Laos' NAPA includes the specifics of a country-driven program to address the adaptation required in the public health sector.[194] Laos includes sections on adverse impacts on human health, the urgent need for health adaptation, and priority project proposals for the

188. *Id.* at 19, at annex 2.

189. *Id.*

190. *See, e.g.*, Government of Tuvalu, *Intended Nationally Determined Contributions*, 1, 2 (2015), https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Tuvalu%20First/TUVALU%20INDC.pdf [https://perma.cc/DHP6-8CTL] ("Tuvalu considers that the focus of [NDCs] should primarily be mitigation . . . Tuvalu's vulnerability and the adaptation actions continue to be articulated in other national documents such as NAPA . . . ").

191. Report of the Conference of the Parties on its Seventh Session, Held at Marrakesh From 29 October to 10 November 2001, *supra* note 136, at 36–37; Kissinger & Namgyel, *supra* note 148, at 2; Onzivu, *supra* note 103, at 1326; Sierra C. Woodruff & Patrick Regan, *Quality of National Adaptation Plans and Opportunities for Improvement*, 24 Mitigation & Adaptation Strategies for Glob. Change 53 (Jan. 2019).

192. Onzivu, *supra* note 106, at 374; Woodruff & Regan, *supra* note 191, at 54–55.

193. Karen Hardee & Clive Mutunga, *Strengthening the Link between Climate Change Adaptation and National Development Plans*, 15 Mitigation & Adaptation Strategies for Global Change 113, 111, 119 (Feb. 2010); Onzivu, *supra* note 106, at 1326.

194. Lao PDR NDC, *supra* note 185; Lao People's Democratic Republic, *National Adaptation Programme of Action to Climate Change* 1 (2009), https://www.adaptation-undp.org/sites/default/files/downloads/laos_pdr_napa.pdf [https://perma.cc/8W46-9XK3] [hereinafter Lao PDR NAPA].

health sector.[195] Additionally, Laos' NAPA includes more detailed information, such as the number of incidents and deaths resulting from various diseases. This information shows that incidents of dengue and dysentery are becoming more frequent and severe.[196] Laos' NAPA also provides more detail about the nation's specific health adaptation strategies and needs than its NDC did.[197]

Unfortunately, NAPAs tend to focus on projects that are short-term and small scale, which is incongruous with addressing long-term health adaptation.[198] Nations have frequently failed to integrate their NAPAs into long-term national development plans or objectives, including health.[199] Additionally, the institutions involved in the preparation of a NAPA typically have not considered health programs as the type of "urgent and immediate" project to be included.[200] These institutions that help prepare NAPAs are primarily from outside the health sector, and therefore cannot adequately incorporate health objectives into NAPAs.[201] This is reflected by the small number of health-focused priority adaptation projects identified in NAPAs.[202]

3. National Adaptation Plans

Recognizing the limitations of NAPAs, the COP in Cancun established the NAP process to build upon the NAPA framework.[203] The NAPs that have been submitted recognize the importance of integrating climate change adaptation policies into the health sector.[204] Through their NAPs, countries have formulated strategies and methods for integrating health into their adaptation efforts.[205]

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195. Lao PDR NAPA, *supra* note 194.

196. *Id.* at 38–39, figs.14–17.

197. *See id.* at 55–56 (project on improving systems for sustainable use of drinking water and sanitation and project on improving knowledge and skills of engineers who design and build water and sanitation systems).

198. Woodruff & Regan, *supra* note 191, at 55; Hardee & Mutunga, *supra* note 193, at 117.

199. Woodruff & Regan, *supra* note 191, at 55; Hardee & Mutunga, *supra* note 193, at 117.

200. Hardee & Mutunga, *supra* note 193, at 123.

201. *Id.* at 121.

202. *Id.* at 120; *Building Resilience in a Changing Climate: Adaptation under the UNFCCC*, U.N. Framework Convention on Climate Change, http://unfccc.int/timeline [https://perma.cc/55CW-XELM] (infographic stating that out of 139 NAPA projects in the pipeline, only 37 include a NAPA priority section on health).

203. Woodruff & Regan, *supra* note 191, at 55; The Cancun Agreements, *supra* note 165, at 5.

204. *See, e.g.*, Brazil Ministry of Environment, *National Adaptation Plan to Climate Change Volume I: General Strategy* (2016) [hereinafter Brazil NAP]; Republic of Kenya Ministry of Environment and Natural Resources, *Kenya National Adaptation Plan 2015–2030: Enhanced climate resilience towards the attainment of Vision 2030 and beyond* (2016) [hereinafter Kenya NAP]; Ministry of Environment and Fishery Resources, *Burkina Faso National Climate Change Adaptation Plan (NAP)* (2015) [hereinafter Burkina Faso NAP].

205. *See* The Cancun Agreements, *supra* note 165; *see* U.N. Framework Convention on

For example, Kenya's NAP sets forth an action plan that will "focus on climate change sensitive health issues" and states that, "full integration of climate change into Kenya's many existing health programs and policies" is essential.[206] Brazil includes a similar "Strategy for Health" under its NAP where the country will strive to promote a climate change adaptation agenda for the health sector.[207] Brazil's NAP notes that the country has formulated public health policies targeting issues such as climate change adaptation since 2007.[208] Still, Brazil recognizes that the potential climate change impacts associated with infectious diseases and water scarcity require strengthening the national health system's "prevention, readiness and rapid-response capabilities."[209]

In Burkina Faso's NAP, the country's long-term adaptation objectives include "protect[ing] and improv[ing] public health."[210] The NAP details the country's vulnerability to "climate-sensitive diseases," including an increase in malaria caused by a rise in temperatures.[211] Then, it sets forth health adaptation measures, including methods to combat malaria vectors as well as preventative treatment measures for the disease.[212] Burkina Faso's NAP also recognizes that climate change issues are not accounted for in the country's National Health Policy, and that the action plans established within the healthcare sector fail to consider climate change projections and potential impacts.[213] Thus, the NAP also seeks to strengthen collaboration to integrate climate change adaptation into the country's healthcare sector.[214]

Although NAPs generally provide another opportunity to highlight health adaptation needs, NAPs present the same issue as NAPAs. Most NAPs are typically developed by environmental agencies and experts without expertise in public health, and therefore, they may fail to successfully integrate health adaptation measures.[215] Having only been established in 2010, this form of adaptation reporting is still fairly new.[216] Therefore, the NAP process likely has more potential as a primary means for reporting health adaptation efforts than currently realized.

Climate Change, Report of the Conference of the Parties on its Seventeenth Session, Held in Durban from 28 November to 11 December 2011, Decision 5/CP.17, U.N. Doc. FCCC/CP/2011/9/Add.1.; *National Adaptation Plans*, U.N. Framework Convention on Climate Change, https://unfccc.int/topics/adaptation-and-resilience/workstreams/national-adaptation-plans [https://perma.cc/G7VY-AV44].

206. Kenya NAP, *supra* note 204, at 30.
207. Brazil NAP, *supra* note 204, at 164.
208. *Id.* at 164–166.
209. *Id.* at 167.
210. Burkina Faso NAP, *supra* note 204, at 10.
211. *Id.* at 47–49.
212. *Id.* at 16, 67.
213. *Id.* at 81.
214. *Id.* at 82–83, 85.
215. Woodruff & Regan, *supra* note 191, at 3–4.
216. Woodruff & Regan, *supra* note 191, at 55; The Cancun Agreements, *supra* note 165, at 5.

After reviewing some of the existing adaptation reporting vehicles, it is apparent that the inclusion of health issues in national disclosures is still limited.[217] This is likely attributable to a lack of guidance on health vulnerability assessment methods as well as a lack of information and capacity.[218] Another problem with the reports is that, although they are available to the public, the reports take significant time to review, and therefore other nations may remain unaware of the health risks faced by their counterparts. Additionally, these reports may not be prepared or observed by stakeholders who have the means or expertise to promote health adaptation plans. Thus, more coordination among the global health community and the nations party to the UNFCCC is needed for the reporting mechanisms to effectively aid in advancing health adaptation efforts worldwide.

C. *Adaptation Regime's Work Programmes and Funding Mechanisms as a Resource for Health Adaptation*

Within the last eight years, at least 35 health adaptation projects have been introduced in different countries by organizations collaborating with UNFCCC Parties.[219] This is partly attributable to the various work programs, expert groups, committees, and funding mechanisms that have developed within the adaptation regime.

1. Nairobi Work Programme on Impacts, Vulnerability, and Adaptation

The NWP has effectively pushed the adaptation regime towards responding to global health concerns.[220] It has assumed the role as a global institutional mechanism and facilitates "the flow of information between global health experts and relevant UNFCCC bodies."[221] Parties have recognized health-related risks of climate change by agreeing to "undertake concrete activities addressing health under the NWP" to inform actions at various levels.[222] For example, in 2008 in Trinidad, the UNFCCC Expert Meeting Group delivered a presentation that linked climate change and health.[223] The group noted that there was little available research in this area and more collaboration was necessary.[224] Therefore, in 2016, SBSTA gave the NWP the official mandate to investigate climate change impacts on human health and to conduct a facilitated interactive dialogue with other nations.[225]

217. Bowen, Ebi & Friel, *supra* note 33, at 1035; Ebi et al., *supra* note 10, at 1930.
218. *Id.* at 1930.
219. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 13.
220. *Id.* at 1.
221. *Id.* at 18.
222. *Id.* at 3.
223. Onzivu, *supra* note 106, at 371.
224. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14.
225. *See* U.N. Framework Convention on Climate Change, Progress Made in Implementing Activities Under the Nairobi Work Programme on Impacts, Vulnerability and

In response to the mandate, the UNFCCC Secretariat assisted the NWP by contacting health institutions and requesting that they share their expertise and experiences.[226] Submissions were received from 14 UNFCCC Parties, a group of Parties and 12 relevant organizations.[227] These submissions were used to design a forum where Parties and health experts could discuss actions addressing health.[228] During the 10th Focal Point Forum of the NWP, nations, partner organizations (such as WHO), and experts came together to discuss the range of actions needed to stop the deterioration of health due to climate change and to build resilient health systems.[229] Some of the next steps identified through the Forum, and set forth in a Secretariat synthesis report on human health and adaptation, were:

> enhancing research and health information systems, adopting a comprehensive approach to integrating health into climate adaptation plans, developing capacity for health-care workers and institutions in order to develop climate-resilient health-care systems, strengthening intersectional action and multilevel governance, promoting climate-resilient and sustainable health infrastructure and technologies, and scaling up financial investments and flows towards adaptation plans and actions addressing health.[230]

The forum and synthesis report have helped raise awareness on climate change related health risks and share key information between countries.[231] They also set forth a list of current obstacles and challenges faced by health adaptation strategies. These challenges include: the lack of, and lack of access to, information on the spread of diseases, inadequate integration of health into adaptation plans and policies, and limited availability of funding for health adaptation.[232] In May 2017, the SBSTA noted NWP's contribution and requested that the UNFCCC Secretariat "continue exploring ways to further disseminate the outcomes of NWP activities to facilitate knowledge transfer to constituted bodies, Parties and other relevant entities."[233]

Adaptation to Climate Change, U.N. Doc. FCCC/SBSTA/2016/INF.10, 10.

226. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 3.

227. *Id.* at 3; *10th Focal Point Forum of the Nairobi Work Programme: Health and Adaptation*, U.N. Framework Convention on Climate Change, https://unfccc.int/index.php/process-and-meetings/conferences/past-conferences/marrakech-climate-change-conference-november-2016/events-and-programme/mandated-events/10th-focal-point-forum-of-the-nairobi-work-programme-health-and-adaptation [https://perma.cc/L895-J5CC].

228. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 4.

229. *Id.*

230. U.N. Framework Convention on Climate Change, Subsidiary Body for Sci. & Tech. Advice, Outcomes of Work Under the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change Since May 2016, ¶ 53, UN Doc. FCCC/SBSTA/2018/2 (2018) [hereinafter Synthesis Report on Work of the NWP]; s*ee also* Secretariat Synthesis Paper on Health and Adaptation, *supra* note 14, at ¶ 48.

231. *See* Synthesis Report on Work of the NWP, *supra* note 230, at 21.

232. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at ¶¶ 40, 42, 44.

233. Synthesis Report on Work of the NWP, *supra* note 230, ¶ 54.

In addition to the interactive forum, NWP has also created an adaptation knowledge portal that includes country-level vulnerability assessments for various sectors, including health.[234] This portal helps facilitate "the production and dissemination of knowledge on health."[235] For instance, as of March 2018, the portal had provided access to 67 case studies, 89 tools and methods as well as other knowledge resources for health adaptation.[236]

The NWP is essentially a "knowledge hub" tasked with advancing action in adaptation through information sharing.[237] It does this by facilitating "science-policy-practice collaboration" and activities that aim to build close partnerships among a variety of policymakers, researchers, practitioners, and representatives working on adaptation.[238] Still, health is only one aspect among many work areas and issues encompassed in the structure of the NWP.[239] The NWP also focuses on a range of crosscutting matters including ecosystems, gender issues, and indigenous and traditional knowledge.[240] This could explain why Parties have not progressed NWP activities related to human health and adaptation since 2016 as other important issues may have been more dominant. The outcomes of the 10th Focal Point Forum at SBSTA46 were intended to identify further opportunities for health adaptation under the NWP.[241] However, no initiatives or substantive reports providing further guidance on health adaptation have been published since the synthesis paper.

2. Other UNFCCC Working Groups That Contribute to Health Adaptation

In addition to the NWP, other working groups in the UNFCCC are addressing health adaptation.[242] For example, most of the activities of the LDC Expert Group (LEG), which provides technical guidance, training, and knowledge management, contain a health feature.[243] Health is also considered to be a noneconomic loss, and therefore falls within the key areas of cooperation for action and support under the Executive Committee of the Warsaw International Mechanism for Loss and Damage (Excom).[244] Excom also collaborates

234. *Id.* at ¶ 60.
235. *Id.* at 21.
236. *Id.* at ¶ 60, 61.
237. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 22.
238. *Id.*
239. *Overview of the Nairobi Work Programme*, U.N. Framework Convention on Climate Change, https://unfccc.int/topics/adaptation-and-resilience/workstreams/nairobi-work-programme-nwp/overview-of-the-nairobi-work-programme#eq-1[https://perma.cc/9YPG-T7K2].
240. *See id.*
241. *See* Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 22.
242. *See id.* at 12.
243. *Id.*
244. *Id.*

with WHO, which serves as a technical member of the group.[245] Other groups include the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE), which has included a module on human health as part of its training materials on adaptation.[246] Additionally, there is the Lima Adaptation Knowledge Initiative, a joint action pledge between U.N. Environment and NWP that has highlighted health-related knowledge gaps.[247] Thus, there are multitudes of working groups and committees under the adaptation regime that address health adaptation; however, other challenges, such as funding, as will be discussed in the following Subpart, could inhibit significant progress.

3. Adaptation Funding Mechanisms

In addition to the work initiated by adaptation work programs, adaptation funding mechanisms provide a way to tackle global health problems. Under Article 4.4 of the UNFCCC, developed country Parties are required to assist developing country Parties that are vulnerable to the "adverse effects of climate change in meeting the costs of adaptation to those adverse effects."[248] COP has recognized that access to funding is essential for health adaptation, because funding can facilitate the implementation of projects needed to address climate change impacts on health.[249]

Although the Adaptation Fund has the ability to provide the necessary assistance to developing countries for health adaptation, it is uncertain whether health is viewed as a significant concern.[250] In its Draft Operational Policies and Guidelines, the Adaptation Fund Board had stated that it wished to implement adaptation activities in the area of health.[251] Ultimately, however, this provision was not included in the final and most recent version of the Fund's guidelines.[252] The Board has stated that it will not support projects impeding public health, but the Board still does not include health impacts from climate change within the Fund's strategic priorities.[253] Additionally,

245. *Id.*

246. *Id.*

247. *Id.*

248. UNFCCC, *supra* note 67, at art. 4.4; *see also* Bodansky, *supra* note 44, at 523.

249. *See* Decision 5/CP.7, *supra* note 137; *see also* Onzivu, *supra* note 106, at 367; Wiley & Gostin, *supra* note 30, at 1219.

250. *See* Decision 10/CP.7, *supra* note 161 (describing the goals of the adaptation fund to finance projects in developing countries but providing no details as to the types of projects); Decision 5/CP.7 (noting that health activities are only one of many concerns that could be supported by the adaptation fund).

251. Wiley, *supra* note 10, at 222.

252. *See* Adaptation Fund Board, Provisional Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund (Oct. 2017), https://www.adaptation-fund.org/wp-content/uploads/2017/08/OPG-amended-in-October-2017-1.pdf [https://perma.cc/V2ZZ-B4SR].

253. Adaptation Fund Board, Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy 17–18 (2016),

proposed adaptation projects must show that they address "additional risks of climate change and not be part of normal development."[254] This requirement presents a challenge for the health sector because there are many drivers of health impacts, and it is difficult to demonstrate that a project would address new climate change health risks in a region.[255]

Another funding mechanism available for health adaptation projects is the GEF. The GEF facilitates the implementation of UNFCCC adaptation projects set forth in NAPAs.[256] It also acts as the financial mechanism for, and operator of, other funds including the SCCF and LDC Fund, both of which support adaptation activities including health;[257] however, controversies surround the GEF process. Developing countries have argued that the climate funding provided by GEF focuses on industrializing economies in transition and ignores the needs of poorer countries, which are most vulnerable to climate change health hazards.[258] As of now, health makes up less than 3 percent of the adaptation projects funded by GEF.[259]

In addition, the Green Climate Fund (GCF) is a potentially useful financial mechanism developed under the UNFCCC. For example, the Cook Islands has prepared and submitted a Concept Note to the GCF that focuses on mainstreaming climate change into its Health Ministry strategies as well as creating a health outreach program focused on climate impacts.[260] The country hopes to receive approval from the GCF Board by the end of 2019.[261]

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https://www.adaptation-fund.org/wp-content/uploads/2016/07/ESP-Guidance_Revised-in-June-2016_Guidance-document-for-Implementing-Entities-on-compliance-with-the-Adaptation-Fund-Environmental-and-Social-Policy.pdf [https://perma.cc/8VYF-NU8M]; Adaptation Fund Board, Annex i: Strategic Priorities, Policies, and Guidelines of the Adaptation Fund Adopted by the CMP, https://www.adaptation-fund.org/wp-content/uploads/2015/01/OPG%20ANNEX%201.pdf [https://perma.cc/CQ8C-ZDWP]; Onzivu, *supra* note 106, at 371.

254. Bowen, Ebi & Friel, *supra* note 33, at 1036.

255. *Id.*

256. *See* Onzivu, *supra* note 106, at 374.

257. *Id.*

258. *Id.*

259. Bowen, Ebi & Friel, *supra* note 33, at 1036.

260. Cook Islands, GCF Concept Note: Building Climate Resilience in Cook Islands People through Better Health and Outreach, Enhancing Sanitation, Being Energy Efficient, and Improving Water Security (Feb. 13, 2018), https://www.greenclimate.fund/documents/20182/893456/19220_-_Building_Climate_Resilience_in_Cook_Islands_People_through_Better_Health_and_Outreach__Enhancing_Sanitation__Being_Energy_Efficient__and_Improving_Water_Security.pdf/7b036b3d-3d85-6fea-ed18-bdcfe3ea666f/https://perma.cc/Q5EK-DHGC]; *WHO: Global Report on Health and Climate Change*, *supra* note 179.

261. Correspondence with Dr. Wayne King, Director of Climate Change in the Cook Islands, on file with author; *WHO: Global Report on Health and Climate Change*, *supra* note 179; Green Climate Fund, *Country Profiles: Cook Islands*, https://www.greenclimate.fund/countries/cook-islands# [https://perma.cc/ETR7-RQSY].

Nonetheless, this would constitute the first, and only, climate change and health project for GCF.[262]

As will be discussed below, funding remains one of the main challenges faced by countries seeking to implement health adaptation measures.

V. Increasing Efforts Towards Health Adaptation Action

Global health infrastructure and adaptation to climate change are already closely linked because health systems need to increase resiliency to climate change impacts.[263] But it is difficult to obtain an adequate response to climate change-related health impacts from the international community. This is likely attributable to the fact that adaptation is a "multifaceted, interrelated process."[264] In fact, adaptation policies alone are difficult to identify because they are typically embedded in other policies such as development, planning, risk-reduction, and disaster management.[265] Yet, as climate change impacts become more intense, coordination between the adaptation regime and the global health community must strengthen in order to use the advantages present under both to address impacts on global health.[266] There is also a need for more aggressive initiatives, assistance to developing countries, and coherence among countries and stakeholders.[267]

A. *Benefits of Incorporating the Global Health Community Within the Adaptation Regime*

The rights and obligations under the adaptation regime that is currently being negotiated "have the potential to create new opportunities to focus on the basic survival needs of the world's least healthy people in ways that previous efforts at international cooperation with respect to health have not."[268] The adaptation regime benefits by incorporating the global health community

262. *Id.* Sudan has also recently submitted a Concept Note to the Green Climate Fund on health. Although the proposal's status is still pending as of the time this thesis was written, this shows that countries are starting to recognize the GCF as a potential resource for funding health adaptation projects. *See generally* Sudan & United Nations Development Programme (UNDP), GCF Concept Note: Strengthening Capacity of Rural Primary Health Care Services to Address Adverse Impacts of Climate Change on Health (Apr. 30, 2018), https://www.greenclimate.fund/documents/20182/893456/19950_-_Strengthening_Capacity_of_Rural_Primary_Health_Care_Services_to_Address_Adverse_Impacts_of_Climate_Change_on_Health.pdf/6cf7ed8d-4b39-ee0c-4411-15e53cda4914 [https://perma.cc/GN8V-CCU8].

263. *See* Fry & Amesheva, *supra* note 11, at 88.

264. *Id.*

265. *Id.*; *see* Ebi, et al., *supra* note 10, at 1933.

266. *See* Kickbusch, Hein & Silberschmidt, *supra* note 40, at 551.

267. *Id.*

268. Wiley, *supra* note 10, at 239; *see also* Alpha O. Kaloga et al., Making the Adaptation Fund Work for the Most Vulnerable: Assessing Progress in the Adaptation Fund (Germanwatch, Practical Action & Brot für die Welt, Dec. 2010), https://germanwatch.org/sites/germanwatch.org/files/publication/3511.pdf [https://perma.cc/8SSR-SLHT].

within this framework for a number of reasons. Global health advocates and institutions have been managing novel and complex threats to people's wellbeing for a long time.[269] Health advocates can bring their experience in evaluating the successes and failures of approaches into the adaptation regime.[270] They can also contribute their knowledge about how various laws and policy tools have worked with addressing health concerns.[271] Thus, health advocates can provide a higher level of expertise to the questions posed by health adaptation issues than the environmental community can on its own.[272] In addition, the global health community can help reinforce cross-sectoral cooperation at various levels of policy implementation in order to guarantee the effectiveness and fairness of health adaptation responses.[273] When it comes to health adaptation, it is more beneficial to include health organizations within the adaptation regime. These organizations can contribute in a way that will only enhance the adaptation regime's response to global health issues.

The benefits of such a strategic and collaborative working relationship can be seen in the cooperation between the UNFCCC Secretariat and WHO.[274] Each entity has created country profiles through which both organizations can measure each country's progress in protecting health.[275] The UNFCCC has also provided a forum in which WHO can utilize its expertise in helping Parties address health concerns in their UNFCCC obligations and commitments.[276] WHO has been improving countries' capacities in preparing NDCs and NAPs as well as providing training for NAP workshops.[277] For example, WHO will help a country develop a national health adaptation strategy, which is then integrated into that country's NAP.[278] WHO has also developed supplementary information on health adaptation for the NAP guidelines, and the UNFCCC has been working to integrate that information into its own framework.[279] This collaborative relationship has allowed both organizations to

269. *See* Wiley, *supra* note 10, at 236.

270. *See id.* at 236–37.

271. *See id.* at 236.

272. *See id.*

273. *See* Fry & Amesheva, *supra* note 11, at 92.

274. *See* Onzivu, *supra* note 106, at 371.

275. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 13; *Health and Climate Country Profiles*, World Health Org., http://www.who.int/globalchange/resources/country-profiles/en [https://perma.cc/4F6P-3DTF].

276. *WHO: Global Report on Health and Climate Change*, *supra* note 179.

277. *Id.*

278. *Id.*

279. *Id.*; Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 15; Elena Villalobos Prats & Kristie Ebi, World Health Org., WHO Guidance to Protect Health From Climate Change Through Health Adaptation Planning (2014), https://www.afro.who.int/sites/default/files/2017-06/9789241508001_eng.pdf [https://perma.cc/FD6P-UANK]; Joy Shumake-Guillemot et al., World Health Org., Operational Framework for Building Climate Resilient Health Systems (2015), https://apps.who.int/iris/bitstream/handle/10665/189951/9789241565073_eng.pdf?sequence=1 [https://perma.cc/CX4D-8BVG].

identify opportunities to engage with and inform policymakers and the public about both climate change and health sectors.[280]

The adaptation regime could also benefit from establishing similar working relationships with other health organizations and experts. For instance, health policymakers should be invited to play a more integral role in climate negotiations and the implementation of climate policies.[281] By strengthening the health community's participation in climate negotiations, health institutions and experts can assist in the use of impact assessments concerning health adaptation and provide a more comprehensive cost-benefit analysis of the risks and potential benefits from health adaptation efforts.[282] Without increasing collaboration between the global health community and the adaptation regime, both regimes will miss opportunities to reduce global health burdens and establish policies with the greatest potential benefits for health and climate change adaptation.[283] The foundation for action is there, it just needs to be more ambitiously pursued.

B. *Shortcomings Within the Regime in Addressing Global Health Problems*

Although significant progress has been made in the development of the adaptation regime, there are many key challenges that hinder advancements in global health adaptation. The regime has struggled to create binding obligations or effective incentives to provide funding and technology transfers to the health sectors of vulnerable communities.[284] Additionally, governing the UNFCCC member nations is not easy because of diverging opinions and priorities.[285] Simply put, it is a difficult task to set normative standards and ensure compliance on a coordinated basis within these regimes.[286] Some of the primary challenges include: (1) lack of textual basis for health, (2) lack of initiative for more action, and (3) lack of funding.

First, the language of the UNFCCC and its associated instruments does not provide the guidance or binding obligations required for addressing global health concerns.[287] In fact, the UNFCCC only mentions health twice and none of the adaptation provisions discuss health as a concern.[288] The UNFCCC commitments themselves are considered vague and the agreements which created the adaptation regime do not create any binding obligations in this regard.[289] Article 4.1(f) states that climate change should be taken into account "to the extent feasible," which inevitably allows for "significant flexibility and even

280. *WHO: Global Report on Health and Climate Change*, *supra* note 179.
281. Wiley, *supra* note 10, at 208–09.
282. *Id.*
283. *Id.*
284. *See* Gostin, *supra* note 8, at 335.
285. *Id.*
286. *Id.*
287. Onzivu, *supra* note 106, at 367–68.
288. Wiley, *supra* note 1, at 454; Schipper, *supra* note 125, at 56.
289. Onzivu, *supra* note 106, at 367–68.

non-compliance" with the commitments.[290] The Paris Agreement has provided for more reporting mechanisms, but the agreement only includes one reference to human health in its preamble.[291] Unfortunately, Parties failed to include any further references to health within the Paris Agreement, as they had planned to do in earlier drafts.[292] In addition, the text set forth in COP decisions is not necessarily a reliable source for finding guidance. Although the COPs have led to key decisions on health adaptation, the lawmaking capacity of this institution remains ambiguous.[293] Therefore, whether COP decisions have created legally binding obligations is not always clear.[294] Adaptation commitments for health that are not expressly written must compete with other factors, such as economic considerations.[295] Thus, finding for, or upholding, a binding legal obligation for health adaptation within the text of the UNFCCC and its associated instruments, or through its governing body, is improbable.[296]

Second, there is a lack of initiative and forward-movement for implementing health adaptation. The decision to establish more aggressive health adaptation actions falls within the Parties' control. During the COPs, Parties will rely on the text of the UNFCCC to negotiate decisions regarding whether advanced action is necessary.[297] This is problematic because, as previously mentioned, there is a lack of specific text regarding this issue. Additionally, the COPs are "inherently political" and there has been general reluctance among nations to transition to an adaptation approach.[298] Adaptation is considered to be a developing country issue, but even those countries have diverging opinions and priorities.[299] Thus, without textual support and cohesive opinions, Parties may find it difficult to agree on how to handle health adaptation.[300] Furthermore, even though the NWP is primarily tasked with filling knowledge gaps and disseminating information, it is most likely the best resource for advancing health adaptation actions. The information collected could

290. Fry & Amesheva, *supra* note 11, at 86–87.

291. *Id.* at 88; Conference of the Parties Twenty-first Session, U.N. Framework Convention on Climate Change, Paris Agreement, pmbl., U.N. Doc. FCCC/CP/2015/10/Add. 1, annex (Dec. 12, 2015) ("Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, . . . ").

292. *See* Fry & Amesheva, *supra* note 11, at 88–89; ADP Contact Group, Draft Agreement and Draft Decision on Workstreams 1 and 2 of the Ad Hoc Working Group on the Durban Platform for Enhanced Action, art. 2, U.N. Doc. ADP.2015.11.InformalNote (Nov. 10, 2015) (serving as a negotiating text for the Paris negotiations and emphasizing the importance of the protection of health, with a reference to sustainable development).

293. Brunnée, *supra* note 150, at 16.

294. *See id.* at 18, 21.

295. *See* Fry & Amesheva, *supra* note 11, at 86–87.

296. *Id.*

297. Bodansky, *supra* note 44, at 533.

298. Schipper, *supra* note 125, at 52–54.

299. Schipper, *supra* note 5, at 90; Schipper, *supra* note 125, at 52.

300. Brunnée, *supra* note 150, at 4.

be used by policymakers and other stakeholders to develop country-specific adaptation measures. This could further lead to building active coordinating relationships between climate change experts and the health community to incentivize adaptation action and help enforce implementation. However, as it currently stands the NWP is less focused on being more than just simply an information hub.

Third, funding remains the largest obstacle to health adaptation.[301] Not only is climate finance itself insufficient, but health is poorly represented within climate project funding.[302] In fact, "an extremely small percentage (1.4 per cent) of climate change adaptation funds are allocated to health projects."[303] Nevertheless, it is estimated that, by the year 2030, the global health costs of climate change will be approximately 2–4 billion USD each year.[304] Funding remains a "particularly contentious issue" during UNFCCC negotiations.[305] More specifically, funding for adaptation activities has been considered "an implicit acceptance of responsibility for causing climate change."[306] Since adaptation policies are frequently accompanied by calls for funding, the disagreements surrounding this topic either lead to weak commitments, unclear responsibilities, or a gridlock in negotiations.[307] Furthermore, although the language in Article 4.4 arguably covers the costs of adaptation, it does not necessarily cover response measures, which are an essential component for addressing health.[308] In relation to funding, an associated challenge developing countries experience is the "inadequate integration of health into adaptation plans and development strategies."[309] Developing countries that are at a greater risk to climate change impacts also "suffer from an implementation gap, as funds have not been provided and the infrastructure required to make use of adaptation funding is not in place in the poorest countries."[310] Therefore, these countries will need technical support in order to know how to implement or integrate such projects into their current health policies.[311] Unfortunately, this type of support also requires additional funding.

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301. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 5.

302. *WHO: Global Report on Health and Climate Change*, *supra* note 179.

303. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 5, 17.

304. Hesselman & Toebes, *supra* note 31, at 1; *Climate Change and Health*, World Health Org. (Feb. 1, 2018), http://www.who.int/news-room/fact-sheets/detail/climate-change-and-health [https://perma.cc/8PA8-YXSF].

305. Schipper, *supra* note 5, at 90; Lesnikowski et al., *supra* note 146, at 829.

306. Schipper, *supra* note 125, at 51.

307. Schipper, *supra* note 5, at 90; Lesnikowski et al., *supra* note 146, at 829; Nina Hall & Åsa Persson, *Global climate adaptation governance: Why is it not legally binding?*, 24 European J. of Int'l Relations, 540–66, 551–52 (2018).

308. *See* Bodansky, *supra* note 44, at 529.

309. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 5.

310. Wiley, *supra* note 10, at 223; Lesnikowski et al., *supra* note 146, at 829.

311. Chantelle G. Moyo, *Climate Change and Health in Zimbabwe: A Legal Perspective*, 68 J.L. Pol'y & Globalization 7, 11 (2017).

Even with the establishment of funding mechanisms and work programs, the adaptation regime is still in its early stages of development. Because of the slow progression of the adaptation regime itself and the difficulties it still faces, specific areas of concern, such as health, are not receiving adequate attention.

Conclusion

Climate change poses serious health risks by creating new threats but also by intensifying preexisting problems ranging from poverty, to hunger, to infectious diseases.[312] Additionally, it alters the geographic scope of existing health problems.[313] Both the most vulnerable and the most powerful countries face these health impacts and have an interest in protecting against the migration of health threats.[314] Failure to give global public health concerns the attention they deserve within the climate change regime will not only result in more harm to vulnerable communities, but it could eventually lead to international disputes.

International assistance "is often driven by emotional, high-visibility events" such as those related to climate change.[315] More recently, countries have begun to recognize that it is time to move away from purely mitigation-focused approaches to climate change and reorganize efforts to help adapt to the inevitable consequences of climate change, including the impacts on public health. The adaptation regime provides a solid framework for responding to global health concerns, but currently, the response is minimal at best. Many activities, ranging from policies being implemented by governments, to NGOs and community-based actions, have been initiated.[316] But, there are still many challenges that must be overcome, particularly regarding a lack of capacity and funding.[317] Although the UNFCCC and some health experts have initiated collaboration and set forth actions required to address adaptation and health, such as the NWP, this collaboration has yet to expand beyond knowledge sharing.[318]

Adaptation has been defined as "the process through which people reduce the adverse effects of climate change on their health and well-being."[319] The global health infrastructure and adaptation regime share similar goals of increasing the resilience of countries, communities, and individuals to

312. Aminzadeh, *supra* note 1, at 252; Wiley, *supra* note 10, at 235–236; Secretariat Synthesis Paper on Health and Adaptation, *supra* note 14, at 5.

313. Aminzadeh, *supra* note 1, at 252; Wiley, *supra* note 10, at 235–36; Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 5.

314. Gostin, *supra* note 8, at 355.

315. *Id.* at 364.

316. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 5.

317. *Id.* at 17–18.

318. Secretariat Synthesis Paper on Health & Adaptation, *supra* note 14, at 5.

319. Schipper, *supra* note 125, at 76.

effectively cope with changes.[320] Although health is posited within the legal and policy frameworks of the adaptation regime, there remains a lack of initiative to create more advanced health measures and action.[321] Climate change law and policymakers have acknowledged the problem, but the adaptation regime still fails to give health the priority it deserves. Without more aggressive action within the regime, global health will continue to worsen as a result of climate change.

320. Gary Yohe & Kristie L. Ebi, *Approaching Adaptation: Parallels and Contrasts Between the Climate and Health Communities, in* Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions 18, 18 (Kristie L. Ebi, Joel B. Smith & Ian Burton, eds., 2005).

321. Onzivu, *supra* note 106, at 368.