The Price of Sovereignty in the Era of Climate Change: The Role of Climate Finance in Guiding Adaptation Choices for Small Island Developing States

Lauren E. Sancken

Abstract

Climate change poses an existential threat to small island developing states that are at risk of losing their territories to sea-level rise and severe weather events. These nations must make decisions about how to preserve their sovereignty and create a meaningful future in the face of imminent territorial loss. Territorial loss creates a risk of displacement and statelessness, and the world has yet to confront the possibility of a permanently deterritorialized island nation. Against this backdrop, small island developing states must choose, design, and finance adaptation options to preserve their status as sovereigns and enable them to design a self-determined future, be it on their existing islands, artificial islands, or a resettlement elsewhere. Adaptation measures, however, are beyond the financial means of most small island communities.

This Article explores adaptation options for small island developing states and the financial mechanisms available to support these choices. It describes the potential adaptation responses these states can pursue, including territorial solutions, such as building up existing islands and designing artificial islands, and nonterritorial options, such as proactive resettlement elsewhere. Global adaptation finance exists for short-term measures to preserve habitability, but longterm adaptation measures—like elevating existing islands, building artificial ones, or planned resettlement—are critically underfunded. This Article therefore exposes the inadequacy of existing climate finance sources to meet the longterm adaptation needs of small island nations. In light of this gap, it suggests these nations pursue multiple paths for survival by continuing to invest in short-term projects to preserve island habitability, take steps to attract financing for longterm adaptation measures, and advocate to secure political and legal rights through existing or new international agreements.

About the Author

Senior Lecturer, University of Washington School of Law. This project would not have been possible without the inspiration and support of Maxine Burkett. I am thankful to Jennifer Marlow, Benjamin Halasz, David Ziff, Elizabeth Porter, and Zahr Said for their insights and helpful comments. I am especially grateful to Shweta Jayawardhan and David Wang for their invaluable research assistance. My gratitude extends to the editors of the *UCLA Journal of Environmental Law & Policy*, and to the Gallagher Law Library, particularly Maya Swanes and Mary Whisner.

Table of Contents

Introduction

Small island developing states (SIDS) are at risk of losing their habitable territories to sea-level rise and severe weather events. Many of these islands are only a few feet above sea level and the impacts of climate change may render them uninhabitable. Climate change poses a threat to frontline communities everywhere, but it poses a uniquely existential threat to SIDS—these countries must contemplate how to retain their sovereignty if and when their island territories cease to exist. Small island states bear next to no responsibility for creating the climate disaster, yet they bear a disproportionate share of its consequences. These nations must not only embrace the challenge of designing adaptation solutions to preserve their existing territories or resettle to new ones, but also navigate how to fund those adaptations. While the United Nations Framework Convention on Climate Change (UNFCCC) currently provides the largest source of finance for adaptation projects in SIDS, longterm measures, like planned resettlement, are underfunded.

This Article discusses the adaptation choices available to SIDS against the backdrop of limited public and private financial mechanisms. It argues while short-term, project-based financing is becoming increasingly available for adaptation projects, current financing options are inadequate to meet the longterm adaptation needs of small island states.

Part I of this Article describes the risk of statelessness associated with a loss of habitable territory and the lack of adequate legal frameworks to assist island communities in a climate displacement scenario. Part II discusses potential adaptation responses to the climate impacts small island nations face, from territorial solutions, such as building up existing islands and designing artificial islands, to nonterritorial options, such as proactive resettlement elsewhere. It also examines potential legal and political measures SIDS can use to preserve their sovereignty and territorial waters and increase investment in climate adaptation strategies. Part III explores the landscape of global climate finance (both the mechanisms that flow from the UNFCCC and non-UNFCCC sources of funds), data gaps regarding adaptation finance, the funding sources that have been used for adaptation projects in SIDS, and the lack of funding for longterm adaptation measures such as elevating existing islands, building artificial ones, or planned resettlement. Part IV provides recommendations for how SIDS might leverage these existing financial and legal mechanisms to reinforce their sovereignty and make self-determined adaptation choices about their futures. It argues SIDS should continue to pursue short-term adaptation projects because public finance investors readily fund these solutions. In addition, it argues SIDS should continue to pursue and advocate for the longterm financing needed to implement longterm adaptation measures like resettlement. Simultaneously, SIDS should pursue legal and political strategies to preserve their sovereignty and secure their territorial boundaries to guard against the risks of their territories becoming submerged or boundaries becoming ambulatory.

I. Risks Associated With Territorial Loss for SIDS

Climate change poses an existential threat to SIDS. In addition to the severe damage caused by climate-related extremes, these states face the real prospect of losing their sovereignty if their territory becomes uninhabitable.[1] The possibility and logistics of maintaining a meaningful life on the atolls or elsewhere must be considered against the backdrop of existing legal frameworks and achieving the overarching goal of maintaining sovereignty. Capital investments in adaptation measures, including the potential resettlement of certain atoll communities, is what makes these choices not just theoretical, but possible.

A. *Existing Legal Frameworks and Institutional Principles Relevant to Climate-Displacement and Sovereignty*

One immediate threat SIDS face is displacement caused by climate change. Climate displacement implicates many legal frameworks, including migration and asylum law, environmental law, international development law, and human rights and humanitarian law.[2] However, no single overarching governing framework exists for climate-displaced persons in either the cross-border migration context or the internal displacement context. Because of this gap, no affirmative sources of legal protection or financial support exist for climate-displaced persons.[3]

Legal regimes for cross-border movements employ human rights principles, but do not offer meaningful legal remedies. The 1951 Refugee Convention provides basic principles for guiding human rights in cross-border displacement scenarios, but its narrow definition of the term "refugee" excludes most climate-related scenarios.[4] The legal architecture that applies to persons

1. *See* Jane McAdam, '*Disappearing States', Statelessness and the Boundaries of International Law*, UNSW L. Res. Paper No. 2010-2 (Jan. 21, 2010), http://www.austlii.edu.au/au/journals/UNSWLRS/2010/2.txt/cgi-bin/download.cgi/download/au/journals/UNSWLRS/2010/2.pdf [https://perma.cc/9K8V-DLSH]; *e.g.*, Coral Davenport, *The Marshall Islands are Disappearing*, N.Y. Times (Dec. 1, 2015), https://www.nytimes.com/interactive/2015/12/02/world/The-Marshall-Islands-Are-Disappearing.html [https://perma.cc/4CH9-RTSU]; Mike Ives & Josh Haner, *A Remote Nation, Threatened by Rising Seas*, N.Y. Times (July 3, 2016), https://www.nytimes.com/2016/07/03/world/asia/climate-change-kiribati.html [https://perma.cc/YQ44-8A43].

2. *See* Jane McAdam, *Environmental Migration Governance* UNSW L. Res. Paper No. 2009-1, (Feb. 28, 2009, rev. 2014), https://ssrn.com/abstract=1412002 [https://perma.cc/RP6T-QPRF]. This also implicates national security, indigenous rights, and property law, for example. *See* Maxine Burkett, *Climate Refugees*, *in* Routledge Handbook on Int'l Envtl L. 717, 723 (2012), http://climate.socialsciences.hawaii.edu/Courses/GEOG401/24578_Ch40.pdf [https://perma.cc/W5N2-E8NM].

3. While the UNFCCC is an existing legal framework intended to provide for climate adaptation financial resources, it does not create any affirmative obligations on the parties to do so and instead relies on voluntary commitments. United Nations Framework Convention on Climate Change, June 4–14, 1992, Hein's No. KAV 3339, 1771 U.N.T.S. 107.

4. The 1951 Convention defines a refugee as someone who is unable or unwilling to

who are internally displaced[5] consists of the Guiding Principles on Internal Displacement,[6] the Platform on Disaster Displacement's cross-border principles (successor to the Nansen Initiative),[7] and the 2018 Global Compact for Safe, Orderly and Regular Migration.[8] While these guidelines help countries develop best practices for migration scenarios, none are binding and none provide affirmative remedies.

Some regional frameworks offer greater sources of protection for those displaced by climate change within certain regions, but these agreements do not encompass all SIDS. For instance, the 1969 Organization for Africa Unity Convention on Refugees (OAU) and the 1984 Cartagena Declaration on Refugees[9]

---

return to their country of origin "owing to [a] well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion." Convention Relating to the Status of Refugees, July 28, 1951, art. I(A)(2), 19.5 U.S.T. 6223, 189 U.N.T.S. 150. None of these categories directly include those displaced due to climate change. Second, for the protections of the treaty to apply, one must be outside of their country of origin. This requirement further excludes climate-displaced people from the definition as they are often internally displaced. *See* David Keane, *The Environmental Causes and Consequences of Migration: A Search for the Meaning of "Environmental Refugees*," 16 Geo. Int'l Envtl. L. Rev. 209, 215 (2004).

5. "[I]nternally displaced persons are persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an international recognized State border." United Nations, Guiding Principles on Internal Displacement (2004), https://www.unhcr.org/en-us/protection/idps/43ce1cff2/guiding-principles-internal-displacement.html [https://perma.cc/LX2Y-VNYJ].

6. *Id.* The *Guiding Principles* effectively entitle IDPs to the same freedoms and human rights protections as other persons within their country. *See* Human Rights Council, *Report of the Office of the United Nations High Commissioner for Human Rights on the Relationship between Climate Change and Human Rights*, 19, U.N. Doc. A/HRC/10/61 (Jan 15, 2009).

7. The Nansen Initiative was established in 2012 and its Protection Agenda was "the first attempt by States to build consensus on how to address cross-border disaster-displacement at the international level." The Platform on Disaster Displacement was established to continue the Nansen Initiative's work after it concluded its mandate in 2015. Platform on Disaster Displacement, https://disasterdisplacement.org [https://perma.cc/K8VX-H88G]. *See* The Platform on Disaster Displacement, *Platform on Disaster Displacement, Follow-up to the Nansen Initiative: Addressing the Protection Needs of Persons Displaced Across Borders in the Context of Disasters and Climate Change*, *in* Routledge Handbook of Environmental Displacement and Migration 421, 422 (Robert McLeman & François Gemenne eds., 2018).

8. G.A. Res. 73/195, Global Compact for Safe, Orderly and Regular Migration (Dec. 19, 2018), https://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/73/195 [https://perma.cc/AU83-EFC8].

9. Colloquium on the Int'l Prot. of Refugees in Cent. Amer., Mex., and Pan., Cartagena Declaration on Refugees art 3.3 (Nov. 22, 1984), https://www.unhcr.org/en-us/about-us/background/45dc19084/cartagena-declaration-refugees-adopted-colloquium-international-protection.html [hereinafter Cartagena Declaration on Refugees].

expanded their definitions of "refugee" to include climate migrants.[10] Both instruments have operated to protect those displaced by environmental conditions and natural disasters, and could be used to similarly assist climate migrants, but they are only available to communities in Africa and Latin America.[11]

Bilateral agreements, like the Compacts of Free Association (COFAs) between some Pacific SIDS and the United States, could potentially mitigate the risk of displacement. For nearly forty years, the United States and three Pacific Island states—the Republic of the Marshall Islands (RMI), the Federated States of Micronesia (FSM), and the Republic of Palau—have engaged in COFAs.[12] The major provisions of the COFA between the RMI and the United States, for example, fall into three categories: (1) economic support from the United States with the goal of RMI's economic self-sufficiency,[13] (2) securing the United States' national security and strategic military rights,[14] and (3) the right of Marshallese citizens to reside and work in the United

10. The 1969 Organization of African Unity Convention extends protection to persons fleeing to another country because of "external aggression, occupation, foreign domination or events seriously disturbing public order." OAU Convention Governing Specific Aspects of Refugee Problems in Africa art 1.2, Sept. 10, 1969, 1001 U.N.T.S. 45 (entered into force June 20, 1974). The 1984 Cartagena Declaration's definition similarly includes those who are displaced because their "lives, safety or freedom have been threatened by . . . circumstances which have seriously disturbed public order." Cartagena Declaration on Refugees, *supra* note 9, at art 3.3.

11. *See* Flavia Zorzi Giustiniani, *Temporary Protection after Disasters: International, regional and national approaches*, *in* Routledge Handbook of Human Rights and Disasters 329, 331–332 (Flavia Zorzi Giustiniani, Emanuele Sommario, Federico Casolari & Giulio Bartolini eds., 2018) (noting the OAU Kampala Convention was used by Kenya, Ethiopia, and other East African countries to accept Somali refugees during severe drought conditions in 2011 and 2012, and the Cartagena Declaration was used by Ecuador to admit Haitians after the 2010 earthquake); Oshani Amaratunga, *Climate Displaced Peoples: Utilizing Regional Approaches to Combat Climate Induced Displacement in the 21st Century* 36(2) Pace Envtl. L. Rev. 261, 277 (2019).

12. 48 U.S.C. § 1921 (2003) (subd. (a), as applied to the Federated States of Micronesia, and subd. (b) as applied to the Republic of the Marshall Islands); *see* Thomas Lum, *The Marshall Islands and Micronesia: Amendments to the Compact of Free Association with the United States*, 24 Current Pol. & Econ. of South, Southeastern, & Central Asia 233 (April 1, 2015); *see also* Philip G. Dabbagh, *Compacts of Free Association-type Agreements: A Life Preserver for Small Island Sovereignty in an Era of Climate Change?*, 24 Hastings Envtl. L.J. 431 (2018). This article primarily discusses the sections in the COFA between the Republic of the Marshall Islands and the United States but makes reference to the Federated States of Micronesia and the United States COFA under the Compact of Free Association Amendments Act of 2003. Compact of Free Association Amendments Act of 2003, Pub. L. No. 108-188, 117 Stat. 2720 (2003).

13. Compact of Free Association Amendments Act of 2003, § 211(a).

14. *See* Compact of Free Association Amendments Act of 2003, § 311(a). The United States can reject the strategic use of RMI by third countries, block RMI policies that are inconsistent with its duty to defend and can establish military facilities on RMI through its Military Use and Operating Rights Agreement. The United States currently operates military facilities on Kwajalein Atoll. *See* Lum, *supra* note 12, at 233, 234.

States and its territories as lawful non-immigrants.[15] While these COFAs enable lawful immigration to the United States and provide a structure for continued economic support, they do not directly support those displaced by climate impacts or provide project financing for adaptation measures. However, if amended as outlined in Subpart II.C, they could provide financial and institutional support.

B. *Territorial Loss and Sovereignty*

The self-determination and sovereignty of SIDS are inexorably tied to their territories. Without a territory, a nation's right to statehood becomes precarious.[16] Territory, and with it, statehood, are "fundamental precursor[s] to the enjoyment of all other rights."[17] When a nation's territory disappears, that nation must address complicated questions of how to exist and how to make its collective existence as a state meaningful.[18] While international law recognizes sovereignty is flexible and may be independent of territory,[19] particularly when communities are made diasporic by processes of invasion or colonization,[20] one of the largest political risks to SIDS is they may not be recognized as "states" if their populations are forced to migrate.[21] Even though a strong presump-

15. Compact of Free Association Amendments Act of 2003, § 141(a); *see also* Lum, *supra* note 12, at 233.

16. *See* Jane McAdam, Climate Change, Forced Migration, and International Law 127–128 (Oxford 2012).

17. *See* Susannah Willcox, *A Rising Tide: The Implications of Climate Change Inundation for Human Rights and State Sovereignty*, 9 Essex Hum. Rts. Rev. 1, 12 (2012) ("Without territory, [peoples] cannot enjoy self-determination. Without self-determination . . . they cannot enjoy statehood. Without self-determination or statehood, they no can longer depend on the state to protect their fundamental rights and interests, nor call for the recognition and enforcement of extraterritorial obligations relating to climate change harms.").

18. *See* Jörgen Ödalen, *Underwater Self-determination: Sea-level Rise and Deterritorialized Small Island States*, 17 Ethics, Pol'y & Env't 225, 226 (2014) ("by becoming deterritorialized [climate migrants from island states] have lost a valuable part of what self-determination ordinarily entails, namely *independence* from other political units").

19. For instance, the European Union is recognized as "sovereign," and confers citizenship and other tangible benefits upon EU citizens, and Taiwan, though not recognized as a "state," exercises functional sovereignty in its international affairs and economic arrangements. *See* Maxine A. Burkett, *The Nation Ex-Situ: On Climate Change, Deterritorialized Nationhood and the Post-climate Era*, 2 Climate L. 1, 357 (2011) (citing McAdam, *Disappearing States*, *supra* note 1, at 116).

20. Tibetans, Maori and Palestinians are examples of diasporic, deterritorialized communities recognized under international law. *See id.* at 357 (citing McAdam, *Disappearing States*, *supra* note 1, at 116).

21. Islands threatened by climate change impacts face a loss of recognized "statehood." Under international law, statehood requires: (1) a defined territory, (2) a permanent population, (3) an effective government, and (4) the capacity to enter into relations with other states. Montevideo Convention on the Rights and Duties of States art. 1, Dec. 26, 1933, 65 L.N.T.S. 19; *see* McAdam, Climate Change, *supra* note 16, at 128–34 (discussing each requirement for a "state" in-depth).

tion favors continuity of statehood regardless of territory,[22] the international community has not addressed the prospect of a state whose population must permanently resettle elsewhere .

Loss of territory is not just a threat to political sovereignty; it poses a threat to a nation's right to freely pursue its economic, social, and cultural development.[23] One facet of self-determination for many SIDS is the right to an Exclusive Economic Zone (EEZ). An EEZ is a "an area [up to 200 nautical miles] beyond and adjacent to the territorial sea" where the coastal state enjoys sovereign rights over natural resources and has jurisdiction over "the establishment and use of artificial islands, installations and structures."[24] The 1982 United Nations Convention on the Law of the Sea (UNCLOS) established EEZ rights, and SIDS (like the RMI, which became a party to UNCLOS in 1994) have enjoyed the benefits of EEZs .[25] Many SIDS fund a significant amount of their GDP by granting fishing licenses to foreign vessels seeking to gain access to resources within their EEZ.[26] These rights—not to mention the resources themselves—are threatened by sea level rise and erosion scenarios.[27] Hence, facilitating adaptive responses to preserve territory has both political and economic consequences in addition to the important social and cultural value in maintaining a traditional land base.

22. While concepts of statehood are challenged by territorial loss, a strong presumption nevertheless favors the continuity of an established state. A nation that loses its territory may consider retaining its sovereign status as a "Nation *Ex-Situ*," a status that allows for the continued existence of a sovereign state, retaining all "the rights and benefits of sovereignty amongst the family of nation-states, in perpetuity." Burkett, *The Nation Ex-Situ*, *supra* note 19, at 346, 354; *see also* Rosemary Rayfuse & Emily Crawford *Climate Change, Sovereignty and Statehoo*d, *in* International Law in the Era of Climate Change 243–53 (Rosemary Rayfuse & Shirley V. Scott eds., 2011).

23. *See* International Covenant on Civil and Political Rights art. 1, Dec. 18, 1966, 99 U.N.T.S. 171; *see also generally* Ödalen, *supra* note 18.

24. United Nations Convention on the Law of the Sea art. 55–57, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS] (A state's EEZ cannot exceed 200 nautical miles from the baselines from which the breadth of the territorial sea is measures, but other states possess certain rights and freedoms, like navigation and overflight).

25. *See id.*; Miguel Esteban & Lillian Yamamoto, Atoll Island States and International Law, 121–25 (2014).

26. Dabbagh, *supra* note 12, at 438 (noting fish stock located in the EEZs attract foreign fishing vessels and SIDS that are otherwise financially unable to take advantage of commercial fishing operations grant fishing licenses that allow them to collect lucrative fees); *see also* Rognvaldur Hannesson, *The Exclusive Economic Zone and Economic Development in the Pacific Island Countries*, 32 Marine Pol'y 886, 889 (2008).

27. RMI currently maintains sovereignty over its territorial sea, contiguous zone, EEZ, and continental shelf, and controls the ability to grant fishing licenses within its EEZ. *See* Esteban & Yamamoto, *supra* note 25, at 123; Ödalen, *supra* note 18, at 227.

II. Adaptive Responses to Climate Impacts That Support Sovereignty for SIDS

Adaptation planning can take a variety of forms with multiple goals.[28] SIDS may consider several adaptation responses to preserve their sovereignty, including territorial and nonterritorial based solutions. Territorial solutions include preserving the habitability of existing islands and building artificial islands. Nonterritorial solutions are often longterm measures and include plans for resettlement. Simultaneously, legal and political arrangements can be negotiated to secure rights and boundaries. Adaptation strategies are not mutually exclusive; SIDS may invest in territorial solutions while also pursuing resettlement either simultaneously or in stages.

A. *Territorial Measures to Preserve Island Territories*

For SIDS, preserving the habitability of their traditional land bases offers a way to protect their sovereignty and all that flows from it—political and economic rights as well as cultural values and community ties.

1. Preserving the Habitability of Existing Islands

Preserving the habitability of SIDS through infrastructure solutions is attractive for several reasons. An elevated island is tacitly accepted as being encompassed by UNCLOS's definition of "island,"[29] and because only "islands" retain the rights, benefits, and protections of UNCLOS,[30] elevating an existing island does not risk a change in status. In addition, building up existing islands has the advantage of drawing upon a familiar type of territorial engineering—"dredging" or "land reclamation"—a means of siphoning water and sand from a body of water to use as sediment in a different location, typically by using a centrifugal pump.[31] Countries like the Netherlands and munici-

28. *See* Intergovernmental Panel on Climate Change (Ipcc), Climate Change 2014: Synthesis Report. Contribution Of Working Groups I, II And III To The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (Core Writing Team, Rajendra K. Pachauri & Leo A. Meyer eds., 2015), https://ar5-syr.ipcc.ch/ipcc/ipcc/resources/pdf/IPCC_SynthesisReport.pdf [https://perma.cc/RQD4-R2BG] ("adaptation can take a variety of approaches depending on the context in vulnerability reduction, disaster risk management or proactive adaptation planning" and adaptation strategies have strong "potential for co-benefits and opportunities within wider strategic development plans").

29. *See* Esteban & Yamamoto, *supra* note 25, at 122. The definition of "island" under Article 121(1) of the UNCLOS—"a naturally formed area of land, surrounded by water, which is above water at high tide"—has been tacitly accepted as broad enough to encompass a landmass built-up by dredging. UNCLOS, *supra* note 24, at art. 121(1); *see also* Dabbagh, *supra* note 12, at 452 n.121, (citing Clive Schofield, *Shifting Limits: Sea Level Rise and Options to Secure Maritime Jurisdictional Claims*, 2009 Carbon Climate L. Rev. 405, 411 (2009), n.39 ("it is generally accepted that a naturally formed feature can be preserved or extended through reclamation works.")).

30. UNCLOS, *supra* note 24, at art. 121.

31. *See* Vince Beiser, *Aboard the Giant Sand-sucking Ships that China Uses to Reshape the World*, MIT Tech. Rev. (Dec. 19, 2018), https://www.technologyreview.

palities like Manhattan have commonly used these practices to expand their habitable land bases[32] and dredged sediment has been used to build countless ports and seaside towns, in areas such as Los Angeles, Boston's Back Bay, Marseilles, Mumbai, and Hong Kong.[33]

Beyond elevating existing land, building coastal defenses, like seawalls, could help SIDS navigate sea-level rise and storm surges. Seawalls prevent inland flooding from storms and high water. These are typically massive concrete structures designed at a height to prevent overtopping from waves, and with a weight that allows the wall to maintain stability against sliding sediment or storm surges.[34] Existing sea walls can be increased in height to accommodate future sea level rise. For example, Singapore has used seawalls to protect 70–80 percent of its coastal territory.[35]

Constructing coastal defenses, however, is expensive, particularly because SIDS have some of the highest coastal protection costs relative to GDP.[36] For instance, the estimated cost of a temporary seawall to protect one of the RMI's atolls is $100 million, an amount nearly double its annual revenue.[37] Further, the International Panel on Climate Change has acknowledged "the costs of overall infrastructure and settlement protection are a significant proportion of GDP, and well beyond the financial means of most small island States."[38] In addition, maintaining the efficacy of sea defenses in the face of rising waters and larger storms might undermine the economic case for these structures.[39] Seawalls will likely need to be built both higher and wider to prevent erosion as years go on, and sea defenses themselves could detract from the natural beauty of SIDS, harming those that rely on tourism for a significant part of

com/2018/12/19/103629/aboard-the-giant-sand-sucking-ships-that-china-uses-to-reshape-the-world [https://perma.cc/PRZ6-PCCD].

32. *See id.*

33. *See id.*

34. Nicholas C. Kraus, *Shore Protection Structures*, *in* Encyclopedia of Coastal Science 875, 877 (Maurice Schwartz, ed. 2005).

35. *See* Kaufui V. Wong, *Mitigation and Adaptation Responses to Sea Level Rise*, 9 The Open Hydrology J. 24, 25 (2015).

36. Dabbagh, *supra* note 12, at 440 ("[I]n 1990 the IPCC ranked Maldives, Kiribati, Tuvalu, Tokelau, Anguilla, Turks and Caicos, Marshall Islands, and Seychelles as among the 10 nations with the highest protection costs in relation to GNP." Estimated cost of coastal protection for Kiribati would 14 percent of annual GNP and for Tuvalu would be 18 percent of annual GNP) (citing Alexandra Tsyban, John T. Everett, & Jim Titus, *1990: World Oceans and Coastal Zones*, *in* Climate Change: the IPCC Impacts Assessment, 6–1, 6–4 (1990).

37. Esteban & Yamamoto, *supra* note 25, at 151–52.

38. Intergovernmental Panel on Climate Change (IPCC), Small Islands. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group 2 to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change 694 (Nobuo Mimura, et al., eds., Cambridge U. Press 2007), https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg2-chapter16-2.pdf [https://perma.cc/E6WN-424Y].

39. *See* Esteban & Yamamoto, *supra* note 25, at 152 ("the creation of these protection works could ultimately prove to be unsustainable" stating some existing defenses in Samoa and the Arteret islands are already vulnerable to erosion and their efficacy is unclear).

their economy.[40] Nevertheless, these types of coastal defenses attract climate finance when a country specifies their need in a National Adaptation Plan.[41] And short-term habitability is often a goal worth pursuing, particularly if it enables longterm strategic adaptation planning.

2. Constructing Artificial Islands to Preserve Territory

In addition to building up existing islands and implementing coastal defenses, SIDS may preserve their territories by building artificial islands and harbors to protect their current islands.[42] Artificial islands are legally recognized under UNCLOS, which anticipates states may construct artificial islands within their EEZs.[43] However, artificial islands, unlike "islands" under UNCLOS, do not create EEZs around them, and can only be used to maintain territory, not gain it.[44]

At least in theory, building new, artificial islands may be a way to both preserve claims to territory and address overcrowding, especially as habitable land grows scarcer.[45] Though seemingly novel, building artificial islands is not a new practice, but it is an expensive one.[46] For several decades, SIDS

40. *See id.* (stating 90 percent of tax revenue in the Maldives originates from tourism).

41. *See, e.g.*, *Adaptation Planning Support Helps Countries Weather Climate Change*, Green Climate Fund, https://www.greenclimate.fund/stories/adaptation-planning [https://perma.cc/XC5R-LQ4Y]. For instance, the RMI, Bangladesh, and Timor Leste specified the need for climate adaptation infrastructure in their NAPAs. The GCF funded a $44.1 million project to enhance "the resilience of coastal infrastructure in the densely populated areas" of RMI. *FP066*, Green Climate Fund, https://www.greenclimate.fund/project/fp066 [https://perma.cc/7CM6-ZZCJ]. The GCF also funded coastal adaptation projects in Bangladesh and Timor Leste. *Project Portfolio*, Green Climate Fund, https://www.greenclimate.fund/projects?f[]=field_theme:235 [https://perma.cc/W23M-8YL5].

42. *See* Dabbagh, *supra* note 12, at 451.

43. "In the exclusive economic zone, the coastal State shall have the exclusive right to construct and to authorize and regulate the construction, operation and use of: (a) artificial islands . . . ." UNCLOS, *supra* note 24, at art. 60(1) at 45; *see also* Adam W. Kohl, *China's Artificial Island Building Campaign in the South China Sea: Implications for the Reform of the United Nations Convention on the Law of the Sea*, 122 Dick. L. Rev. 917, 926 (2018).

44. A recent UN Arbitration Tribunal decision suggests that states can construct artificial islands within their own EEZs to protect existing territorial rights, but artificial structures cannot be used to gain jurisdictional territory. However, the broader implications of how UNCLOS determines the legitimacy and entitlements conferred by artificial islands remains uncertain. *See In re* Republic of the Phil. v. China, PCA Case No. 2013-19, Certified Award, (July 12, 2016), https://pcacases.com/web/view/7 [https://perma.cc/V89F-FAEQ]; *see also* Beiser, *supra* note 31.

45. Fabrizio Bozzato, *Dryland: Artificial Islands as New Oceanscapes*, 17 J. of Futures Stud. 1 (2013), *available at* https://jfsdigital.org/wp-content/uploads/2013/10/174-A01.pdf [https://perma.cc/S2PQ-SXDT]. Artificial islands have the potential to become sites for innovation and places to imagine different concepts of habitat. *See* Jenny Bryant-Tokalau, *Artificial and Recycled Islands in the Pacific: Myths and Mythology of "Plastic Fantastic,"* 120 J. Polynesian Soc'y 71, (2011); Godfrey Baldacchino, *Islands as Novelty Sites*, 97(2) Geographical Rev. 165 (2007).

46. While a history of the academic debate around artificial islands, including their

have attempted artificial island projects with limited success. Since 1997, the Maldives have been constructing two artificial island projects to assist with population overflow and waste management.[47] Its first project, the artificial island of Hulhumale, was built from dredged materials and is projected to be finished in 2023.[48] People began living there in 2004. Its population reached 40,000 by 2016;[49] and the project aims to accommodate 200,0000 more people to alleviate overcrowding in the nearby capital city of Male.[50] Building both the island and the bridge linking it to Male cost $400 million, an amount primarily financed by loans from Saudi Arabia, China, and the United Arab Emirates (the UAE).[51] The involvement of Saudi Arabia and China has generated local and international concern about these countries' roles in geopolitical operations in the Indian Ocean and the potential for "creeping colonialism by the Saudi government."[52] While some of the project was financed with develop-

financial and geopolitical obstacles, is beyond the scope of this Article, several authors have discussed their histories. *See, e.g.*, D. H. N. Johnson, *Artificial Islands*, 4 Int'l L.Q. 203 (1951); Clive Schofield & Richard Schofield, *Testing the Waters: Charting the Evolution of Claims to and From Low-Tide Elevations and Artificial Islands under the Law of the Sea*, 1 Asia-Pac. J. Ocean L. & Pol'y 37 (2016); *see also* Bryant-Tokalau, *supra* note 45, at 73. These sources note that early attempts to build artificial structures and build up land on unclaimed ocean territory were failed experiments, largely due to a lack of political and financial planning.

47. *See* Emily Matchar, *Can Artificial Islands Solve Overcrowding?*, Smithsonian Mag. (Sept. 28, 2018), https://www.smithsonianmag.com/innovation/can-artificial-islands-solve-overcrowding-180970408 [https://perma.cc/4CW8-J76J].

48. *See* Katharine Gammon, *Building Artificial Islands That Rise With the Sea*, Popular Sci., Aug. 6, 2012, https://www.popsci.com/technology/article/2012-07/building-artificial-islands-rise-sea [https://perma.cc/YZ8J-9KYJ] (In addition to constructing islands to accommodate its domestic population, "[t]he Maldivian government has started a joint venture with the architectural firm Dutch Docklands International to build the world's largest artificial floating island project, which . . . [includes] an island for 200 luxury residences and another for a floating golf course this year, it is working on plans to construct islands for more affordable housing next."); Eric Hirsch, *It Won't Be Any Good to Have Democracy if We Don't Have a Country: Climate Change and the Politics of Synecdoche in the Maldives*, 35 Global Envtl. Change 190, 195 (2015).

49. Hirsch, *supra* note 48, at 190, 195; Mohammad Abdul Mohit & Mohamed Azim, *Assessment of Residential Satisfaction with Public Housing in Hulhumale', Maldives*, 50 Procedia Soc. & Behav. Sci. 756, 761 (2012); Dabbagh, *supra* note 12, at 451.

50. Dabbagh, *supra* note 12, at 451.

51. *Id.* at 451–52 n. 117–19; *see* Zeenat Saberin, *What's Behind Saudi-UAE Aid to Maldives?* Al Jazeera (Mar. 1, 2018), https://www.aljazeera.com/indepth/features/saudi-uae-aid-maldives-180228130657644.html [https://perma.cc/4KEJ-YSUV] (noting that Saudi Arabia and the UAE announced a grant of $160M for "development projects" in the Maldives, raising suspicion about the motive for the funds and the type of strategic influence Middle East countries may be trying to assert in the Maldives and its territorial waters); *see also* Mia, *Top Attractions in Malé—The Sinamalé Bridge (China-Maldives Friendship Bridge)*, Maldives Expert (Mar. 14, 2019), https://www.themaldivesexpert.com/4588/top-attractions-in-male-the-sinamale-bridge-china-maldives-friendship-bridge [https://perma.cc/528N-WA7K].

52. *See MDP Warns of 'Creeping Colonialism' by Saudi Arabia*, Maldives Indep. (Mar. 4, 2017), https://maldivesindependent.com/politics/mdp-warns-of-creeping-colonialism-by-saudi-arabia-129169 [https://perma.cc/U9BS-JMKS]; Saberin, *supra* note 51.

ment aid and grant assistance, including a $16.5 million grant from the World Bank for the "Maldives Urban Development and Resilience Project,"[53] the project has generated $70 million in Chinese debt, a particular source of local concern given this could raise taxes to service the debt.[54] The Maldives still plans for additional artificial islands,[55] though these plans have stalled given the current administrations' focus on elevating the existing islands and investing in other economic development projects like fishing and ecotourism.[56] Data on additional infrastructure or maintenance costs related to these projects is not publicly available making it difficult to use the Maldives' artificial islands project as a model for similarly situated SIDS.

Similarly, Kiribati is reported to have contracted with the UAE and Saudi Arabia to build artificial islands, but these projects do not appear to be underway and lack publicly available cost information.[57] Likewise, French Polynesia signed an MOU with the Seasteading Institute in January 2017 to study the

53. *See* Saberin, *supra* note 51 ("As part of the support of the Kingdom of Saudi Arabia and the United Arab Emirates, the Saudi Fund for Development and the Abu Dhabi Fund for Development has pledged $160 million in support of the Maldives and its brotherly people for the development projects including the airport development and fisheries sector of the Maldives."); *see also* Procurement Plan, World Bank, http://documents.worldbank.org/curated/en/332261568724477940/pdf/Maldives-SOUTH-ASIA-P163957-Maldives-Urban-Development-and-Resilience-Project-Procurement-Plan.pdf [https://perma.cc/774H-E7M6]; *Maldives Urban Development and Resilience Project*, World Bank, http://projects.worldbank.org/P163957/?lang=en&tab=overview [https://perma.cc/V5DN-ZXF6] (most of this funding is directed at the artificial island Hulhumale).

54. Koimala, *People's Debt Bridge*, Medium (Sept. 2, 2018), https://medium.com/@koimala/peoples-debt-bridge-c1f0a97e0b83 [https://perma.cc/CE8L-V6AE] ("Ordinary Maldivians will struggle most to repay China. There could be a drastic increase in tax or services because eventually, we will have to use these funds to service the debt. If we fail to do so we will be redirecting the debt to China and lose our sovereignty. This bridge is not a miracle, nor it is a reason for us to be happy. This is a debt trap and we will end up being its collateral damage.").

55. Nenad Jaric Dauenhauer, *New Islands Built to Fight Rising Seas*, 233 New Sci. 12 (2017). The Maldives plans to construct future islands on floating platforms in collaboration with Dutch Docklands and the Dutch architect, Koen Olthuis. *See* Erin Block, *What it Takes to Make a Brand New Island*, Travel + Leisure (Sept. 22, 2017), https://www.travelandleisure.com/culture-design/architecture-design/floating-islands-maldives [https://perma.cc/KV45-YWMY]; *see also Maldives*, Dutch Docklands, http://www.dutchdocklands.com/Development/Maldives [https://perma.cc/N85Y-WNFQ]; Christine Retschlag, *Floating Into a Sustainable Future*, Building Economist 24 (2013).

56. *See* Matthieu Rytz, *Sinking Islands, Floating Nation*, N.Y. Times (Jan. 24, 2018), https://www.nytimes.com/2018/01/24/opinion/kiribati-climate-change.html [https://perma.cc/DPJ5-9QNS] (The newspaper reported Kiribati's President, Taneti Maamau, is foregoing artificial island construction in favor of investing in building up the existing islands and "[r]ather than preparing an exit strategy, the new government is focusing on development for the island over the next 20 years, including building the tuna fishing industry, luxury resorts and eco-tourism of previously uninhabited islands and courting investment from multinational corporations.").

57. Few sources are available that could verify the progress of the project. *See* Matchar, *supra* note 47.

economic and environmental impacts of constructing three solar powered artificial island platforms, though this project was ultimately not pursued.[58]

Beyond SIDS, other coastal countries have used artificial island projects to address overcrowding. Several countries, including Hong Kong, Denmark, the United Arab Emirates (UAE), and Nigeria, are already considering or constructing these projects. Hong Kong is contemplating building an artificial island to house up to 1.1 million people, having already built the Hong Kong International Airport on reclaimed land and reinforced its shoreline.[59] Denmark's national government and the Copenhagen Municipality are designing two artificial island projects—one to increase housing and the other to create a Silicon Valley–like technology hub for the state. The Danish government is self-financing both projects, which together have an estimated cost of $3.04 billion USD (20 billion Danish Krone) and will create nine artificial islands. These projects will also protect Copenhagen from future flooding due to rising sea levels and volatile weather.[60] In the UAE, artificial islands have been constructed with oil revenue funds[61] to house luxurious private homes and resorts. Lastly, Nigeria is building a new coastal city adjacent to Lagos, EkoAtlantic,

58. The Seasteading Institute, a nonprofit organization based in San Francisco, promotes the idea of a floating city as a self-sustaining nationstate. *See Reimagining Civilization with Floating Cities*, Seasteading Inst., https://www.seasteading.org, [https://perma.cc/AVQ4-UY4J]; David Gelles, *Floating Cities, No Longer Science Fiction, Begin to Take Shape*, N.Y. Times (Nov. 13, 2017), https://www.nytimes.com/2017/11/13/business/dealbook/seasteading-floating-cities.html [https://perma.cc/4HNS-LWN6]; *see also* Dabbagh, *supra* note 12, at 452–53 (citing Sebastian Malo, *Faced with Rising Seas, French Polynesia Ponders Floating Islands*, Thomson Reuters Foundation News (Mar. 20, 2017), https://news.trust.org/item/20170320000842-qcn8y [https://perma.cc/QV7A-YV5D]; *French Polynesia Sinks Floating Island Project*, Radio New Zealand, Feb. 28, 2018, https://www.rnz.co.nz/international/pacific-news/351420/french-polynesia-sinks-floating-island-project [https://perma.cc/8PHS-ELB8].

59. *See* Matchar, *supra* note 47; *Kiribati Looks to Artificial Islands to Save Nation from Rising Sea Levels*, ABC News (Feb. 16, 2016 5:54 PM), https://www.abc.net.au/news/2016-02-17/artificial-islands-perhaps-the-only-option-to-save-kiribati/7175688 [https://perma.cc/C6T7-Z8KC].

60. Nick Rigillo, *Copenhagen is Building a New Island to Help Fix its Housing Shortage*, Bloomberg Bus. (Oct. 5, 2018), https://www.bloomberg.com/news/articles/2018-10-05/booming-copenhagen-set-to-expand-with-new-residential-island [https://perma.cc/6WPS-LY56]. The second project, the Holmene Project, will create nine artificial islands by 2040 to house a new industrial zone off the southern coast of Copenhagen. The project has been dubbed an attempt to create Denmark's "Silicon Valley." *See* Sean Fleming, *Denmark Plans 'Silicon Valley' on 9 Artificial Islands off Copenhagen*, World Econ. F. (Jan. 11, 2019), https://www.weforum.org/agenda/2019/01/denmark-plans-silicon-valley-on-9-artificial-islands-off-copenhagen [https://perma.cc/JEQ5-J3FQ]. The government hopes to begin construction on the first islands in 2022 and would finance the endeavor by selling plots on the islands. *Id.*

61. *See* Tina Butler, *Dubai's Artificial Islands Have High Environmental Cost*, Mongabay (Aug. 23, 2005), https://news.mongabay.com/2005/08/dubais-artificial-islands-have-high-environmental-cost [https://perma.cc/6AR4-74LN]; Robert Lewis, *Palm Jumeirah*, Encyclopedia Britannica, (July 24, 2017), https://www.britannica.com/topic/Palm-Jumeirah [https://perma.cc/5JQG-HVSS].

to alleviate real estate shortages and provide additional economic opportunities in West Africa.[62] These examples demonstrate that artificial islands can serve valuable purposes around the world, yet their enormous construction costs require large amounts of state-based finance or private investment, limiting the feasibility of such projects for SIDS with few economic resources or capital draws like ecotourism.

To date, no existing artificial island project has been financed through public climate finance channels. It remains to be seen if this type of adaptation is practical given the cost, and whether SIDS will be able to attract the public and private capital needed to build such additional islands. As a result, this type of adaptation solution is an uncertain, and a potentially risky longterm option.

B. *Planned Resettlement as an Adaptative Measure to Preserve Sovereignty and Secure Rights*

Planned resettlement is a longterm adaption option many SIDS are already pursuing to avoid climate displacement.[63] Should island territories become uninhabitable, planned resettlement allows SIDS to make collective decisions about the futures of their identities, cultures, governments, and territories.[64]

Several SIDS have designed and even effectuated resettlements. However, none have been publicly financed. Other SIDS (including Kiribati, the Maldives, the Solomon Islands, and the Carteret Islands of Papua New Guinea) have initiated or have completed relocation plans. In 2015, Kiribati purchased 5,460 acres of land in Fiji for $8.7 million to assist with food production and secure a future place to relocate some, and potentially all, its citizens.[65] The

62. *See also* Drew Hinshaw, *Nigerian Developer Set to Build Africa's Next Giant City*, Wall St. J. (Aug. 12, 2013), https://www.wsj.com/articles/nigerian-developer-set-to-build-africas-next-giant-city-1376323872 [https://perma.cc/X6WY-A392].

63. For instance, the Sendai Framework for Disaster Risk Reduction (2015–2030) incorporated planned relocation as a longterm measure in 2015. *See generally*, Jeanette Schade, *Land Matters: Challenges to Planned Relocation As a Durable Solution to Environmentally Induced Displacement in Kenya*, *in* Dimitra Manou et al., Climate Change, Migration, and Human Rights: Law and Policy Perspectives, 149 (Routledge 2017) (citing a variety of United Nations materials, reports, and COP materials).

64. *See* Richard Curtain & Matthew Dornan, A pressure release valve? Migration and climate change in Kiribati, Nauru and Tuvalu (Dev. Policy Ctr. 2019), http://devpolicy.org/publications/reports/Migration-climate%20change-Kiribati-Nauru-Tuvalu.pdf [https://perma.cc/7LK3-WR59] ("For migration to perform its role in changing adaptive strategies, more migration opportunities need to be provided to vulnerable households. Freely chosen, managed migration of a population is more effective than large-scale, reactive migration in response to a humanitarian crisis. Such migration also benefits those who want to stay, through the development of a safety net and more general support for those with family overseas."); *see also* Ilan Kelman, *Difficult Decisions: Migration from Small Island Developing States under Climate Change*, 3(4) Earth's Future 133 (2015).

65. The President of the Republic of Fiji, Ratu Epeli Nailatikau, stated "the people of Kiribati will have a home if their country is submerged by the rising sea level as a result of climate change." Press Release, Climate Change, Office of the President of the Republic

purchase was a part of its "migration with dignity" plan to move off its atolls and establish expatriate I-Kiribati communities.[66] In 2008, the Kandholhudhoo Island community in the Maldives was displaced by a 2004 earthquake and tsunami in the Indian Ocean.[67] The International Federation of Red Cross (IFRC) and Red Crescent Societies along with the Maldivian government constructed 600 new homes on the uninhabited nearby island of Dhuvaafaru for the community's relocation.[68] The relocation cost approximately $45 million, $32 million of which was contributed by the IFRC.[69] The Maldives is reported to be exploring the acquisition of new territory in India for a planned resettlement. Though no land acquisitions have yet been reported,[70] it is rumored the deal could give India access to the Maldives' EEZ.[71]

Other Pacific SIDS have relocation plans that have stalled because of funding shortages. For example, in the Solomon Islands, the town of Choiseul on Taro Island has a relocation plan to gradually move communities to higher ground on the mainland.[72] The Australian government provided $800,000 to fund the planning process, and the land was acquired for approximately one million dollars; however, the actual cost of the relocation will be "hundreds of millions of dollars"[73] and the project has since been put on hold for lack of

---

of Kiribati (2014), http://www.climate.gov.ki/2014/05/30/kiribati-buys-a-piece-of-fiji [https://perma.cc/KP67-GFH9]; *see* Maxine Burkett, *Lessons from Contemporary Resettlement in the South Pacific*, 68(2) J. Int'l Aff. 75 (2015), https://pdfs.semanticscholar.org/b364/b2307ed949662af2e29082f2adc494964834.pdf.

66. Christopher Pala, *The Island Nation That Bought a Back-Up Property*, Atlantic (Aug. 21, 2014), https://www.theatlantic.com/technology/archive/2014/08/The-Island-Nation-That-Bought-a-Back-Up-Property/378617 [https://perma.cc/TES2-WUFQ]; *see also* Kim Angell, *New Territorial Rights for Sinking Island States*, Eur. J. Pol. Theory, Nov. 16, 2017.

67. Mahmood Riyaz and Kyung-Ho Park, *"Safer Island Concept" Developed After the 2004 Indian Ocean Tsunami: A Case Study of Maldives*, 4(2) J. Earthquake & Tsunami 135, 137–39 (2010).

68. International Federation of Red Cross and Red Crescent Societies, Community Participation in rebuilding in the Maldives 1 (2007), https://www.recoveryplatform.org/assets/publication/community_participation_in_rebuilding_Maldives.pdf [https://perma.cc/6XRW-22YZ].

69. Alexander Wong, *Comparative Relocation: Case Study and Analysis of Options for Threatened Island Nations* 17 (Colum. L. Sch., Ctr. for Climate Change, Working Paper, Aug. 9, 2011).

70. *See* Tracey Skillington, *Reconfiguring the Contours of Statehood and the Rights of Peoples of Disappearing States in the Age of Global Climate Change*, 5 Soc. Sci., 1 (2016) ("The Maldives, a collection of 1190 low-lying islands in the Indian Ocean, for example, has already begun to explore options for the acquisition of a new territory to enable the migration of all its peoples, currently threatened by rising sea levels and other climate adversities.").

71. *See* Burkett, *The Nation Ex-Situ*, *supra* note 19.

72. *See* Burkett, *Lessons from Contemporary Resettlement*, *supra* note 65, at 77.

73. Specific estimates are not available, but "hundreds of millions" was reported by the project manager. *See* Megan Rowling, *Township in Solomon Islands Is 1st in Pacific to Relocate Due to Climate Change*, Sci. Am. (Aug. 15, 2014), https://www.scientificamerican.com/article/township-in-solomon-islands-is-1st-in-pacific-to-relocate-due-to-climate-change

funds.[74] Lastly, the Carteret Islands community in Papua New Guinea has been in the long process of trying to resettle around 2,000 of its people from islets in the Carteret Atoll to Bougainville on the mainland.[75] The community relied on small amounts of seed money from New Zealand and a nonprofit, Global Greengrants Fund, to design the relocation plan[76] but has yet to find larger funding sources necessary for the actual relocation. Despite the plan's growing urgency, potential donors have objected to using funds for certain projects, like house construction, because they do not conform to prescribed categories of climate aid.[77]

Within the United States, resettlement efforts are taking place in Alaskan coastal villages, Washington coastal communities, and in Isle de Jean Charles, Louisiana, with costs ranging from $50–$400 million. Federal financial assistance is largely unavailable to Alaskan Native Villages, requiring these communities to design self-reliant strategies. For instance, the Alaska native villages of Kivalina, Shishmaref, and Newtok have sought federal assistance for community-led relocation efforts for decades, but have received limited meaningful assistance.[78] The village of Newtok has received some federal funds—$15 million—to relocate to an upper village, allowing the town to begin the gradual process of constructing a new village and moving some residents in 2019. But the full relocation costs are estimated to be $130 million[79] and

---

[https://perma.cc/6UEF-XSCA]; *see* Emma Benintende, *The Relocation of Taro Island*, Architecture League (Oct. 1, 2019), https://archleague.org/article/the-relocation-of-taro-island [https://perma.cc/6AF5-JB96].

74. Tammy Tabe, *Climate Change Migration and Displacement: Learning from Past Relocations in the Pacific*" 8(7) Soc. Sci. 218 (2019); *see also* Simon Albert et al., *Heading for the Hills: Climate-Driven Community Relocations in the Solomon Islands and Alaska Provide Insight for a 1.5 °C Future*, 18 Regional Envtl. Change 2261, 2267 (Nov. 27, 2017).

75. *See* Burkett, *Lessons from Contemporary Resettlement*, *supra* note 65, at 77.

76. *Id.* at 78.

77. *Id.*

78. For instance, in Kivalina, the cost of relocation is estimated to be anywhere from $99 to $400 million, given the remote location of the community, the challenging Artic landscape which consists mainly of permafrost, and the cost of materials and their transport. While federal assistance for a community relocation has so far been denied, the state of Alaska has contributed $50 million to fund an evacuation road to a new school site. *See* Jennifer J. Marlow & Lauren E. Sancken, *Reimagining Relocation in a Regulatory Void: The Inadequacy of Existing US Federal and State Regulatory Responses to Kivalina's Climate Displacement in the Alaskan Arctic*, 7 Climate L. 290, 321 (2017); *see also* Army Corps, Relocation Planning Project Master Plan: Kivalina, Alaska 55–96, (2006) (assessing seven relocation site options, including a "Do Nothing" option; the range of relocation costs estimated by the Corps spread across seven sites; relocation cost estimates included but were not limited to site work and airport construction, erosion protection, power and fuel, the cost of moving buildings and new construction, water/sewer system and landfill, and transportation systems).

79. *See* May Wang, *Rising Tides, Resilience and Relocation*, Harv. Pol. Rev. (Oct. 25, 2018), https://harvardpolitics.com/covers/rising-tides-resilience-and-relocation [https://perma.cc/4S4E-ALSX].

it is not clear how the remainder will be funded.[80] The Quinault Tribe on the coast of Washington state has planned to relocate to the village of Taholah, a move estimated to cost between $100 and $150 million.[81] The Tribe received a grant for $700,000 from the federal Administration for Native Americans to develop a multiyear master plan,[82] but the actual relocation is not yet funded.[83] The people of Isle de Jean Charles, Louisiana, some of whom are composed of the Isle de Jean Charles Band of the Biloxi-Chitimacha Confederation of Muskogees and the United Houma Nation,[84] have designed a plan to move the community inland with an estimated cost of $50 million.[85] The United States Department of Housing and Urban Development awarded the first ever federal grant for relocation in the amount of $48 million to the community.[86] However, the future of the relocation remains uncertain as the relationship between some state and tribal stakeholders have soured over how the resettlement plan has been shaped.[87]

One recent example of largescale relocation that has received funding and is making steady progress is in the Arctic city of Kiruna, Sweden. The resettlement is not climate related, and involves 18,000 residents who are moving two miles east in a gradual process to prevent the town from collapse due to an underground mining operation by the Swedish-owned mining company,

80. *Id.*; *see* Rachel Waldholz, *Newtok to Congress: Thank You for Saving our Village*, Alaska Public Radio (Mar. 27, 2018), https://www.alaskapublic.org/2018/03/27/newtok-to-congress-thank-you-for-saving-our-village [https://perma.cc/A7FZ-MEAH].

81. *See* Tom Banse, *Coastal Village Moving to Higher Ground to Escape Tsunami, Flooding Threat*, Or. Pub. Broadcasting (Nov. 14, 2017), https://www.opb.org/news/series/unprepared/washington-cascadia-subduction-zone-earthquake-quileute-tribe-village [https://perma.cc/N2ZD-44NS].

82. A.L. Dannenberg et al., *Managed Retreat as a Strategy for Climate Change Adaptation in Small Communities: Public Health Implications*, 153(1) Climatic Change 1 (2019).

83. *See* Wang, *supra* note 79.

84. *See The Story of Isle de Jean Charles*, Isle de Jean Charles Resettlement Program, http://isledejeancharles.la.gov [https://perma.cc/J968-6883].

85. *See* Michael I. Stein, *How to Save a Town from Rising Waters*, CityLab (Jan. 24, 2018), https://www.citylab.com/environment/2018/01/how-to-save-a-town-from-rising-waters/547646 [https://perma.cc/6TJR-XPVP].

86. *See National Disaster Resilience Competition: Grantee Profiles*, U.S. Dep't Housing & Dev. (Jan. 2016), https://www.hud.gov/sites/documents/NDRCGRANTPROF.PDF [https://perma.cc/L6JM-7YKG]; Coral Davenport & Campbell Robertson, *Resettling the First American 'Climate Refugees'*, N.Y. Times (May. 2, 2016), https://www.nytimes.com/2016/05/03/us/resettling-the-first-american-climate-refugees.html [https://perma.cc/X25N-ZKFD].

87. Jenny Jarvie, *On a Sinking Louisiana Island, Many Aren't Ready to Leave*, L.A. Times (Apr. 23, 2019), https://www.latimes.com/nation/la-na-jean-charles-sinking-louisiana-island-20190423-htmlstory.html [https://perma.cc/W78B-RVQ6]; Robynne Boyd, *The People of the Isle de Jean Charles Are Louisiana's First Climate Refugees—but They Won't Be the Last*, Nat. Res. Defense Council (Sept. 23, 2019), https://www.nrdc.org/stories/people-isle-jean-charles-are-louisianas-first-climate-refugees-they-wont-be-last [https://perma.cc/UD9X-YP49].

Luossavaara-Kiirunavaara (LKAB).[88] The relocation is entirely financed by the Swedish government, at an estimated cost of over $1 billion.[89] The government gave residents the option for a buyout to acquire new housing or government-sponsored housing at the new site. While Sweden's planning process and community input around relocation could serve as a model for other towns and cities of comparable size seeking to relocate, Kiruna's financial situation is unique and likely not scalable.

Although planned relocation may become an eventuality, it is complex and fraught, and not always popular within small island communities. For instance, resettlement is not supported by a majority of Marshallese islanders.[90] The RMI President Hilde Heine has cautioned a complete migration may profoundly harm the Marshallese culture, as well as its territorial and political sovereignty.[91] Nonetheless, the outbound migration of Marshallese, at least in an *ad hoc* manner, is occurring. At the time of the 2010 Population Census, 22,343 Marshallese were living in the United States and current estimates are just over 30,000.[92] Internal migration is also occurring as the Marshallese have steadily moved from outer atolls to the urban centers of Majuro and Ebeye over the last half-century; at the time of the 2011 census more than half of the RMI's population lived on the capital island of Majuro, close to 25 percent more than census measurements in 1958.[93] To avoid *ad hoc* migration, planned resettlement may be the best option for communities to retain their cultural values and political and economic self-determination.

Planning and financing a resettlement of a population is no easy task; no largescale models exist for an atoll nation resettling to a distant territory

88. *See* Tom Ravenscroft, *Biggest Challenge of Relocating Swedish Town Kiruna Is "Moving the Minds of Citizens,"* DEZEEN (Feb. 18, 2019), https://www.dezeen.com/2019/02/18/kiruna-moving-town-sweden-mining-climate-change [https://perma.cc/R589-LXYT].

89. Jonah Engel Bromwich, *How Do You Move a City? Ask Kiruna, Sweden*, N.Y. TIMES (May 20, 2016), https://www.nytimes.com/2016/05/21/world/europe/kiruna-sweden-move-arctic-circle.html [https://perma.cc/V7C9-C4WV] (noting while it's "difficult to predict total costs," the LKAB company "had dedicated about 12 billion kronor to the project, or well over $1 billion.").

90. *See* REPUBLIC OF THE MARSH. IS., RMI 2011 CENSUS OF POPULATION AND HOUSING SUMMARY AND HIGHLIGHTS ONLY (Feb. 14, 2012), https://www.doi.gov/sites/doi.gov/files/migrated/oia/reports/upload/RMI-2011-Census-Summary-Report-on-Population-and-Housing.pdf [https://perma.cc/BX4L-DMJ4]. *See* also Ödalen, *supra* note 18.

91. *See* Jon Letman, *Rising Seas Give Island Nation a Stark Choice: Relocate or Elevate*, NAT. GEOGRAPHY (Nov. 19, 2018), https://www.nationalgeographic.com/environment/2018/11/rising-seas-force-marshall-islands-relocate-elevate-artificial-islands [https://perma.cc/782Y-663N] ("I think it's very clear that if you're a Marshallese, you would want to make sure that the culture and the place and the identity doesn't disappear," Heine says. Complete outbound migration and the abandonment of the islands, she says, would have profoundly detrimental impacts on the preservation of Marshallese culture and territorial and political sovereignty.").

92. *Id.*

93. *Id.*

as opposed to an internal migration to a nearby or adjacent mainland. In addition, a major obstacle for planned relocation is "a lack of information on adaptation funding and the extent to which it might be available" for resettlement.[94] Despite the known challenges of climate change in SIDS and other vulnerable communities, the international community, as well as national and local governments, have given limited financial support to help communities design proactive migration and relocation strategies.[95] Resettlement remains underfunded at best, and entirely unfunded in most scenarios, forcing communities to design self-reliant strategies and apply for individual project grants for specific adaptation measures.[96] In theory, the same funds that could be used to support adaptation measures could be used to support migration and resettlement, but funding these measures would likely require a perspective shift among the international climate finance community—migration and resettlement are not currently viewed as "adaptation" strategies with the potential for return on investment, unlike more concrete and specific adaptation infrastructure projects, like constructing a seawall.

C. *Legal and Political Measures to Preserve Sovereignty*

Several legal and political strategies could help SIDS preserve their territories and EEZs, regardless of territorial loss. While many strategies are possible,[97] a few scenarios—namely amending UNCLOS or bilateral agreements or negotiating new agreements to secure sovereign status and preserve territorial boundaries—provide practical, economic scenarios SIDS should pursue.

Amending UNCLOS to secure the existing nautical boundaries of SIDS is one specific way to protect the rights of SIDS to their EEZs, irrespective of whether these nations lose habitable territory. UNCLOS permanently fixes the outer limit of the continental shelf to every state that deposits relevant nautical information to the United Nations.[98] But UNCLOS is silent about

94. Elizabeth Ferris, U.N. High Comm'r for Refugees, Protection and Planned Relocations in the Context of Climate Change 32 (2012), http://www.unhcr.org/5024d5169.html [https://perma.cc/ECM8-GMH2] ("A major obstacle to moving forward on the issue of guidance on planned relocations in the light of climate change is the lack of information on adaptation funding and the extent to which it might be available to support work on human mobility in general and planned relocations in particular.").

95. *See* Kelman, *supra* note 64.

96. Marlow & Sancken, *supra* note 78, at 305.

97. For a comprehensive discussion of future scenarios for atoll island states and how to preserve sovereignty in the face of climate change, *see* Esteban & Yamamoto, *supra* note 25, at 151. For instance, a comprehensive means to protect the self-determination and human rights of SIDS in the face of territorial loss would be to Amend the UNFCCC or draft a new international agreement that recognizes the sovereignty of SIDS.

98. *See* Sarra Sefriou, *Adapting to Sea Level Rise: A Law of the Sea Perspective*, *in* The Future of the Law of the Sea 3 (Gemma Andreone ed., 2017), ("[C]oastal states are entitled, in the case of landward shifting of the baseline as a result of sea level rise, to maintain the outer limits of the territorial sea and of the [exclusive economic zone] where they

the legal treatment of coastlines or island features that change or disappear.[99] If an island loses the ability to "sustain human habitation or economic life of [its] own," it becomes a "rock," with "no exclusive economic zone or continental shelf" and falls outside the UNCLOS framework.[100] Therefore, because UNCLOS neither permanently fixes the outer boundary of a nation's coastline or EEZ nor permanently fixes a nation's EEZ to the current state of its "islands," there is a risk these boundaries will be considered ambulatory when and if coastlines and atoll features shift.[101] Amendments to UNCLOS to permanently fix these boundaries would confirm states cannot gain more than what they presently possess, potentially preventing conflict between states.[102] This type of solution could generate significant cost-savings; SIDS could be confident they could control their EEZs without needing to undertake costly measures to protect the coastline with infrastructure and could reserve adaptation funding for priority projects, like protecting freshwater supplies and atolls with larger population densities.[103]

Existing bilateral agreements could be expanded to help finance resilient infrastructure or resettlement. For example, while the COFA between the United States and the RMI is set to expire in 2023, it could nevertheless provide the basis for a continuing bilateral agreement between the RMI and the United States to support RMI's infrastructure improvements and migration decisions.[104] A primary goal of the COFAs is to "[promote] the economic advancement and budgetary self-reliance" of associated states."[105] To these

---

were located at a certain moment in accordance with the general rules in force at that time."; quoting A.H.A. Soons, *The Effects of a Rising Sea Level on Maritime Limits and Boundaries*, 37(2) Neth. Int. L. Rev. 207, 225 (1990)).

99. UNCLOS, *supra* note 24, at art. 7(2). UNCLOS states in cases where a coastline is unstable due to "natural conditions," the coastline boundaries "shall remain effective until changed by the coastal State." *Id.*

100. *Id.* at art. 121(3).

101. *See* Sefriou, *supra* note 98, for a full discussion of this point.

102. *Id.*

103. *Id.*; *see also* Burkett, *The Nation Ex-Situ*, *supra* note 19, at 362 ("[If] the objective of the UN Convention on the Law of the Sea is to create and maintain stability, certainty, and fairness in the governance of oceans, then a freezing of the baselines or the outer limits of maritime zones would be a consistent—and most just—means to preserve endangered states' rights to their marine resources."). For instance, RMI may permanently describe the outer limits of its continental shelf to safeguard its boundaries via Article 76(9) of UNCLOS, *supra* note 24, which states "[t]he coastal State shall deposit with the Secretary-General of the United Nations charts and relevant information, including geodetic data, permanently describing the outer limits of its continental shelf."

104. *See* Dabbagh, *supra* note 12, at 456 ("[T]he language of the Compact, specifically with regard to environmental infrastructure planning and the desire to protect the Marshall Islands' natural resources, suggests that increased infrastructure development to protect from sea level rise would help fulfill the goals set forth in the compact.").

105. Compact of Free Association Amendments Act of 2003, Pub. L. No. 108-188, 117 Stat. 2720 (2003); Act of Nov. 14, 1986, Pub. L. No. 99-658, § 211, 100 Stat. 3672.

ends, the United States provides annual grant assistance to each COFA state.[106] This funding is administered in trust on a sliding scale, ranging from $62.6M in 2004 to $27.7M by 2023.[107] These grants support six core sectors—education, health, infrastructure, environment, private sector development, and public sector capacity building.[108] While priority is currently given to education and health sectors,[109] the COFA could be amended to prioritize environmental grant assistance.[110] Environmental grant assistance is given to "increase environmental protection; establish and manage conservation areas; engage in environmental infrastructure planning, design construction and operation, and to involve the citizens of the Republic of the Marshall Islands in the process of conserving their country's natural resources."[111] Investment in increased infrastructure development would further COFA's aims to protect RMI's natural resources, including those resources in its territorial waters and EEZ.[112]

Under the COFAs, the United States is also obligated to provide security and defense for the RMI and the FSM.[113] While this commitment does not directly address coastline erosion or territorial loss as a security concern, the provision could be interpreted more broadly.[114] For instance, the United States maintains a military presence on the RMI under the Military Use and Operating Rights Agreement (MUORA), which allows the United States to use the Kwajalein Atoll until 2066.[115] Preserving the RMI's atolls may be mutually beneficial and enable RMI to seek additional funding from the United States for this purpose.[116]

106. Compact of Free Association Amendments Act of 2003.

107. Dabbagh, *supra* note 12, at 456.

108. *Id.*

109. *Id.*

110. *See id.* (noting "any future amendments to the compact could both increase the actual amount of money disbursed in the annual grant assistance, along with a redirection of how the funds should best be prioritized.").

111. Compact of Free Association Amendments Act of 2003, § 211(a)(5).

112. Dabbagh, *supra* note 12, at 456.

113. Compact of Free Association Act of 1985, Micronesia Marshall Islands, Pub. L. No. 99-239, § 311, 99 Stat. 1822 (1986) ("The Government of the United States has full authority and responsibility for security and defense matters in or relating to the Marshall Islands . . . . This authority and responsibility includes: [] the obligation to defend the Marshall Islands [] and their peoples from attack or threats thereof as the United States and its citizens are defended.").

114. *Cf.* Kevin Morris, Maxine Burkett & Brittany Lauren Wheeler, The Marshall Islands Climate Mitigation Project, Climate-Induced Migration and the Compact of Free Association (COFA): Limitations and Opportunities for the Citizens of the Republic of the Marshall Islands 6 (2019), https://static1.squarespace.com/static/596d5a162e69cf240a0f043b/t/5e3cfc7fb5004465df14d6c9/1581055113094/MICMP2019_COFAPolicyBrief.pdf [https://perma.cc/PU5E-2562].

115. Compact of Free Association, Military Use and Operating Rights, U.S.-Marsh. Is., art. X(3), Apr. 30, 2003, T.I.A.S. 04–501 3.

116. Dabbagh, *supra* note 12, at 457; *see also* Compact of Free Association, Military Use and Operating Rights, *supra* note 115.

Outside of UNCLOS or arrangements like a COFA, SIDS may pursue new bilateral or multilateral delimitation agreements with other nations, particularly those in the same region, to acknowledge and memorialize maritime boundaries irrespective of whether a technical "island" or coastline boundary continues to exist.[117] Both strategies would likely involve complex negotiations across SIDS and with countries that stand to gain from the loss of an island state's EEZ,[118] but these negotiations may be more politically and cost-effective than other ways of preserving sovereignty over these waters; effectuating a regional agreement could be more tailored to the needs of the party countries and its terms more easily agreed upon due to similar regional concerns. This type of regional cooperation could also have multiple objectives, including advancing migration policies and creating and governing regional climate funds.[119]

While territorial loss challenges the concepts of statehood, a strong presumption favors the continuity of an established state.[120] Under an arrangement where SIDs need to function as deterritorialized governments—nations *ex-situ*—they can nevertheless maintain their sovereignty and control over their maritime resources and continue to generate economic gains.[121] So long as the international community recognizes their sovereign status, SIDs can continue to negotiate agreements and pursue economic and political security.[122]

III. Financial Mechanisms Available to SIDS for Climate Adaptation

A variety of financial mechanisms are theoretically available to SIDS and have provided finance for adaptation measures. Navigating the full scope of existing financial sources, however, is not straightforward;[123] what consti-

117. Esteban & Yamamoto, *supra* note 25, at 151 (noting, however, that most neighboring states are far away so this solution may not serve its ultimate, proposed purpose).

118. Freezing maritime boundaries, though nonlegally binding, could shift international law. But in practice, negotiating an amendment or new international treaty without opening the gate for several advantageous modifications by other states would be challenging. *Id.* at 149–51.

119. Free Movement Agreements (FMA) are regional agreements that have been effective in facilitating migration in the disaster context. For example, the Caribbean Community (CARICOM) and Organization of Eastern Caribbean States (OECS) FMAs facilitated right of entry, waived travel authorizations and work permits to persons displaced by Atlantic hurricanes in 2017. *See* Ama Francis, Sabin Ctr. for Climate Change Law, Columbia Law Sch., Free Movement Agreement & Climate-Induced Migration: A Caribbean Case Study ii (2019), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3464594 [https://perma.cc/T94M-ARX8].

120. *See* Burkett, *The Nation Ex-Situ*, *supra* note 19.

121. *Id.* at 363 (citing Rosemary Rayfuse, *(W)hither Tuvalu? International Law and Disappearing States*, 2009 UNSWLRS 9, 11 (2009)).

122. *See* Burkett, *The Nation Ex-Situ*, *supra* note 19.

123. *But see* Alexander Zahar, Climate Change Finance and International Law 3 (2018). (noting while information on climate finance has become plentiful in recent years, climate finance lacks historical depth and raw facts and figures do not "tell us anything about

tutes "climate finance" lacks consensus, accounting rules are not uniform, and the wide range of available funding sources frustrate coordination.[124] While information about climate finance has become more available in recent years, changes in the international climate finance regime have yet to be fully traced by scholars.[125] Further, little synthesized data on climate finance exists, particularly for SIDS.[126] The data that does exist shows the Green Climate Fund is the largest source of climate finance for adaptation projects and continues to approve project commitments in SIDS. However, funds are grant-based and as of yet, no public, multilateral fund has been used to facilitate a longterm adaptation project like raising an island, building an artificial island, or resettling a community.

This Part provides an overview of the global climate finance architecture, highlights challenges of synthesizing data on adaptation finance and describes the public and private sources of funding that have been used for adaptation projects in SIDS. Lastly, it calls attention to the lack of funding for longterm adaptation measures like elevating existing islands, building new ones, or resettling elsewhere.

A. *Overview of International Climate Finance Mechanisms*

Climate finance generally refers to local, national, or transnational financing used to support responses to climate change, but there is no agreed-upon definition.[127] Climate finance can be drawn from any source (public or private)

---

the state of the law then or now.").

124. Charlene Watson, & Liane Schalatek, Climate Funds Update, Climate Finance Fundamentals: The Global Climate Finance Architecture, https://climatefundsupdate.org/publications/the-global-climate-finance-architecture-2018 [https://perma.cc/5WZM-675Z].

125. *See* Zahar, *supra* note 123, at 1. For instance, "it was not until the Fifth Assessment Report of 2013–2014 that the IPCC dedicated a whole chapter to climate finance," an acknowledgement that the problem of climate change would not be solved unless "the FCCC parties orchestrate . . . financial support for low-/zero-emission development in poorer countries." *Id.* at 3 (2017).

126. *See id.* at 1.

127. *See Introduction to Climate Finance*, U.N. Climate Change, https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance [https://perma.cc/47QR-U3HL]. The term "climate finance" is relatively new and thus covers several definitions and concepts. For instance, the Intergovernmental Panel on Climate Change (IPCC) acknowledges "[t]he assessment of this topic is complicated by the absence of agreed definitions, sparse data from disparate sources, and limited peer-reviewed literature." IPCC, Climate Change 2014: Mitigation of Climate Change: Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change 1211 (2014). The IPCC defines 'climate finance' as the financial resources devoted to addressing climate change globally and to financial flows to developing countries to assist them in addressing climate change. *See* United Nations Framework Convention on Climate Change, art. 4(8)(g), May 9, 1992, S. Treaty Doc. No. 102-38, 1771 U.N.T.S. 107, [hereinafter UNFCCC] ("In the implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the 15 specific needs and concerns

and applies to mitigation (investments geared toward significantly reducing global greenhouse gas emissions)[128] and adaptation (investments dedicated to adapting to adverse effects of climate change and reducing those impacts, especially for nondeveloped countries)[129] efforts. Global climate finance flows are estimated to be around $500 billion annually, with the largest amounts channeled toward mitigation projects.[130] Adaptation finance represents about 25 percent of the global climate finance landscape, around $22 billion annually.[131]

Public climate finance operates through several channels: the multilateral channels established by the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement financial mechanism and non-UNFCCC channels, including development banks and multilateral, bilateral, regional, and national funds.

1. Financial Mechanisms Established by the United Nations Framework Convention on Climate Change

The main source of international public financial assistance for developing countries impacted by climate change is the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC provides the conceptual framework for a public climate finance mechanism—developed countries will financially support developing countries towards the overarching objective of the treaty to stabilizing greenhouse gas emissions.[132] But it is a nonbinding treaty and contains no enforcement mechanisms. Signed by 197 parties,[133] the UNFCCC contains the principle of "common but differenti-

---

of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on: (a) Small island countries . . . .").

128. Mitigation finance refers to investments geared towards the significant reduction of global greenhouse gas emissions. *See* Smita Nakhooda, Maria Carvalho, & Luca Taschini, Mitigation Finance (2012). Mitigation finance often takes the form of largescale investments in low-emissions energy infrastructure, but it is deployed for a variety of other projects as well. *See id.*

129. Adaptation finance refers to financial resources dedicated to adapting to the adverse effects of climate change and the reduction of those impacts, especially for nondeveloped countries. *See* Daniel Puig et al., U.N. Env't Program, Adaptation Finance Gap Report (2016).

130. *See* UNFCCC Standing Committee on Finance, 2018 Biennial Assessment and Overview of Climate Finance Flows Technical Report (2018); Padraig Oliver et al., Climate Policy Initiative, Global Climate Finance: An Updated View (Nov. 2018), https://climatepolicyinitiative.org/wp-content/uploads/2018/11/Global-Climate-Finance-_-An-Updated-View-2018.pdf [https://perma.cc/EZ9N-7JK5]; *see also* Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124, at 1 ("Currently about 25% of the financing approved since 2003 flowing from the dedicated climate finance initiatives that CFU monitors supports adaptation.").

131. Oliver et al., *supra* note 130, at 3.

132. UNFCCC, *supra* note 127, art. 2, art. 4(3).

133. *See* Status of UNFCCC Treaties, U.N. Treaty Collection, https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=IND&mtdsg_no=XXVII-7&chapter=27&Temp=mtdsg3&-

ated responsibilities" and sets out a series of commitments by which developed countries provide financial resources to developing countries.[134]

The capacities of developing countries to cope with the impacts of climate change varies enormously from the capacities of developed countries. To account for this difference, Article 11 of the UNFCCC established a Financial Mechanism[135] to facilitate funding through two multilateral operating entities—the Global Environment Facility (GEF) and the Green Climate Fund (GCF).[136] The financial resources developed countries provide to developing countries must be "new and additional," meaning they cannot be resources that are merely reallocated or repurposed; rather, they must represent a surplus amount devoted to a specific budget-line item that creates growth across a total budget.[137] In addition, developed countries must pay for the "full incremental costs"[138] of developing countries' climate-specific needs. Specifically, developed countries must give consideration to the explicit needs and concerns of SIDS and countries with low-lying coastal areas.[139] The Global Environment

clang=_en [https://perma.cc/6BZ4-CQV2] (last visited Mar. 5, 2020); UNFCCC, *supra* note 127.

134. *See* UNFCCC, *supra* note 127, art. 4(3) ("The developed country Parties and other developed Parties included in Annex II shall provide new and additional financial resources to meet the agreed full costs incurred by 14 developing country Parties in complying with their obligations under Article 12, paragraph 1. They shall also provide such financial resources, including for the transfer of technology, needed by the developing country Parties to meet the agreed full incremental costs of implementing measures that are covered by paragraph 1 of this Article and that are agreed between a developing country Party and the international entity or entities referred to in Article 11, in accordance with that Article. The implementation of these commitments shall take into account the need for adequacy and predictability in the flow of funds and the importance of appropriate burden sharing among the developed country Parties.").

135. *Compare* Zahar, *supra* note 123, at 37 (noting also that many scholars define the financial mechanism very broadly, even though a broad definition is not dictated by the treaty's text), *with* Farhana Yamin & Joanna Depledge, The International Climate Change Regime: A Guide to Rules, Institutions and Procedures 283 (2004). *See also What is the Financial Mechanism? What are the Other Funds?*, UNFCCC: Climate Get the Big Picture, http://bigpicture.unfccc.int/content/climate-finance/what-is-the-financial-mechanism-what-are-the-other-funds.html [https://perma.cc/7PP6-AV3G].

136. *See* Zahar, *supra* note 123, at 38.

137. The concept of 'new and additional' is not straightforward. *Id.* at 25. Generally, "new" means growth across a whole relevant budget, as opposed to money that has been repurposed or reallocated. *Id.* "Additional" means a surplus amount extra to what a government would have allocated anyway. *Id.* at 26.

138. *See* UNFCCC, *supra* note 127, art. 4(3). The concepts of "new and additional" and "incremental costs," however, are far from transparent and difficult to apply. *See* Zahar, *supra* note 123, at 25, 27–28. The terms are not defined under the UNFCCC, and no reliable method currently exists by which to calculate whether developed states are meeting their obligations to developing states. *See id.* at 28.

139. *See* UNFCCC, *supra* note 127, art. 4(8) ("Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the 15 specific needs and concerns of developing

Facility (GEF) and the Green Climate Fund (GCF) are the two multilateral operating entities of the financial mechanism.[140] The GEF and GCF together comprise the core sources of public climate finance available to developing countries,[141] particularly for adaptation, and contribute to roughly half of the total climate finance flows.[142]

a. The Global Environment Facility

The GEF was established in 1991 by the World Bank, the United Nations Development Programme, and the United Nations Environment Programme a year before the UNFCCC was officially adopted. While it began as a pilot program for environmental funding, it was designated as the operating entity of the financial mechanism to the UNFCCC in 1994.[143] Its broad mandate is to provide developing countries with new and additional grant and concessional funding to meet the incremental costs of projects with global environmental benefits.[144] The GEF provides funding to developing countries in six focal areas—climate change, biodiversity, chemicals and waste, forests, international waters, and land degradation.[145] The GEF works with a variety of global agencies and partners to administer the fund.[146]

To date, the GEF is the largest public funder of global environmental projects and has contributed over $20 billion in grants and $88 billion in financing to developing countries.[147] However, its funding for climate change

country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on: (a) Small island countries . . . ."); *see also id.* at 4 ("Recalling also the provisions of General Assembly resolution 44/206 of Dec. 22, 1989 on the possible adverse effects of sea-level rise on islands and coastal areas, particularly low-lying coastal areas and the pertinent provisions of General Assembly resolution 44/172 of Dec. 19, 1989 on the implementation of the Plan of Action to Combat Desertification.").

140. *See* Zahar, *supra* note 123, at 38.

141. While funds are available to all non–Annex I countries, SIDS are among the countries given priority. *See* Clive Mutunga, Population, Reproductive Health and International Adaptation Finance 16 (2013), https://pai.org/wp-content/uploads/2013/06/CCFinancingReportFIN.pdf [https://perma.cc/8HYL-9MQR] ("All Non–Annex 1 countries are eligible to apply, although the needs of the most vulnerable countries in Africa, Asia, and the Small Island Developing States (SIDS) are to be prioritized.").

142. *See* Barbara Buchner et al., Climate Policy Initiative, Global Landscape of Climate Finance 4 (2017), https://climatepolicyinitiative.org/wp-content/uploads/2017/10/2017-Global-Landscape-of-Climate-Finance.pdf [https://perma.cc/96F7-FK36].

143. *See* Zahar, *supra* note 123, at 38.

144. *See id.*; *see also* Glob. Envtl. Facility, Rep. of the Global Environment Facility to the Twentieth Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change 15 (Sept. 2, 2014) FCCC/CP/2014/2.

145. *Our Work*, Global Env't Facility, http://www.thegef.org/our-work [https://perma.cc/H6SY-B2HD].

146. The World Bank, for instance, serves as the GEF Trustee to administer and monitor disbursements of the fund. *See Funding*, Global Env't Facility, https://www.thegef.org/about/funding [https://perma.cc/H9KE-98FM].

147. *About Us*, Global Env't Facility, https://www.thegef.org/about-us [https://perma.

projects specifically has declined since the rise of the GCF. During the sixth replenishment of the GEF (2014–2018), 30 donor countries pledged $4.43 billion over all focal areas, with $1.26 billion directed towards the climate change focal area.[148] During the current, seventh replenishment cycle (2019–2022),[149] nearly 30 donor countries pledged $4.1 billion to the GEF across all five focal areas, but only $876 million (19.8 percent of total GEF-7 resources) was allocated to the Climate Change Focal Area—a significant reduction since this focal area was established.[150]

b. The Green Climate Fund

The GCF serves as the second operating entity of the Financial Mechanism in both the UNFCCC and the Paris Agreement.[151] To date, it is the largest source of public climate finance. The rise of the GCF in 2010 and its capitalization in 2016 is largely responsible for the GEF's decreased funding for climate change projects. GCF was established in 2010 at COP16 in Cancun to become the main vehicle for public climate finance, with an even split between adaptation and mitigation finance.[152] Unlike the GEF, which supports a broad range of environmental projects, the GCF was created specifically to support developing countries to effectively respond to climate change and it is currently the world's largest dedicated fund.[153]

---

cc/BQ26-KJD7]; *see also 25 Years of GEF*, Global Env't Facility, https://www.thegef.org/topics/25-years-gef [https://perma.cc/7XRP-4SDS].

148. *See* Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124.

149. GEF funding is administered through a series of four-year replenishment cycles funded by thirty-nine countries. While donor countries contribute to the fund, the finance that passes through the GEF is not controlled by the Convention's COP. *See GEF-7 Replenishment*, Global Env't Facility, https://www.thegef.org/events/gef-7-replenishment [https://perma.cc/X3W3-YJNC]; Charlotte Streck, *The Global Environment Facility—a Role Model for International Governance?*, 1 Global Envtl. Pol. 71 (2001).

150. *See* Glob. Envtl. Facility, *GEF-7 Replenishment*, GEF/R.7/22 2, 13 (Apr. 2, 2018), https://www.thegef.org/sites/default/files/council-meeting-documents/GEF-7%20Resource%20Allocation%20and%20Targets%20-%20GEF_R.7_22.pdf [https://perma.cc/7H7G-GY7G]; *Partners*, Global Env't Facility, https://www.thegef.org/partners [https://perma.cc/BKH4-5PAB]; *Projects*, Global Env't Facility, https://www.thegef.org/projects [https://perma.cc/P2UC-FGRF].

151. Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124, at 3.

152. *See* U.N. Framework Convention on Climate Change, Report of the Conference of the Parties on its Sixteenth Session, ¶¶ 1–2, U.N. Doc. FCCC/CP/2010/7/Add.1 (Mar. 15, 2011), https://unfccc.int/sites/default/files/resource/docs/2010/cop16/eng/07a01.pdf [https://perma.cc/Q9QK-ZUW5]; *see also* Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124, at 2–3.

153. *About GCF*, Green Climate fund, https://www.greenclimate.fund/who-we-are/about-the-fund [https://perma.cc/W2FX-N53U]. The global mandate established in 2011 at the COP in Durban, South Africa is to make "an ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change."

The GCF did not start financing projects until several years after its creation, and thus its impact is relatively recent. While the GCF mobilized over $10.3 billion in 2014, it did not become fully operational and begin funding projects until 2015.[154] As of May 2020, the GCF has committed $5.6 billion for 129 projects.[155] Of the $5.6 billion approved for projects, a quarter has supported adaptation projects and most has funded mitigation projects.[156] The GCF provides up to $1 million per country for readiness grants to assist with the management and technical assistance needed for project implementation and up to $3 million per country for designing a National Adaptation Plan.[157]

The UNFCCC established other, specialized funds to supplement the operations of the GEF and GCF. The GEF administers the Special Climate Change Fund (SCCF), the Least Developed Country Fund (LDCF), and the Adaptation Fund (AF).[158] These funds generally support National Adaptation Plan projects, which have a funding ceiling of $20 million per country.[159]

2. Climate Finance Channeled Through Non-UNFCCC Funds

Institutions outside of the UNFCCC, namely the Climate Investment Funds (CIFs) and Multilateral Development Banks (MDBs), also distribute climate finance to SIDS and other developing countries. These funding sources are much smaller in scale than those of the GEF and the GCF.

CIFs are pooled, multidonor trust funds, jointly implemented by MDBs and managed by the World Bank.[160] Until the GCF's implementation in 2016, CIFs were the primary public climate finance vehicle. While CIFs are subject to a sunset clause that required the funds to conclude operations in 2016 once

Id.

154. *See* Charlene Watson & Liane Schalatek, Climate Funds Update, Climate Finance Fundamentals: The Green Climate Fund 1, 2 (2019), https://climatefundsupdate.org/wp-content/plugins/download-attachments/includes/download.php?id=5308.

155. *See GCF at a Glance*, Green Climate Fund, https://www.greenclimate.fund [https://perma.cc/8TYJ-DM24]; *see also Project Portfolio*, Green Climate Fund, https://www.greenclimate.fund/projects/dashboard [https://perma.cc/7WEZ-CLH3]. The Green Climate Fund does not directly implement projects itself. *Project Preparation*, Green Climate Fund, https://www.greenclimate.fund/projects/process [https://perma.cc/H7QK-XYHB]. Instead, it enters into partnerships with Accredited Entities which are responsible for presenting funding applications to GCF and overseeing GCF-approved projects and programmes. *Id.* Project approval is directly tied to needs of developing countries. *Id.*

156. *See id.*

157. Green Climate Fund, Readiness and Preparatory Support Guidebook 4 (2018), https://www.greenclimate.fund/sites/default/files/document/guidelines-readiness-and-preparatory-support-guidebook.pdf [https://perma.cc/2X29-RZAB].

158. *See* U.N. Framework Convention on Climate Change, Report of the Conference of the Parties on Its Seventh Session, at 35–36, 52, U.N. Doc. FCCC/CP/2001/13/Add.1 (Jan. 21, 2001), https://unfccc.int/resource/docs/cop7/13a01.pdf [https://perma.cc/SST6-DGWG].

159. Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124.

160. *Donors and MDBS*, Climate Investment Fund, https://www.climateinvestmentfunds.org/finances [https://perma.cc/KJ5P-B6JK].

a new financial architecture was in place—in this case, the GCF—CIFs have nevertheless remained operational.[161] CIFs have two main funding channels: the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCR). The CTF provides finance for the development and roll-out of low-carbon technologies that have the potential for longterm emissions reductions.[162] The SCR is composed of the Pilot Program for Climate Resilience (PPCR), the Forest Investment Program, and the Scaling-Up Renewable Energy Program for Low Income Countries, three targeted funds designed to pilot specific or sectoral responses to climate change.[163]

MDBs play a prominent role in delivering climate finance, acting as intermediary brokers between public development assistance and private investment in order to drive private capital flows into developing markets.[164] Three primary MDBs dominate the climate finance sector: The World Bank, Asian Development Bank, and Inter-American Development Bank.[165] MDBs have been effective, in part, because they can borrow from capital markets at rates lower than those available to many developing countries, thereby reducing the cost of capital for investments and opening up markets that otherwise might not appeal to traditional investors.[166] The World Bank assisted in developing the blue bond, a financial instrument launched by The Seychelles, which raised $15 million from three private U.S. investors for sustainable marine and fisheries projects. The World Bank reached out to investors and partially guaranteed the bond, lowering the interest rate that would ordinarily be available to The Seychelles. The World Bank "believes [the bond] can serve as a model for other small island developing states and coastal countries."[167]

3. Bilateral, Regional, and National Climate Funds

Bilateral channels—country to country direct investment, often in partnership with developed countries' foreign aid agencies—make up a significant, but much smaller share of public climate finance.[168] This type of funding has

161. Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124, at 2.

162. *Governance Framework for the Clean Technology Fund*, Climate Investment Funds 3 (Dec. 2011), https://www.climateinvestmentfunds.org/cif_enc/sites/cif_enc/files/meeting-documents/ctf_governance_framework-final.pdf [https://perma.cc/VG4H-F3DR].

163. *See Strategic Climate Fund*, Climate Investment Funds, https://www.climateinvestmentfunds.org/node/5 [https://perma.cc/KV7D-Q3VG].

164. *See* Chiara Trabacchi et al., Climate Policy Initiative, The Role of the Climate Investment Funds in Meeting Investment Needs 4 (2016).

165. Zahar, *supra* note 123, at 39.

166. Rebecca M. Nelson, *Multilateral Development Banks: Overview and Issues for Congress*, Cong. Res. Serv. 7, Feb. 11, 2020, https://fas.org/sgp/crs/row/R41170.pdf [https://perma.cc/866K-J9H7].

167. Press Release, World Bank, Seychelles Launches World's First Sovereign Blue Bond (Oct. 29, 2019), https://www.worldbank.org/en/news/press-release/2018/10/29/seychelles-launches-worlds-first-sovereign-blue-bond [https://perma.cc/NHL5-ABJS].

168. Watson & Schalatek, The Global Climate Finance Architecture, *supra* note

been utilized less since the rise of the GCF, but estimates are that bilateral funds distribute around $30.3 billion annually.[169] This type of funding is challenging to track because investment is usually self-reported.[170] Prominent bilateral funding channels include the United Kingdom's International Climate Fund, Germany's International Climate Initiative, and Norway's International Forest Climate Initiative.[171]

Dedicated adaptation funds also exist at the national and regional level to help developing countries attract investment. For instance, the Indonesian Climate Change Trust Fund and Brazil's Amazon Fund received more than $1 billion in committed finance from Norway.[172] And some countries, like Bangladesh, Benin, Cambodia, Ethiopia, Guyana, the Maldives, Mali, Mexico, the Philippines, Rwanda, and South Africa, use their own climate change funds for mitigation and adaptation projects.[173]

4. Private Climate Finance Mechanisms

While public climate finance currently provides the largest source of investment in developing countries' adaptation projects, nonstate, private actors are making ambitious commitments to fund adaptation and mitigation efforts.[174] The 2018 Global Commission on Adaptation has advocated for an increase in public and private financial flows for adaptation measures.[175] Private investment funds and emerging philanthropic foundations are beginning to invest in climate change projects as well.

New attention is being given to adaptation finance and strategic planning for future investment. The Global Commission on Adaptation (GCA) was launched in October 2018 by Ban Ki-moon, Bill Gates, cochair of the Bill & Melinda Gates Foundation, and Kristalina Georgieva, CEO of the World Bank, "to encourage the development of measures to manage the effects of climate change through technology, planning and investment."[176] The GCA has eight action tracks, one of which is to scale up finance for adaptation measures and derisk financial flows.[177] Hilda Heine, President of the RMI, is one of the

124, at 2.

169. *Id.* at 2–4 (noting this reflects the amount of climate related ODA reported to the OECD DAC).

170. *Id.* at 2.

171. *Id.* at 3.

172. *Id.* at 4.

173. *Id*.

174. For an overview of private climate finance, see Remco Fisher et al., UNEP, Demystifying Private Climate Finance (2014), https://www.unepfi.org/fileadmin/documents/DemystifyingPrivateClimateFinance.pdf [https://perma.cc/V8WM-ZR7C].

175. *See Adapt Now: A Global Call for Leadership on Climate Resilience*, Global Comm'n on Adaptation (Sept. 13, 2019), https://cdn.gca.org/assets/2019-09/GlobalCommission_Report_FINAL.pdf [https://perma.cc/YC7N-QYEW], 1, 52–57.

176. *See About Us*, Global Comm'n on Adaptation, https://gca.org/global-commission-on-adaptation/about-us [https://perma.cc/8BR7-JTPB].

177. *See Action Tracks*, Global Comm'n on Adaptation, https://gca.org/

GCA Commissioners and helped oversee the development of its September 2019 flagship report.[178] In the Finance and Investment Action Track section of its Report the Commission commits to (1) create new climate risk assessment methodologies and provide necessary technical assistance "to integrate climate risk into all aspects of national fiscal and financial planning and decision-making," (2) develop tools to better price climate risks for private investment in infrastructure, and (3) translate economic research on adaptation "into decision-maker friendly tools."[179] It remains to be seen what financial impact the GCA will have on adaptation projects in SIDS, but it's likely to increase the availability of private capital for adaptation projects.

Several private investment funds and philanthropic foundations have either committed or signaled a future commitment to substantially fund climate change initiatives. The first-ever private adaptation and resilience investment fund, the Marrakech Investment Committee for Adaptation Fund, was launched at the 22nd Conference of the Parties (COP) to the UNFCCC in 2016 in partnership with the GEF, the Lightsmith Group, and BeyACapital and is valued at $500 million.[180] However, no financing projects have been reported to date.

Other philanthropic foundations have somewhat amorphous, but ambitious, investment goals to fund sustainability projects and climate change mitigation efforts. In October 2019, the David and Lucile Packard Foundation and the John D. and Catherine T. MacArthur Foundation announced the launch of Terra Silva, a $90 million impact investment focused on "conservation, restoration, and sustainable management of critical tropical forests worldwide."[181] In addition, BlackRock, "the world's largest asset manager with nearly $7 trillion in investments," is transitioning to make environmental sustainability a core goal in its investment decisions.[182] The firm will "begin to offer sustainable versions of [their] flagship model portfolios," using "environmental, social, and governance (ESG)–optimized index exposures in place of traditional market cap-weighted index exposures."[183] Most recently, in Febru-

---

global-commission-on-adaptation/action-tracks [https://perma.cc/E8US-KEPL].

178. *See* Global Comm'n on Adaptation, *supra* note 175.

179. *See id.* at 59–60.

180. *See* Press Release, U.N. Climate Change, Nations Take Forward Global Climate Action at 2016 UN Climate Conference (Nov. 18, 2016), https://unfccc.int/news/nations-take-forward-global-climate-action-at-2016-un-climate-conference [https://perma.cc/H9HW-FJP6].

181. *See New $90 Million Fund to Address Global Climate Change through Catalytic Capital*, The David & Lucile Packard Foundation (Oct. 23, 2019), https://www.packard.org/insights/news/new-90-million-fund-to-address-global-climate-change-through-catalytic-capital [https://perma.cc/96WR-53RP].

182. Andrew Ross Sorkin, *BlackRock C.E.O. Larry Fink: Climate Crisis Will Reshape Finance*, N.Y. Times (Jan. 14, 2020), https://www.nytimes.com/2020/01/14/business/dealbook/larry-fink-blackrock-climate-change.html [https://perma.cc/D9GM-D9VJ].

183. *Sustainability as BlackRock's New Standard for Investing*, BlackRock, https://

ary 2020, Jeff Bezos announced he would invest $10 billion in the Bezos Earth Fund with a mission to "fund scientists, activists, NGOs—any effort that offers a real possibility to help preserve and protect the natural world."[184] Bezos stated the Bezos Earth Fund would start issuing grants as early as Summer 2020, but has not released information about the types of projects, funding, or grant requirements. Through these or similar private foundations, it is possible a national or regional adaptation fund in a small island state could attract private investment for specific projects, or even for ambitious projects like resettlement.

B. *Data Gaps in Adaptation Finance to SIDS*

While information about financial flows from developed to developing countries has become more available in recent years, tracking adaptation finance in SIDS is difficult to disaggregate from other forms of investment and often underreported.[185] Adaptation finance is commingled with other sources of development aid; some finance relies on donors to self-report; and data sets aggregate financial flows in ways that obscure the impact on SIDS.[186] Tracking data among SIDS at the regional level is particularly difficult because the data tends to aggregate finance to all SIDS globally or aggregate data between East Asia and the Pacific, making the impact on Pacific SIDS nearly "invisible."[187]

Besides the amounts reported by the GCF and GEF, other flows of climate finance to Pacific SIDS are not publicly reported,[188] and, therefore, are largely untracked in broader data sets. MDBs self-reported to have contributed $523 million to climate finance to SIDs in 2015 alone,[189] a significantly higher amount than what the Creditor Reporting System reports for other combined funding sources.[190] Private sector investments often require self-re-

---

www.blackrock.com/corporate/investor-relations/blackrock-client-letter [https://perma.cc/9TA2-KUU4].

184. Ariel Cohen, *Jeff Bezos Commits $10 Billion To New Bezos Earth Fund*, Forbes (Feb. 24, 2020), https://www.forbes.com/sites/arielcohen/2020/02/24/jeff-bezos-commits-10-billion-to-new-bezos-earth-fund/#39c8977046f9 [https://perma.cc/87KB-7UR9].

185. *See generally* Zahar, *supra* note 123. Zahar also notes that while information on climate finance has become plentiful in recent years, climate finance lacks historical depth and raw facts and figures do not "tell us anything about the state of the law then or now." *Id.* at 3. For a discussion of the difficulties associated with tracking adaptation finance in the Pacific, see Aaron Atteridge & Nella Canales, *Climate Finance in the Pacific*, (Stockholm Envtl. Inst., Working Paper No. 2017-04, Jan. 25, 2017), https://mediamanager.sei.org/documents/Publications/Climate/SEI-WP-2017-04-Pacific-climate-finance-flows.pdf [https://perma.cc/74QC-JLUU].

186. *See* Atteridge & Canales, *supra* note 185, at 9–10.

187. *Id.* at 9.

188. *See id.* at 10 (noting that data is based on donors reporting to the OECD Development Assistance Committee Creditor Reporting System (CRS) and organizations, like SEI, who have synthesized and disaggregated the data for application to Pacific SIDs).

189. *Id.* at 30.

190. *Id.*

porting on the part of the investor and tracking can be difficult if a project does not cleanly fit into an "adaptation" category or is a component of a larger development project. For instance, when financing is used to increase a bridge's resiliency to extreme heat or to install energy-efficient lighting or heating systems in a building, the burden is on the funder to voluntarily self-report which aspects of a project may be "adaptation"-related and quantify their values.[191]

Adaptation finance needs to be reported separately from a project's overall finance to create transparency about the adaptation need and whether it is being met.[192] Private investors may share better data as lenders use and report on science-based targets, banks separately track their green investments in loan portfolios, and individual private investors monitor the impact of adaptation finance.[193] In addition, recipient countries could increase reporting accuracy by tracking and managing climate finance flows instead of relying on the funders to do so.[194] If SIDS had the appropriate institutional capabilities and technical assistance, they would be able to maintain their autonomy through the grant process.

C. *Current Funding Sources for Adaptation Projects in SIDS*

The UNFCCC directs developed countries to prioritize the explicit needs and concerns of SIDS. This prioritization is reflected in climate finance data trends, where large multilateral climate funds, particularly the GCF, are investing in adaptation projects across SIDS. But while more funding has been approved for SIDS since the capitalization of the GCF, these amounts only fulfill a small part of the finance SIDS need for adaptation.[195]

SIDS received nearly $1.7 billion from multilateral climate funds between 2003 and 2018.[196] This amount funded 255 projects across 38 SIDS and, with the exception of Singapore, all 39 SIDS have received some climate finance.[197]

---

191. *See* Oliver et al., *supra* note 130, at 7–8.

192. *See id.*

193. *Id.* at 8.

194. Atteridge & Canales, *supra* note 185, at 30. ("The CRS data is essentially how funders are reporting climate finance to Pacific Island countries, rather than an assessment of climate relevance made by the recipients themselves. Over time, as recipient countries develop more comprehensive oversight of incoming climate finance and more sophisticated systems for tracking and managing these flows, it may become possible to compare "top-down" reports from funders with "bottom-up" reports from countries, enabling a more productive dialogue about how climate finance is working . . . . The ultimate goal against which climate finance needs to be measured is whether it is making a significant difference in the resilience of the social, economic and environmental systems upon which the Pacific Islands depend for a secure, prosperous future.").

195. *See* Charlene Watson & Liane Schalatek, Climate Funds Update, Climate Finance Fundamentals: Climate Finance Briefing: Small Island Developing States (2019), https://climatefundsupdate.org/publications/climate-finance-briefing-small-island-developing-states-2018 [https://perma.cc/MCK5-EQFX].

196. *Id.*

197. *Id.*

The climate finance breakdown for the 2003–2018 period shows that Pacific SIDS are receiving the largest share of finance ($791 million), followed by Caribbean SIDS ($571 million), and Atlantic, Indian Ocean, Mediterranean and South China Sea SIDS ($327 million). A disproportionate amount of financing has gone to the Solomon Islands, with $130 million approved for a hydropower plant, and Samoa, with $128 million for adaptation and flood prevention projects.[198]

By 2018, approximately $920 million of financing (54 percent) had gone towards adaptation, $400 million (24 percent) to mitigation, $84 million (5 percent) to REDD, and $285 million (17 percent) to projects with multiple focal points.[199] The GCF remains the largest contributor of adaptation finance for SIDS. As of March 2020, the GCF has approved $877 million for 26 mitigation and adaptation projects.[200] In addition, the GCF approved 91 readiness grants to SIDS, valued at $47.9 million, and has disbursed 74 of those grants.[201] The LDCF, a specialized fund administered through the GEF, was the second largest funding source for SIDS, approving $233 million for projects in 2018.[202] The PPCR was the third largest funder, committing $218 million.[203]

To illustrate the direct impact of public adaptation finance on SIDS, both the GCF and GEF are funding adaptation projects in the RMI. As of May 2020, the GCF reports approving $46.1 million for three projects in the RMI.[204] These projects, which rely on GCF financing as well as shared regional financing include: (1) a $24.7 million project to help secure the drinking water supply against climate risks;[205] (2) a $44.1 million project to make the RMI's coastal infrastructure more resilient against sea-level rise and storms in the densely populated areas of the capital Majuro and the island of Ebeye, and increase disaster preparedness and early warning systems;[206] (3) a $29.2 million regional

198. *Id.*

199. *Id.*

200. *GCF in Small Islands Developing States (SIDS)*, Green Climate Fund (Mar. 15, 2020), https://www.greenclimate.fund/sites/default/files/document/gcf-factsheet-sids.pdf (March 15, 2020) [https://perma.cc/4FN4-SN24].

201. *Id*.

202. Watson & Schalatek, Climate Finance Briefing: Small Island Developing States, *supra* note 195.

203. Caribbean SIDS have project approvals for USD $571 million, and AIMS SIDS have approvals for USD $327 million. A disproportionate amount of financing has gone to the Solomon Islands, with USD $130 million approved for project activities for a hydropower plant. Samoa has received USD $128 million. *See id.* at 1.

204. *See Marshall Islands*, Green Climate Fund, https://www.greenclimate.fund/countries/marshall-islands [https://perma.cc/9QTJ-YNYD].

205. *See FP112: Addressing Climate Vulnerability in the Water Sector (ACWA) in the Marshall Islands*, Green Climate Fund, https://www.greenclimate.fund/project/fp112 [https://perma.cc/74BM-ZGSB] (The project's goal is to "increase the resilience of water resources for drinking and hygiene" by securing groundwater resources and rainwater harvesting and building climate resilience into water governing processes.).

206. *See FP066: Pacific Resilience Project Phase II for RMI*, Green Climate Fund,

mitigation project to shift away from diesel and to renewable energy in seven Pacific SIDS: the Cook Islands, Tonga, Republic of Marshall Islands, Federated States of Micronesia, Papua New Guinea, Nauru and Samoa.[207] In addition, the GCF has approved $564,000 in readiness support for the RMI.[208]

GEF funding is more modest by comparison, but it is currently funding three small projects in the RMI and a regional adaptation project that distributes funds across Pacific SIDS. In the RMI specifically, the GEF is funding a $3.9 million project to sustain atoll biodiversity and improve natural resources management of critical conservation areas,[209] a $852,00 biennial report regarding GEF funding,[210] and a $125,00 chemical and waste management assessment.[211] Regionally, the GEF is administering a $16 million project grant, funded by the LDCF, in Kiribati, the Solomon Islands, Tuvalu, and Vanuatu to increase climate-related resiliency in urban planning and development.[212] These projects highlight the availability of GEF funding for specific, short-term projects in SIDS, particularly if the projects are modest in scale and can be implemented in a few years.

The PPCR has also provided significant adaptation financing to SIDS—$250 million (20 percent of its total resources) has been used to support Dominica, Grenada, Haiti, Jamaica, Papua New Guinea, Samoa, St. Lucia, St. Vincent and the Grenadines, and Tonga.[213] These funds have been used to help SIDS' governments with strategic climate adaptation planning and provide concessional and grant funding for pilot adaptation measures.[214] An example PPCR adaptation project is the 2015 Pacific Resilience Program, which

---

https://www.greenclimate.fund/project/fp066 [https://perma.cc/6CLT-VQ5D].

207. *See FP036: Pacific Islands Renewable Energy Investment Program*, Green Climate Fund, https://www.greenclimate.fund/project/fp036 [https://perma.cc/KM2E-VMPM].

208. *See Marshall Islands*, Green Climate Fund, https://www.greenclimate.fund/countries/marshall-islands [https://perma.cc/9QTJ-YNYD].

209. *See R2R Reimaanlok Looking to the Future: Strengthening Natural Resource Management in Atoll Communities in the Republic of Marshall Islands Employing Integrated Approaches (RMI R2R)*, Global Env't Facility, https://www.thegef.org/project/r2r-reimaanlok-looking-future-strengthening-natural-resource-management-atoll-communities [https://perma.cc/VK9E-27PK].

210. *See Third National Communication and First Biennial Update Report*, Global Env't Facility, https://www.thegef.org/project/third-national-communication-and-first-biennial-update-report-0 [https://perma.cc/P5FW-B2GG].

211. *See Development of a Minamata Initial Assessment in Marshall Islands*, Global Env't Facility, https://www.thegef.org/project/development-minamata-initial-assessment-marshall-islands [https://perma.cc/3EHH-SC6C].

212. *See Climate Resilient Urban Development in the Pacific*, Global Env't Facility, https://www.thegef.org/project/climate-resilient-urban-development-pacific [https://perma.cc/732J-QQNR].

213. *See Climate Resilience*, Climate Inv. Funds, https://www.climateinvestmentfunds.org/topics/climate-resilience [https://perma.cc/9MQU-LXLJ].

214. *Id.*

contributed $5.79 million to strengthen early warning systems and create resilient investments in Samoa, Tonga, the RMI, and Vanuatu.[215]

SIDS also benefit from bilateral fund investment, a particular country's direct investment in a project. For instance, Germany's International Climate Initiative has provided $2.6 billion in project financing to SIDS since 2008 and it is currently financing 69 projects related to SIDS.[216]

While many funding sources contribute to adaptation finance in SIDS, the role of the GCF cannot be understated. A stark contrast exists in data before the GCF started funding projects and after. For instance, before capitalization of the GCF, during the 2010–2014 period, the RMI received $7.9 million in grant (or grant-equivalent) finance for "targeted climate change objectives,"[217] split relatively evenly between adaptation and mitigation activities.[218] The GEF was the largest source of this finance ($3.92 million), followed by direct finance from Australia ($3.62 million).[219] Other countries, including the United States, Canada, and Japan, gave nominal grant amounts in comparison ($370,000 combined). Now GCF-approved funding totals $78 million, nearly ten times the amount of pre-GCF funding in the RMI. Given recent trends, GCF will likely continue to invest heavily in SIDS and if past funding is an indication of future funding, it will be limited to short-term adaptation and resilience measures to the existing island infrastructure.

D. *Longterm Adaptation Projects Remain Underfunded and Unfunded*

In order to make financing available for longterm measures like resettlement or ambitious island rebuilding projects, these projects must be viewed as more than a response of last resort, and rather, as a preventative, adaptive measure to avoid displacement.

Resettlement, rebuilding an existing island, or building new, artificial ones, are measures that have not yet been financed by the global finance community. Longterm projects have all been financed with national funds or through private investment, and rarely in full.[220] For instance, the Swedish government, in partnership with the state-owned LKAB mine, is fully funding the largescale relocation of Kiruna, Sweden, a cost estimated to be over $1 billion.[221] The resettlement of Isle de Jean Charles, Louisiana received $48.3

215. *Pacific Resilience Program (PREP)*, Climate Inv. Funds, https://www.climateinvestmentfunds.org/projects/pacific-resilience-program-prep [https://perma.cc/G88K-5G8R].

216. Watson & Schalatek, The Global Climate Finance Architecture, *supra* note 124, at 4.

217. Atteridge & Canales, *supra* note 185, at 52.

218. *Id.*

219. The GEF financed environmental policy projects while Australia financed broader contributions to environmental research, disaster prevention and preparedness, and drinking water supply. *See id.* (Fig. A9: Sources of finance, sectoral distribution and policy objectives, Marshall Islands).

220. *See supra* Subpart II.B.

221. *See supra* note 89.

million in grant-based finance from the United States Department of Housing and Urban Development for the resettlement of current, permanent residents to new homes at the new site.[222] It is not clear whether this will fund the full cost of the resettlement or whether additional funding will be needed to complete the relocation. The United States also provided $15 million toward the estimated $130 million Newtok, Alaska needs for resettlement.

Small island states that have carried out their planned resettlements have either self-funded with minimal success or relied on international philanthropy. For example, the relocation of a Maldives community to Dhuvaafaru was mainly funded by the IFRC, which provided $32 million of the $45 million needed.[223] But this scenario was unique in that the resettlement was in response to the emergency created by the 2004 tsunami rather than a proactive plan.[224] The attempts for SIDS to plan proactive relocations have been mostly thwarted because of lack of funding. The relocation efforts of Choiseul in the Solomon Islands and communities in the Carteret Islands remain unfunded, even if some initial planning has been subsidized.[225] While Kiribati purchased land in Fiji for $8.7 million to ensure a place for food production and potential resettlement, it is not clear how much the actual relocation of communities to the acquired land on Fiji will cost, as residents would need to facilitate transport and construct new homes and services, essential aspects of the resettlement that currently lack identified funding.[226] In short, existing sources of finance are not currently channeled to meet the longterm adaptation needs of SIDS, and it is unclear whether this is because SIDS are not requesting longterm funding for these projects, or because funders have not yet prioritized resettlement projects as practical adaptation investments.

E. *Managing Longterm Finance Requires Institutional Capacity*

To increase their ability to benefit from climate finance, SIDS should continue to develop their institutional capacity to connect with public and private financial institutions, identify their adaptation needs, and describe the returns those projects might generate to potential investors. This is not just a challenge for SIDS, but for any developing countries that do not have a strong institutional capacity to support longterm adaptation finance.[227]

---

222. *See About the Isle De Jean Charles Resettlement*, Isle de Jean Charles Resettlement Program, http://isledejeancharles.la.gov/about-isle-de-jean-charles-resettlement [https://perma.cc/3ZTL-P96T].

223. *See supra* Subpart II.B.

224. *See id.*

225. *See id.*

226. *See id.*

227. *See* Valerio Micale et al., Climate Policy Initiative, Understanding and Increasing Finance for Climate Adaptation in Developing Countries (2018), https://climatepolicyinitiative.org/wp-content/uploads/2018/12/Understanding-and-Increasing-Finance-for-Climate-Adaptation-in-Developing-Countries-1.pdf [https://perma.cc/Q7AX-Y2SE].

In its 2050 Climate Strategy document, the RMI identified challenges to attracting longterm financial commitments from the international community: (1) current projects are *ad hoc* and often regionally focused and (2) the RMI has limited capacity and resources to manage longterm funding.[228] While financing for *ad hoc* projects—like seawalls—are helpful for specific needs, this form of one-off financing does not help achieve significant, longterm investments like building up islands and building artificial islands,[229] or largescale land acquisition and planned resettlement.[230]

Several solutions have been proposed to address institutional barriers, including increasing demand for and sustaining suppliers of climate adaptation services, derisking adaptation investment, and ensuring developing countries have effective technical assistance to manage large scale financial investments.[231] These solutions are beyond the capabilities of most SIDS to address alone, and therefore, mitigating barriers will require collaboration and support from international governing bodies, like the COPs, and financial assistance to create internal governance and reporting structures that can manage largescale investments over a long period. The UN General Assembly has helped facilitate such capacity development with initiatives such as the SIDS Accelerated Modalities of Action (SAMOA) Pathway.[232] SIDS could also work with multilateral funds and multilateral development banks to create greater incentives for investment, particularly from the private sector. For instance, to create greater potential for return on investment and therefore more interest in

228. *See* Tile Til Eo, Republic of the Marsh. Is., 2050 Climate Strategy "Lighting the Way" (2018), https://unfccc.int/sites/default/files/resource/180924%20rmi%202050%20climate%20strategy%20final_0.pdf [https://perma.cc/4D9B-VPEA].

229. Part of the reason for this is it's difficult to identify what even constitutes "adaptation finance." *See* Jessica Brown et al., Climate Policy Initiative, Estimating mobilized private finance for adaptation: exploring data and methods, 4 (2015) ("It is not always easy to delineate adaptation activities from general investments and upgrades that companies routinely undertake."). Finance flows, as opposed to simply finance, are the focus of most climate finance initiatives. *See, e.g.*, Paris Agreement to the U.N. Framework Convention on Climate Change, art. 2, Dec. 12, 2015, T.I.A.S. No. 16-1104 (putting forth "[m]aking finance flows consistent with a pathway towards . . . climate-resilient development" as one of the Agreement's central goals).

230. *See* Sarah Carter et al., *Large Scale Land Acquisitions and REDD+: A Synthesis of Conflicts and Opportunitie*s, 12 Envtl. Response Letter 1, 2 (2017) ("It is hypothesized that [large scale land acquisitions] are more likely to occur in countries where investors can acquire and develop the land more easily.").

231. *See* Karoline Hallmeyer & Bella Tonkonogy, Climate Policy Initiative, Designing Technical Assistance Activities for Adaptation and Resilience Companies (2018), https://climatepolicyinitiative.org/wp-content/uploads/2018/05/Designing-Technical-Assistance-Activities-for-Adaptation-and-Resilience-Companies.pdf [https://perma.cc/7M4K-USFA].

232. *See Strengthening the Capacity in Developing, Monitoring and Reviewing Durable Partnerships for Small Island Developing States*, U.N. Sustainable Dev. Goals Knowledge Platform, https://sustainabledevelopment.un.org/sids/partnerships2018 [https://perma.cc/NLH4-XSWT].

longterm financing, SIDS could lobby for blending mitigation and adaptation project investment portfolios to distribute investment risk across a broader array of adaptation and mitigation projects.[233]

IV. Recommendations

SIDS should pursue both short-term territorial solutions and longterm adaptation measures to preserve their sovereignty. SIDS should simultaneously pursue legal and political solutions to secure their rights and existing territorial boundaries.

Territorial solutions to preserve the habitability of islands are attractive in that they allow SIDS to maintain their sovereignty and way of life without the upheaval of a managed relocation. These solutions also allow SIDS additional time to prepare for a planned resettlement if and when it becomes necessary. Coastal defenses and other resilient infrastructure projects are consistent with the type of adaptation projects the global climate finance community is already funding. Seeking additional project-based financing from the GCF, GEF, and other bilateral funding sources seems viable.

Obtaining financing to build artificial islands to preserve the sovereignty and territorial waters of island states is less certain as this adaptation measure has yet to be funded by public financial channels. But this may not always be the case. While these projects are enormously expensive when funded with national money and private sources of investment, like the islands off the coast of Denmark and in the Maldives, building these structures may still be a cheaper and more preferable option to resettlement if durable as a longterm strategy.

Planned resettlement is a longterm adaptation measure SIDS should pursue as a backstop. While publicly available sources of climate finance have yet to be used for a resettlement, this too could change. A more expansive definition of "adaptation" is needed, and, if conceptualized differently among UNFCCC parties, may help SIDS secure funds from multilateral entities like the GCF and GEF managed funds. "The way a phenomenon is conceptualized is central to the way its regulation is approached."[234] SIDS should advocate to include longterm measures like resettlement into the definition of "adaptation finance" and bring longterm needs to the attention of the parties to the UNFCCC, the GCF and its implementing entities, as well as to emerging private funders. In addition, identifying resettlement as a longterm adaptation need in a National Adaptation Plan would help small island states and the global finance community strategize around that need. If comprehensive funding were unavailable for a resettlement, it could be capitalized as a series

233. *See* Inv. Group on Climate Change, From Risk to Return: Investing in Climate Change Adaptation 2 (2017), https://igcc.org.au/wp-content/uploads/2017/03/Adaptation_FINAL.pdf [https://perma.cc/N5A9-LZBY] (identifying "adopt[ing] blended mitigation and adaptation investment solutions to generate commercial return and adaptation outcomes" as a potential solution for increasing investment in adaptation).

234. McAdam, Climate Change, *supra* note 16, at 17.

of incremental projects and funded in concrete stages—design and planning, acquisition of land, construction of new homes and facilities at a building site, and finally, resettlement. SIDS should also request project-based financial assistance for the cultural, social, economic, and psychological challenges of relocation so that the process of migrating individuals and communities can be done to preserve cultural and community ties and minimize the challenges of rebuilding life elsewhere. Of course, decentralizing a resettlement project is precarious, leaving funding for later stages vulnerable to financial landscape change. But this position may not be any less secure than the plight SIDS already face.

SIDS should simultaneously take steps to preserve their sovereignty irrespective of other adaptation measures. Amending UNCLOS to secure existing nautical boundaries would specifically protect the EEZs of many SIDS faced with submergence. Seeking new bilateral or multilateral agreements that affirm the sovereignty and rights of SIDS would help ensure these rights do not erode, even with the erosion of territories. Lastly, some SIDS may be able to secure additional investment in adaptation measures by leveraging their existing agreements with developed, less vulnerable countries. For example, the COFA between the RMI and the United States, with amendment, could provide a source of longterm financing for adaptation measures to increase the habitability of strategic atolls and ensure the longterm interest of the United States in having a military base in the South Pacific. But given the potential for unequal bargaining power between developed and developing countries, SIDS in these arrangements would need to ensure their adequate protection in order to prevent such a relationship from becoming exploitative.[235]

Conclusion

Small island states bear next to no responsibility for climate change yet continue to bear a disproportionate share of its burdens. SIDS face the imminent prospect of territorial loss and must design self-supported adaptation responses to secure their sovereignty and rights. Adaptation options are only meaningful, however, if they can be implemented. While funds are available for short-term adaptation projects, longterm measures like reinforcing habitable territory of the existing islands, building artificial islands, and resettlement have not been funded by the international public finance community.

235. For instance, during World War II, when RMI became a Trust Territory under U.S. control, the RMI became the detonation site of 67 nuclear devices between 1944 and 1958, the effects of which continue to be detrimental. *See* Seiji Yamada, Maxine Burkett, & Gregory G. Maskarinec, *Sea-Level Rise and the Marshallese Diaspora*, 10 Envtl. Just. 93 (2017). *See also* Martha Smith-Norris, *American Cold War Policies and the Enewetakese: Community Displacement, Environmental Degradation, and Indigenous Resistance in the Marshall Islands*, 22 J. Canadian Hist. Ass'n 195 (2011) (noting the United States has failed to provide sufficient compensation to restore the environment of the islands and provide adequate damages to the islanders themselves).

SIDS should advocate to the parties to the UNFCCC that a broader view of adaptation is needed in order to support their longterm adaptation planning needs. In turn, public financing bodies like the GCF and GEF should commit to funding these measures. Meanwhile, SIDS should continue to advocate for and pursue short-term adaptation strategies to preserve their existing island territories and simultaneously protect their legal rights and ability to design self-determined, longterm adaptation strategies. They can do so by memorializing their status as sovereign nations—irrespective of territory—and securing the permanent boundaries of their territories as they exist today.