Legal Dimensions of Sea Level Rise: Pacific Perspectives

David Freestone and Duygu Çiçek

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Global Facility for Disaster Reduction and Recovery

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Executive Summary

This legal study has been developed as a part of the World Bank's work on "Building Resilience in Pacific Atoll Island Countries" which aims to strengthen the capacity of selected Pacific atoll island countries to cope with the long-term adverse impacts of climate change and boost their resilience. The goal of this work is to contribute to the National Adaptation Planning Process currently in progress for the Republic of the Marshall Islands and inform adaptation options for Kiribati and Tuvalu through the Atoll Adaptation Dialogue Mechanism. "Building Resilience in Pacific Atoll Island Countries" stresses that short- to medium-term adaptation options will not suffice in addressing the escalating impacts of sea level rise and climate change. Consequently, it explores the implications of alternative adaptation options while also considering investment needs and relevant costs associated with these options.[1]

Against this background, this legal study is designed to provide an assessment of the impacts of climate change, especially sea level rise on the maritime rights of coastal States. In doing so, it builds on the 2008 World Bank legal working paper on the Maritime Rights of Coastal States.[2] In the intervening years, the threats of climate change have amplified, more coastal States have resolved to strengthen their resilience, and the relevant international legal regime has evolved, including through the adoption of the 2015 Paris Agreement.

This study, therefore, aims to take a much wider view of the legal aspects of the impacts of sea level rise and climate change on Small Island Developing States (SIDS), and the Pacific atoll countries in particular. It looks at the main projected impacts of sea level rise and ocean related climate change on these States and territories including the possible impacts on the marine resources upon which they depend. It outlines the main legal regimes that regulate these issues, including the 1982 UN Law of the Sea Convention (LOSC) and the regime of the 1992 UN Framework Convention on Climate Change (UNFCCC) and its 2015 Paris Agreement. Although the primary focus of this study is the maritime rights of coastal States, it also looks at the key legal framework regulating other issues likely to arise or increase in the light of the possible threats, such as that related to human mobility in this context and the issue of continued statehood. Many of these issues pose completely unprecedented challenges to the international legal order, so definitive answers to many questions are simply not possible, but the objective of this study is to present the latest legal thinking on these issues and provide an analysis that will be useful to stakeholders, policymakers, and practitioners.

It is divided into three parts. Part I looks at the pioneering work of the Intergovernmental Panel on Climate Change (IPCC) and its most recent predictions for sea level rise during the current century and then sets it in the context of other scientific work on threats from sea level rise and warming, in particular the predicted impacts on the fish resources on which the region is so dependent. Part II sets out an overview of relevant legal frameworks, key terminology, and principles based on international law as well as judicial decisions and scholarly work that define the rights, resources, and obligations of SIDS and the Pacific atoll countries in particular. Part III then presents a series of responses to key legal and policy questions faced by these States, in relation to sea level rise. The questions addressed are the following:

1. **What are the legal implications of physical changes to different types of baselines under the 1982 LOSC as a result of sea level rise?** Sea level rise is likely to result in retreating coastlines and the inundation of small offshore features—all of which are used to measure maritime entitlements. These changes may make it difficult for coastal States to retain those entitlements according to the strict requirements of the LOSC.
2. **What is the difference between an "island" and a "rock"?** Arbitration Tribunal awards provide detailed guidance on the difference between "rocks" and "islands" as defined by the LOSC, but questions still remain as to whether physical changes in islands brought about by sea level rise might require them to

[1] Further details in respect to the World Bank's work in this area in the Pacific Region are summarized in Appendix III.

[2] Di Leva, Charles, and Sachiko Morita. 2008. "Maritime Rights of Coastal States and Climate Change: Should States Adapt to Submerged Boundaries?" *World Bank Law and Development Working Paper Series.*

be reclassified as "rocks" with more limited maritime entitlements.

3. **What are the legal implications for the outer limits of a State's maritime zones and maritime boundaries with other States, and for the rights of third States and their nationals, of changes in coastal baselines from which maritime zones are delineated or delimited?** It is not clear what the legal effect is of physical changes to coastal baselines that have been used as the basis for maritime boundary delimitation treaties or judicial decisions, even if the result is to extend the delimitation lines beyond 200 nautical miles (nm) from the coast.

4. **How might a State defend its existing maritime entitlements in accordance with international law?** Coastal States are entitled to use a number of physical means, including artificial islands, to defend their coastlines and coastal basepoints. They may also seek to argue at the legal and policy level that they are not obliged to amend their existing maritime entitlements in the face of sea level rise.

5. **What are the legal implications of an island State becoming uninhabitable?** This is an unprecedented situation for international law, which the international community will need to address. But international law and practice does suggest a presumption of State continuity provided that the State can honor its international obligations and responsibilities.

6. **What are the legal and policy options relating to human mobility in the context of climate change?** International law does provide a framework for addressing issues of human mobility in the face of sea level rise, but it is fragmented. This section sets out the relevant legal tools and policy options that might help people adapt *in situ* and that facilitate human mobility if it becomes necessary.[3]

7. **How is the international community able to provide support for States that need to adapt to impacts from sea level rise?** There is a myriad of mechanisms available for financial support and technical assistance in designing and implementing adaptation measures, including legal and policy strategies.[4]

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[3] For ease of reference, these are summarized in tabular form in Appendix I.

[4] These are also set out in tabular form in Appendix II.

Kiribati, . Photo: © Trentinness | Dreamstime.com.

Part I

Expected Effects of Climate Change on Small Island Developing States (SIDS), and Pacific Atoll Countries in Particular, with a Focus on Rising Sea Level

1. Sea Level Rise Predictions from the Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 by the UN Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide policymakers with regular scientific assessments on climate change, its implications, and potential future risks, as well as to put forward adaptation and mitigation options. The IPCC does not conduct its own research but through its assessments, it determines the state of scientific knowledge on climate change. It identifies where there is agreement in the scientific community on topics related to climate change, and where further research is needed. The reports are drafted and reviewed in several stages, thus guaranteeing objectivity and transparency. IPCC reports are neutral, policy-relevant but not policy-prescriptive.[5] Its First Assessment Report (FAR) issued in 1990[6] predated the 1992 UN Framework Convention on Climate Change (UNFCCC), yet it added a degree of urgency to the negotiations because of the breadth of issues which it predicted would be impacted by climate change and the possible severity of those impacts.

The IPCC is now in its sixth cycle, producing the Sixth Assessment Report (AR6).[7] The contributions from its three Working Groups will be published in 2021 followed by a Synthesis Report in 2022.[8] Over the last 30 years, scientific knowledge has increased exponentially as has modeling expertise. Although there are still uncertainties about a number of issues, it is clear that even if Greenhouse Gas (GHG) emissions are radically reduced or even eliminated, sea levels will still continue to rise in the following decades or centuries. It is also clear that although the predictions are of Global Mean Sea Levels (GMSL), rises in sea level will not be uniform all over the globe and the Pacific region is already facing some of the highest rates and levels.[9]

The 1990 FAR noted that the main drivers of these predictions would be the melting of glaciers and thermal expansion and that the effects of the Antarctic and Greenland ice sheets would be small.[10] It is now clear that the melting of the polar ice sheets will be a major factor in future rises but uncertainty about the rates as well as possible extent of that melting remains high.[11] The most recent 2019 Special Report on the Ocean and the Cryosphere in a Changing Climate (SROCC),[12] discussed in more detail below, highlighted the fact that under a continued high GHG emissions scenario, the likely range of sea level rise might extend beyond 1 meter (m) in 2100 due to a larger projected ice loss from the Antarctic Ice Sheet.[13] However, if GHG emissions are increasingly restricted—as the Paris Agreement seeks to ensure—a more likely prediction would be a rise of 0.39 m from the period 2081–2100 (within a possible range of 0.26–0.53 m) and 0.43 m by 2100. The uncertainty at the end of the century is mainly determined by the ice sheets, especially in Antarctica.[14]

The IPCC has produced three interim special reports addressing concerns flagged within the UNFCCC. Two of these are particularly important for their coverage of sea level rise and ocean impacts: 2018 Global Warming of 1.5°C (1.5°C Report or SR1.5)[15] and the 2019 SROCC.

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5 The Intergovernmental Panel on Climate Change (IPCC), available at: https://www.ipcc.ch/

6 IPCC, *First Assessment Report Synthesis* (FAR), published as part of the 1992 IPCC Supplementary Reports as IPCC First Assessment Report Overview and Policymaker Summaries and 1992 IPCC Supplement, available at: https://www.ipcc.ch/report/ar1/syr/

7 See, in general, following upcoming reports: IPCC, *The Sixth Assessment Report* (AR6) with contributions by its three Working Groups and a Synthesis Report, three Special Reports, and a refinement to its latest Methodology Report, available at: https://www.ipcc.ch/assessment-report/ar6/

8 *Ibid.*

9 The *Pacific Marine Climate Change Report Card 2018* suggested that the Pacific Islands experienced sea level rise of 3-6 mm per year. See, Commonwealth Marine Economies Programme (CMEP), Pacific Marine Climate Change Report Card 2018, available at: https://climateanalytics.org/media/cefas_pacific_islands_report_card_final_amended_spreads_low-res.pdf

10 Although it did acknowledge the uncertainties surrounding this. *Ibid.*, p. xi.

11 Mass loss from the Antarctic ice sheet over the period 2007–16 tripled relative to 1997–06. For Greenland, mass loss doubled over the same period (likely, medium confidence). IPCC, 2019: Summary for Policymakers. In: *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (SROCC SPM), H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.), available at: https://www.ipcc.ch/site/assets/uploads/sites/3/2019/11/03_SROCC_SPM_FINAL.pdf, at A 3.2 [3.3.1, Figures SPM.1, SPM.2, SPM A.1.1].

12 SROCC SPM.

13 *Ibid.*, at B.3.1 But even for this higher projection the possible range is 0.61-1.10 m by 2100.

14 *Ibid.*, at B.3.

15 IPCC, 2018: Global Warming of 1.5°C. *An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* (SR 1.5), Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea,

The SR1.5 discusses a world 1.5°C warmer than pre-industrial times—prompted by the commitment by the Parties to the Paris Agreement—to pursue "efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change."[16]

The basic message of the 1.5°C Report is that climate change impacts on sustainable development, eradication of poverty, and reducing inequalities would increase even if global warming were limited to 1.5°C, even if mitigation and adaptation synergies are maximized while trade-offs are minimized.[17] Even in a world warmed to 1.5°C, there will be major negative impacts, including a probable decline of 70–90 percent of the world's coral reefs.[18]

As the title indicates, the 2019 SROCC is a more focused report on ocean issues. It reported that it is virtually certain that the global ocean has warmed unabated since 1970 and has taken up more than 90 percent of the excess heat in the climate system. Since 1993, the rate of ocean warming has more than doubled. Marine heatwaves have very likely doubled in frequency since 1982 and are increasing in intensity. By absorbing more carbon dioxide (CO_2), the ocean has also undergone increasing surface acidification. A loss of oxygen has also occurred from the surface to 1000 m.[19]

The 2019 SROCC found that GMSL had already risen over the last century by 0.16 m (likely range 0.12–0.21 m) and the rate of rise for 2006–15 was 3.6 mm per year which is unprecedented over the last century and about 2.5 times the rate for 1901–90 of 1.4 mm a year. It confirmed that the dominant cause was anthropogenic and that the dominant source of increased water levels was ice sheet and glacier melt which exceeded the effect of thermal expansion of ocean water. In particular, the combined increased ice loss from the Greenland and Antarctic ice sheets.[20]

The 2019 SROCC is also unusual in that it devotes considerable space to impacts on society, pointing out that GMSL rise will cause the frequency of extreme sea level events at most locations to increase. Localized coastal flooding events that historically occurred once per century (historical centennial events) are projected to occur at least annually at most locations by 2100 under all scenarios.[21] Many low-lying megacities and small islands (including SIDS) are projected to experience historical centennial events at least annually by 2050 under a range of scenarios.[22] The increasing frequency of high water levels can have severe impacts in many locations.[23] Under the same assumptions, annual coastal flood damages are projected to increase by 2–3 orders of magnitude by 2100 compared to today.[24]

The average intensity of tropical cyclones, the proportion of Category 4 and 5 tropical cyclones, and the associated average precipitation rates are projected to increase for a 2°C global temperature rise above any baseline period. Rising mean sea levels will contribute to higher extreme sea levels associated with tropical cyclones. Coastal hazards will be exacerbated by an increase in the average intensity, magnitude of storm surge and precipitation rates of tropical cyclones.[25]

The 2019 SROCC also highlighted the fact that warming-induced changes in the spatial distribution and abundance of some fish and shellfish stocks have had both positive and negative impacts on catches, economic benefits, livelihoods, and local culture. This has obvious negative consequences for indigenous peoples and local communities that are dependent on fisheries. Long-term loss and degradation of marine ecosystems compromises the ocean's role in cultural, recreational, and intrinsic values important for human identity and well-being.[26] Similarly, climate change impacts on marine ecosystems and their services put key cultural dimensions of lives and livelihoods at risk, including through shifts in the distribution or abundance of harvested species and diminished access to fishing or hunting areas. This includes potentially rapid and irreversible loss of local and indigenous culture and knowledge, and negative impacts on traditional diets

P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.), available at: https://www.ipcc.ch/sr15/

16 Paris Agreement, Art 2(10)(a).

17 SR 1.5 SPM, at D.2.

18 *Ibid.*, at B.6.2.

19 SROCC SPM, at A2 [1.4, 3.2, 5.2, 6.4, 6.7, Figures SPM.1, SPM.2].

20 Mass loss from the Antarctic ice sheet over the period 2007–16 tripled relative to 1997–06. For Greenland, mass loss doubled over the same period (likely, medium confidence). See, SROCC SPM, at A 3.2 [3.3.1, Figures SPM.1, SPM.2, SPM A.1.1].

21 *Ibid.*, at B 3.4 [4.2.3, 6.3, Figures SPM.4, SPM.5].

22 Under RCP2.6, RCP4.5 and RCP8.5. The year when the historical centennial event becomes an annual event in the mid-latitudes occurs soonest in RCP8.5, next in RCP4.5 and latest in RCP2.6.

23 SROCC SPM, at B 3.4.

24 *Ibid.*, at A.9 [4.3.3, 4.3.4, Box 6.1, Figure SPM.5].

25 There are greater increases projected under RCP8.5 than under RCP2.6 from around mid-century to 2100 (medium confidence). There is low confidence in changes in the future frequency of tropical cyclones at the global scale. See, *ibid.*, at B.3.6 [6.3.1].

26 *Ibid.*, at B.8 [3.2.4, 3.4.3, 5.4.1, 5.4.2, 6.4].

and food security, aesthetic aspects, and marine recreational activities.[27]

At the same time, shifts in species distributions and abundance has challenged international and national ocean and fisheries governance, including in the Arctic, North Atlantic and Pacific, in terms of regulating fishing to secure ecosystem integrity and sharing of resources between fishing entities.[28]

The 2019 SROCC's final message is that in the absence of more ambitious adaptation efforts compared to today, and under current trends of increasing exposure and vulnerability of coastal communities, it can predict with a very high level of confidence that risks, such as erosion and land loss, flooding, salinization, and cascading impacts due to mean sea level rise and extreme events are projected to significantly increase throughout this century under all GHG emissions scenarios.

2. Physical and Ecological Impacts of Climate Change and Sea Level Rise

Coastal ecosystems are essentially dynamic and adapt to changes in sea levels. The important question, however, is whether they will be able to do this in ways which allow continued human habitation and uses.

Impacts on Coral Reefs and Reef Islands

Atoll islands are the creation of corals and for millennia, coral reefs and reef islands appear to have been able to keep pace with the numerous changes in sea level. Conventional wisdom, therefore, was that coral growth would similarly be able to keep pace with changes in sea level brought about by anthropogenic climate change. Although individual corals seem well able to grow at rates of 10–100 mm per year,[29] reefs accrete at slower rates than coral grows.[30] The fastest recorded rate of reef growth from the fossil record is 7.89 mm per year,[31] and current predictions of the rate of sea level rise to 2100 may be outside that range.[32] The problem is exacerbated by the fact that the persistent warming of the oceans together with increased acidification is interfering with these natural processes.[33] Mass coral bleaching events primarily attributed to ocean warming resulting in widespread coral deaths—such as those on the Great Barrier Reef in Australia—impact the ability of reefs to maintain themselves.[34] Continued ocean warming will bring higher ocean temperatures and increase storm severity.[35] There are also concerns that higher concentrations of human populations, as a result of increasing urbanization and coastal development, will inevitably increase local pollution, and that "hard" sea defenses will disrupt sediment flows to prevent islands from naturally replenishing themselves.

As a result, scientists have raised concerns over the persistence of coral reefs, and the low-lying reef islands

[27] *Ibid.*, at B.8.4 [3.4.3, 3.5.3, 5.4.2].

[28] *Ibid.*, at A 8.1 [3.2.4, 3.5.3, 5.4.2, 5.5.2, and Figure SPM 2].

[29] Coral Reef Alliance, "How Coral Reefs Grow" available online: https://coral.org/coral-reefs-101/coral-reef-ecology/how-coral-reefs-grow/#:~:text=The%20massive%20corals%20are%20the,21%E2%80%9329%C2%B0%20C).

[30] Camoin, Gilbert M., Lucien Montaggioni, et al. 1997. "Holocene sea-level changes and reef development in South-Western Indian Ocean", *Coral Reefs*, Vol. 16(4), pp. 247-259.

[31] McManus, John W. 2017. "Offshore Coral Reef Damage, Overfishing, and Paths to Peace in the South China Sea." *International Journal of Marine and Coastal Law*, Vol. 32, pp. 199-237 at 220.

[32] The *Pacific Marine Climate Change Report Card 2018* suggested that the Pacific Islands experienced sea level rise of 3–6 mm per year in the period 1993–17 "but with some notable differences between islands" with some islands in the Western Pacific (Solomon Islands, Papua New Guinea and Marshall Islands) subject to a higher rate of sea level rise (up to 6 mm/year) compared to islands further east (such as Samoa and Kiribati), available online: https://climateanalytics.org/media/cefas_pacific_islands_report_card_final_amended_spreads_low-res.pdf.

[33] IPCC 1.5˚C Report suggested that even if warming were to be restrained to 1.5˚C above pre-industrial levels, the result would be a "further loss of 70-90% of reef-building corals compared to today", and that if warming reached 2˚C above pre-industrial levels, coral losses were estimated at 99%.

[34] The potentially serious effects of ocean warming for coral reefs are underscored by the increasing frequency and severity of coral reef bleaching events. See, for example, P.P. Wong et al., "Coastal systems and low-lying areas," in *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change,* eds. C.B. Field et al. (Cambridge University Press, 2014), pp. 361–409, 378. See also, T.P. Hughes, J.T. Kerry, M. Alvarez-Noriega et al., "Global Warming and Recurrent Mass Bleaching of Corals" Nature Vol. 543 (2017), pp. 373–377; T.P. Hughes, K.D. Anderson and S.R. Connolly, "Spatial and Temporal Patterns of *Mass* Bleaching in the Anthropocene" Science Vol. 359 (2018), pp. 80–83; R. van Hooidonk, J. Maynard, J. Tamelander et al., "Local-Scale Projections of Coral Reef Futures and Implications of the Paris Agreement" *Scientific Reports* 6 (39666) (2016), pp. 1–8; T.L. Frölicher, E.M. Fischer and N. Gruber, "Marine Heatwaves Under Global Warming", *Nature* 560 (2018), pp. 360–364; T.P. Hughes et al., "Global Warming Transforms Coral Reef Assemblages" *Nature* 556 (2018), pp. 492–496; Harrison, Hugo B., Álvarez-Noriega, Mariana, Baird, Andrew H., Heron, Scott F., Macdonald, Chancey, *and* Hughes, Terry P. (2019) "Back-to-back coral bleaching events on isolated atolls in the Coral Sea." C*oral Reefs*, Vol. 38 (4), pp. 713-719.

[35] See also, Curt D. Storlazzi et al., "Most atolls will be uninhabitable by the mid-21st century because of sea level rise exacerbating wave-driven flooding", *Science Advances*, Vol. 4(4), available online https://advances.sciencemag.org/content/4/4/eaap9741.

that depend on them, and question whether they will become increasingly unable to support human populations over the coming century.[36] Nevertheless, recent research suggests that reef islands are remarkably geomorphologically resilient land forms that have been able to remain stable or even grown in area over the last 20–60 years. In a groundbreaking study in 2010, Webb and Kench[37] analyzed historical aerial photography and satellite images in order to study physical changes in 27 atoll islands in the central Pacific over a 19- to 61-year period. Their study presents the first quantitative analysis of the changes they observed.

The key takeaway from this important empirical research is that sea level rise in itself does not necessarily mean the gradual and inevitable erosion of reef islands until they become uninhabitable. It highlights the fact that these are dynamic systems which may be able to maintain themselves by processes of sediment movement and accretion, provided always that those coral reefs are able to survive and maintain the supplies of sediment.

At a time when instrumental records showed a rate of sea level rise of 2.0 mm per year in the Pacific, their study shows that only 14 percent of islands lost areas whereas 43 percent remained stable, and the further 43 percent increased in area over the timeframe of analysis. Only 14 percent of study islands exhibited a net reduction in island area. Despite small net changes in area, islands exhibited larger gross changes. This was expressed as changes in the platform configuration and position of islands on reef platforms.[38] Collectively, these adjustments represent net lagoon-ward migration of islands in 65 percent of cases.

More recent work appears to confirm this more positive message. Duvat (2019) conducted a global assessment of atoll islands platform changes over a series of decades.[39] She found that over the past decades, atoll islands exhibited no widespread sign of physical destabilization in the face of sea level rise. She found that smaller islands were more susceptible to change but that no islands larger than 10 hectares (ha) had actually decreased in size during that period. Kane and Fletcher (2020) however add some caution to this message in their multitemporal island vulnerability assessment (MIVA) which they applied to the islands of the Republic of the Marshall Islands.[40] They conclude that with rates of sea level rise that are likely under the IPCC "intermediate to high" sea level rise scenario, by mid-century, island stability will deteriorate and that island instability "will be inevitable with no action." Urbanized islands and those where there have been a high level of human infrastructure and interference with coastline structure are those most at risk.

The combined impacts of sea level rise and other climate change phenomena such as warming oceans and increased storm risk are still not clear.[41] The natural processes which have ensured the survival of islands in the past, can also be interfered with by human activities at a local level, such as beach sand and gravel mining, poor engineering and even reclamation activities.[42] Efforts to defend threatened parts of the coast are likely to have unanticipated and unwelcome consequences elsewhere along the coast, especially in such dynamic inter-linked systems. Nevertheless, the most important message may be from Kane and Fletcher that by 2050 radical human intervention may be necessary in many island systems to counteract increasing island instability.[43]

[36] Leatherman, Stephen P. 1997. *Island States at Risk: Global Climate Change, Development and Population*s, Coastal Education Research Foundation; Connell, John. 1999. "Environment Change, economic development and emigration in Tuvalu." *Pacific Studies*, Vol. 22, pp. 1-20. (cited by Webb et al. below).

[37] Webb, Arthur and Paul Kench. 2010. "The dynamic response of reef islands to sea-level rise: Evidence from multi-decadal analysis of island change in the Central Pacific." *Global and Planetary Change*, Vol. 72(3), pp. 234-246.

[38] Modes of island change included: ocean shoreline displacement toward the lagoon; lagoon shoreline progradation; and extension of the ends of elongate islands.

[39] Duvat, Virginie K. E. 2019. "A global assessment of atoll island planform changes over the past decades." *WIREs Climate Change*, Vol. 10 (1).

[40] Kane, Haunani H. and Charles H. Fletcher. 2020. "Rethinking Reef island stability in relation to Anthropogenic Sea Level Rise." *Earth's Future*, Vol. 8 (10).

[41] Storm events can be highly destructive for coastal ecosystems such as corals and, coupled with multiple other factors such as disease, feed web changes, invasive organisms and heat stress mortality, may "overwhelm the capacity for natural and human systems to recover following disturbances." See, IPCC 1.5°C Special Report, above, p. 223. Note that other research shows how flood risk will increase with sea level rise and loss of reefs. See, e.g., Michael W. Beck, Iñigo J. Losada, et al., "The global flood protection savings provided by coral reefs" (2018) *Nat Commun* No. 9 Article No. 2186.

[42] The construction of sea defences may also interrupt sediment flow regimes, potentially compromising the capacity of coral islands to naturally adapt to sea level rise. See, for example, Paul Kench, "Understanding Small Island Dynamics: A Basis to Underpin Island Management," in *Proceedings of the International Symposium of Islands and Oceans, 22–23 January 2009*, ed. H. Terashima (Ocean Policy Research Foundation, 2009), pp. 24–28.

[43] See, Kane and Fletcher (2020).

Threats to Natural Resources, Livelihoods, and Food Security

The depletion of coral reefs predicted by IPCC SR 1.5°C as a result of the impacts of ocean warming and acidification will reduce the availability of the fish species that depend on these coral reef ecosystems. In fact, the production of demersal stocks in the Western and Central Pacific is predicted to decline by 20 percent by 2050 and 20–50 percent by 2100 under continued high GHG emissions.[44] As a result, the Pacific Island Countries and Territories (PICTs) will have to make greater domestic use of pelagic species—particularly tunas. Indeed, it has been estimated that by 2035, 25 percent of all fish required for food security of Pacific Island people will need to be supplied by tuna. To meet this need, more than 85,000 tones of tuna and tuna-like species will be required annually for domestic consumption within the next 15 years.[45]

The tuna fisheries of the Western and Central Pacific are among the best managed tuna stocks in the world, largely as a result of the work of South Pacific Forum Fisheries Agency and the Parties to the Nauru Agreement (PNA),[46] as well as the Western and Central Pacific Fisheries Commission (WCPFC). However, there is increasing evidence that many of these stocks may begin to migrate as the ocean continues to warm over the course of the current century. The migration of fish stocks as a result of climate change has been widely observed in other parts of the world and it is already known that the distribution and abundance of tuna species is influenced by natural climate variability through the influence of climate drivers such as the El Niño Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO). During a La Niña event, tuna populations are found more in the Western Pacific and during El Niño more in the Central and Eastern Pacific. These events can affect the survival of tuna larvae in positive as well as negative ways—for example, more skipjack tuna larvae survive during El Niño to become juvenile fish.[47]

The IPCC predictions suggest that sea surfaces will be very likely to become warmer and more acidic; it is also likely that there will be changes in water circulation patterns and decreases in oxygen levels in the water. This, in turn, seems likely to change the availability of nutrients and hence food availability for tuna.

In a recent analysis, the South Pacific Community (SPC), with partners,[48] sought to assess the impacts of climate change on tropical tuna species and tuna fisheries in Pacific Island waters and high seas areas. The new modelling simulates the response of tropical tuna species, and the ecosystem that supports them, to projected changes in sea surface temperature, ocean currents, dissolved oxygen levels, and other ocean variables under IPCC's continued high emissions "business as usual" scenario in 2050 and 2100. The modelling indicates that significant changes in the distribution of the main target species of skipjack, yellowfin, and bigeye tuna and South Pacific albacore are expected to occur by 2050.

The models suggest that there will be a strong eastward shift in the distribution of skipjack and yellowfin tuna, resulting in reduced abundance of both species in the Exclusive Economic Zones (EEZs) of PICTs west of 170E in the Western and Central Pacific Ocean. There might also be a similar but weaker eastward shift in the distribution of bigeye tuna. This shift to the east seems likely to mean that stocks will be moving out of the EEZs of some of the Pacific coastal States and moving into the EEZs of others, but also into high seas areas, resulting in a larger proportion of the catch of each species being made in international waters. A possible positive effect, however, might be an increase in the biomass of South Pacific albacore in the EEZs of Pacific Island Countries (PICs), although these predictions are uncertain due to poor information about likely future levels of dissolved oxygen in oceanic waters.

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[44] See, Pacific Islands Oceanic Fisheries Management Fact Sheet (OFMP2) based on: "Climate Change Impacts, vulnerabilities and adaptation: Western and Central Pacific marine fisheries" in M. Barange, T. Bahri, M.C.M. Beveridge, K.L. Cochrane, S. Funge-Smith, and F. Poulain, eds. 2018. *Impacts of climate change on fisheries and aquaculture: synthesis of current knowledge, adaptation and mitigation options.* FAO Fisheries and Aquaculture Technical Paper No. 627, p. 628, available at: http://www.fao.org/3/i9705en/i9705en.pdf

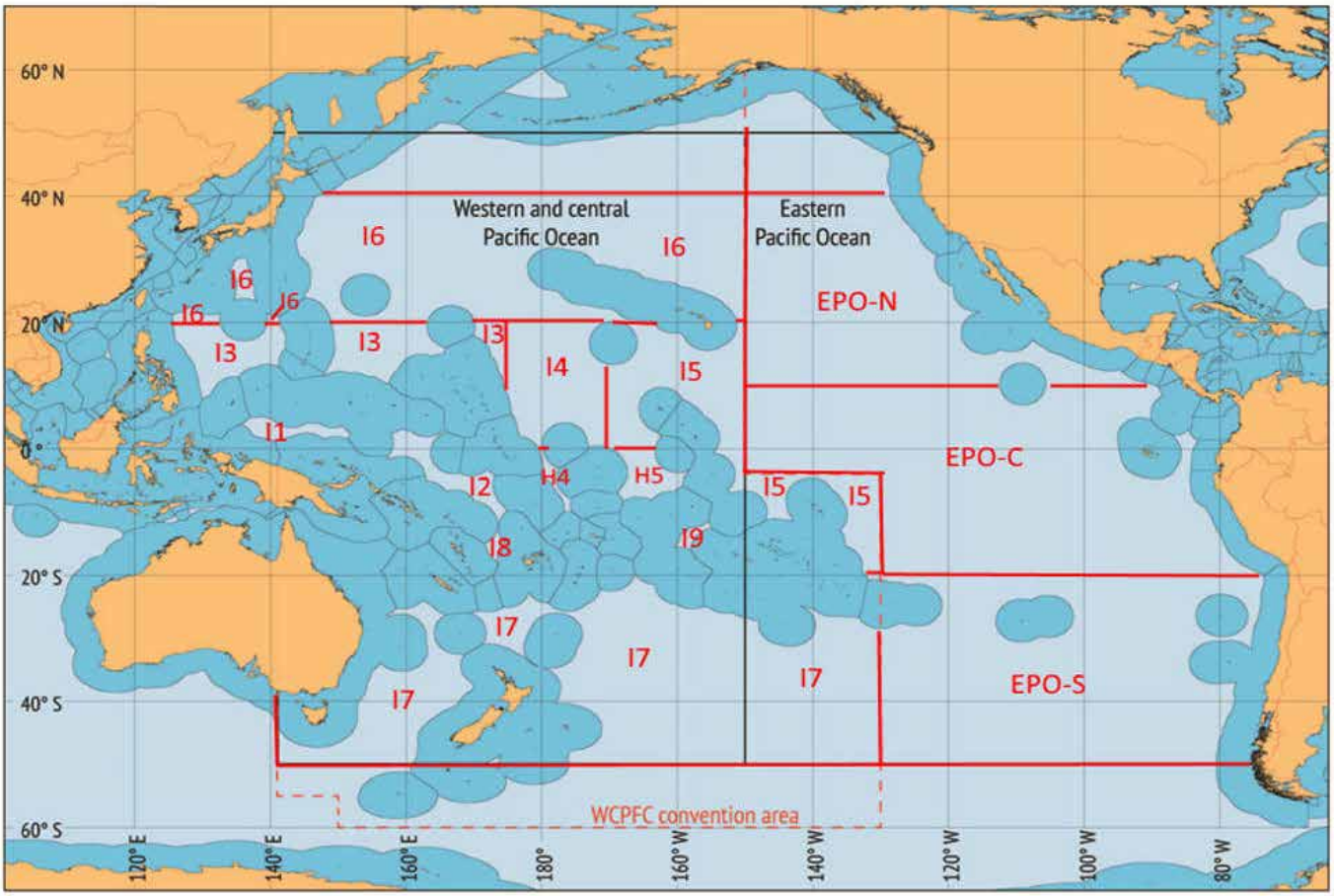
[45] South Pacific Community (SPC), "Implications of climate-driven redistribution of tuna for Pacific Island economies". *SPC Policy Brief* No. 32 (2019) at p. 3.

[46] The Nauru Agreement is a sub-regional agreement regulating terms and conditions for tuna purse-seine fishing licenses in the region. The Parties include Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands and Tuvalu.

[47] See, OFMP2, "Climate Change Impacts, vulnerabilities and adaptation: Western and Central Pacific marine fisheries" at p. 2.

[48] SPC and Conservation International, "What are the effects of climate change on tuna fisheries in the Western and Central Pacific Ocean?" (January 2019). The modeling and analyses were made possible through the support of the World Bank-implemented Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation, a sub-project of the Common Oceans ABNJ Program led by the FAO and funded by the GEF.

Figure 1. Map of the EEZs of PICTs and international water high seas areas for the tropical Pacific Ocean.



Source: South Pacific Community, Division of Fisheries, Aquaculture and Marine Ecosystems, "Impact of climate and tuna fisheries in Pacific Island waters and high seas areas: modelling the effects of climate change on tuna abundance in areas beyond national jurisdiction" (December 2018).

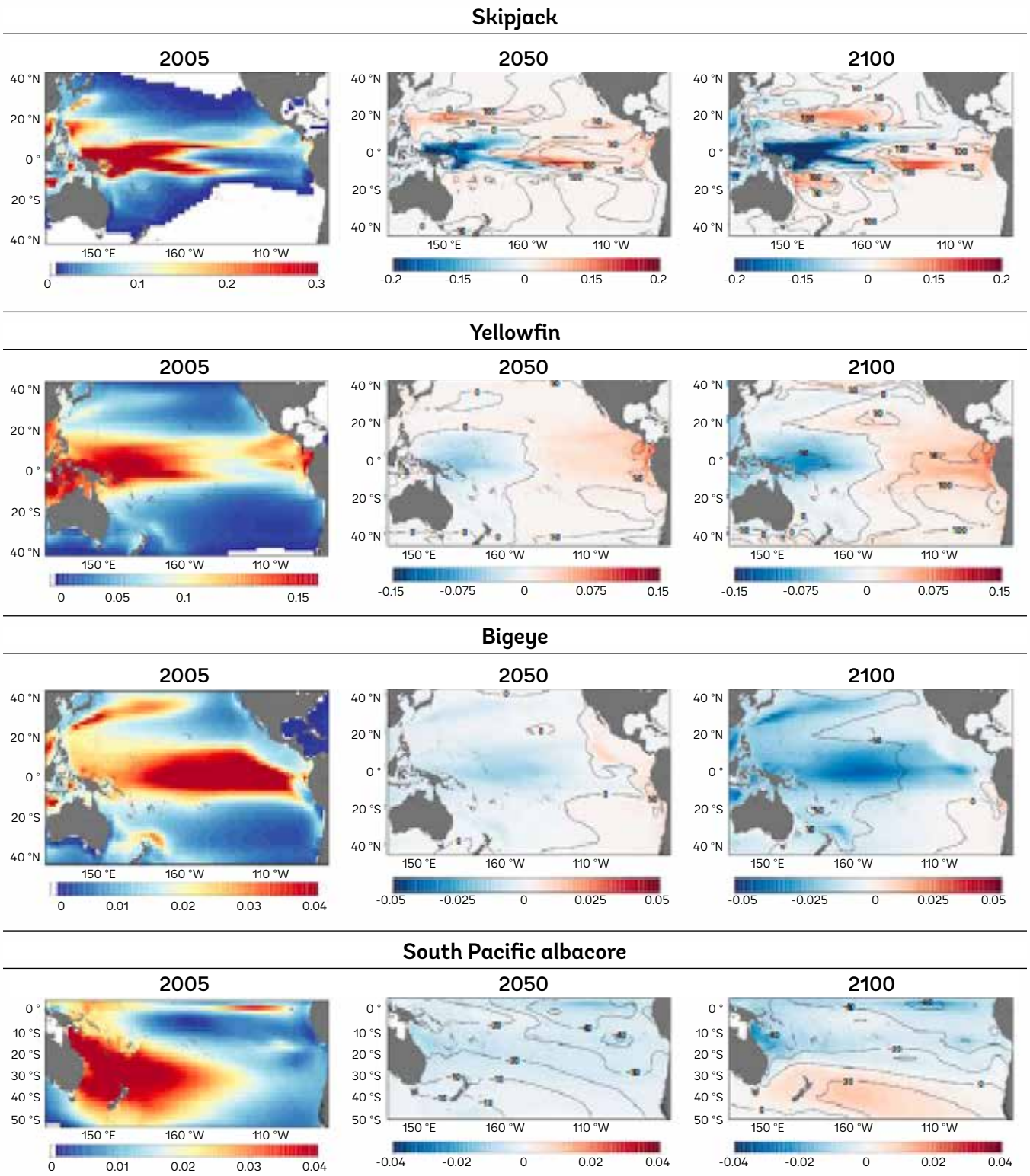
License fees from tuna fishing make a substantial contribution to the government revenues of many PICTs. Purse-seine fishing provides the vast majority of these important national economic benefits. Indeed, six PICTs derive approximately 30–100 percent of their government revenues from tuna fishing license fees.[49] Tuna fishing also makes significant contributions to the gross domestic product of Federated States of Micronesia and Marshall Islands. It also supports the employment of almost 25,000 people across the region, through jobs on fishing vessels, in fish processing operations, and in management of tuna fisheries. The tuna stocks that provide these economic and social benefits are in a healthy condition (that is, none of the tropical tuna species are overfished and overfishing is not occurring), due largely to strong management of purse-seine fishing in the EEZs of PICTs, particularly in the waters of the PNA.

Research and modelling done under the auspices of the SPC shows that in the period up to 2050 the relative abundance of skipjack and yellowfin tuna in the EEZs of PICTs west of 170E (for example, Federated States of Micronesia, Marshall Islands, Nauru, Palau, Papua New Guinea, and Solomon Islands) and in international waters (high seas) areas I1, I2 and H4 are projected to decline. However, the relative abundance of tuna species is expected to increase in the EEZs of most (but not all) PICTs east of 170 (for example, Cook Islands, Fiji, French Polynesia, Kiribati, Niue, Samoa, Tonga, and Vanuatu) and in all other high seas areas.[50]

[49] *Ibid.*, p. 4.

[50] SPC Division of Fisheries, Aquaculture and Marine Ecosystems, "Impact of climate change on tropical tuna species and tuna fisheries in Pacific Island waters and high seas areas: Modelling the effects of climate change on tuna abundance in areas beyond national jurisdiction" (December 2018), Information Paper 6003922 (CI-4), developed for Conservation International (CI) as part of the GEF-funded, World Bank implemented Ocean Partnerships for sustainable fisheries and biodiversity conservation (OPP), a subproject of the Common Oceans ABNJ Program led by UN-FAO., p. 3.

Figure 2. Average historical (2005) distributions of skipjack, yellowfin and bigeye tuna, and South Pacific albacore (Mt/km^2) in the tropical Pacific Ocean, and projected changes in biomass of each species relative to 2005 under the RCP8.5 emission scenario for 2050 and 2100, simulated using SEAPODYM.



Source: Western and Central Pacific Ocean marine fisheries in "Impacts of climate change on fisheries and aquaculture Synthesis of current knowledge, adaptation and mitigation options", FAO Fisheries and Aquaculture Technical Paper 627 (Rome: FAO, 2018), p. 313, Figure 14.4.

Figure 3. Projected changes in license revenue from the purse-seine fishery, in terms of value (USD) and as a percentage of all government revenue, in 2050 relative to 2016 due to the effects of climate change on the combined biomass of skipjack, yellowfin and bigeye tuna in the EEZ of 10 PICTs.

PICT (EEZ)	2016			Change (%) in combined biomass of SKJ, YFT & BET tuna by 2050	2050			Change 2016–2050	
	Total Govt. revenue (USD m)	Tuna licence fee revenue (USD m)*	Contribution of licence fees to total Gov't revenue (%)		Total Govt. revenue (USD m)	Tuna licence fee revenue (USD m)	Contribution of licence fees to total Gov't revenue (%)	Tuna licence fee revenue (USD m)	Contribution to total Gov't revenue (%)
EEZ west of 170E									
FSM	133.9	63.2	47.2	-26	117.6	46.9	39.9	-16.3	-7.3
Marshall Islands	64.7	29.2	45.1	-15	60.2	24.7	41.0	-4.5	-4.1
Nauru	56.0	27.8	49.6	-9	53.4	25.2	47.1	-2.6	-2.5
Palau	50.7	6.8	13.4	-24	49.1	5.2	10.6	-1.6	-2.8
Papua New Guniea	5366.7	128.8	2.4	-37	5319.0	81.1	1.5	-47.7	-0.9
Solomon Islands	411.9	41.6	10.1	-15	405.7	35.4	8.7	-6.2	-1.4
EEZ east of 170E									
Cook Islands	143.8	12.8	8.9	18	146.1	15.1	10.3	2.3	1.4
Kiribati	217.5	118.3	54.4	15	235.4	136.2	57.9	17.9	3.5
Tokelau	13.6	13.3	98.0	-8	12.5	12.3	97.8	-1.0	-0.2
Tuvalu	39.0	23.4	60.0	-9	37.0	21.4	57.8	-2.0	-2.2
Total		**465.2**			**403.5**				

Source: Pacific Islands Forum Fisheries Agency.

Atafu Atoll, Tokelau. Photo: World History Archive / Alamy Stock Photo

Part II

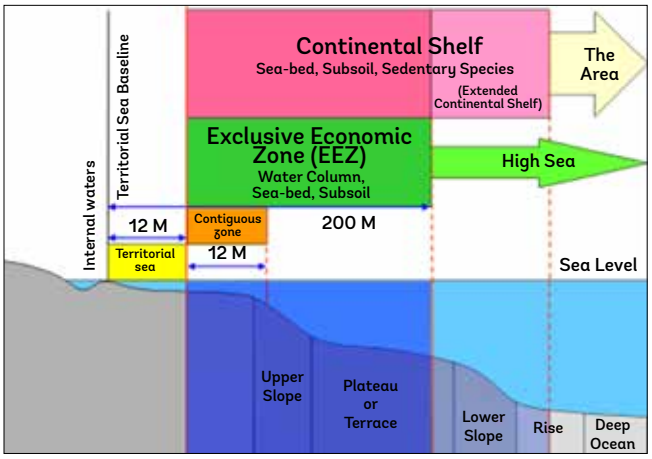
The Legal Regime Governing the Rights and Resources of Coastal and Island States in the Age of Climate Change and Sea Level Rise

1. 1982 UN Convention on the Law of the Sea

The 1982 UN Law of the Sea Convention (LOSC) has 320 Articles and nine Annexes; it was negotiated over nearly a decade (1973–82) and entered into force in 1994. It represents codification as well as progressive development of the law of the sea. Many of its innovative provisions are a carefully negotiated compromise between different States' interests.[51]

The legal regime for the determination of maritime zones, limits and boundaries is a mixture of pre-existing customary law rules and innovative new concepts, such as the regime for archipelagic States in Part IV of LOSC.

Figure 4. Coastal baseline and maritime zones stipulated under LOSC.



Source: Andi Arsana and Clive Schofield, *Manual on Technical Aspects of the Law of the Sea* (*TALOS Manual*), International Hydrographic Organization, Special Publication No.51, (Monaco: International Hydrographic Bureau, 2014), Figure 5.1.

The Coastal Baseline

The coastline is the starting point for the measurement of a coastal State's maritime zones. The "normal" baseline is "the low water line along the coast as marked on large scale charts officially recognized by the coastal State."[52] From this baseline can be measured the State's twelve nautical mile (nm) territorial sea, the outer boundary of which is a line "every point of which is [twelves miles] from the nearest point of the baseline…".

The contiguous zone stretches a further twelve nm seaward. In addition, the coastal State is entitled to claim an Exclusive Economic Zone (EEZ) out to 200 nm which gives it sovereign rights (although not full sovereignty) over the resources of the seabed and the superjacent waters.[53] If a coastal State has a continental shelf that extends beyond 200 nm from the baseline, it is also—subject to certain limitations—entitled to sovereign rights over those seabed resource of that shelf right to the outer edge of the continental margin.[54]

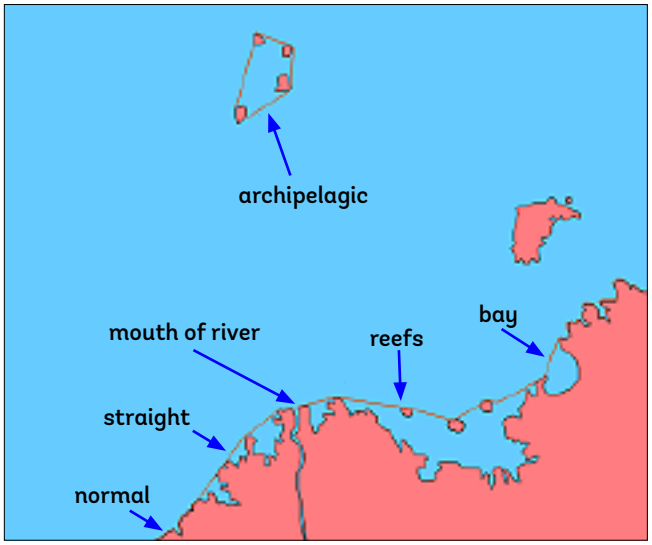
In the measurement of all these zones, the coastal baseline plays a crucial role, as it does with the delimitation of a State's maritime boundaries with its neighbors. In recognition of this, a coastal State that uses anything other than the "normal" low water line as its baseline must commission and publicize charts of an adequate scale to show its baselines, and submit them (or their geographical co-ordinates) to the Secretary-General of the United Nations (UNSG).[55] It is also obliged to publish, publicize and similarly submit charts or co-ordinates of any delimitation lines of any maritime boundary agreements with other States.[56]

There are few, if any, States that do not have a neighboring State whose own maritime zones abut it, either as an adjacent or opposite State. Where a State has an opposite or adjacent neighbor, the LOSC enjoins those States to reach agreement on the delimitation of a maritime boundary. For territorial sea boundaries between adjacent States or those less than 24 nm apart, there is a presumption of equidistance in that in the absence of historic title or special circumstances, no State may legitimately claim beyond a median line.[57] For other boundaries, however, there is an obligation to reach agreement based on international law to reach an "equitable solution."[58]

In the case of islands situated on atolls or having fringing reefs, the baseline may be drawn from the seaward low water line of the reef. Similarly, where an insular feature which is only above water at low tide—a low tide elevation (LTE)—is situated less than twelve nm from the mainland or an island—this may also be used as a basepoint.[59]

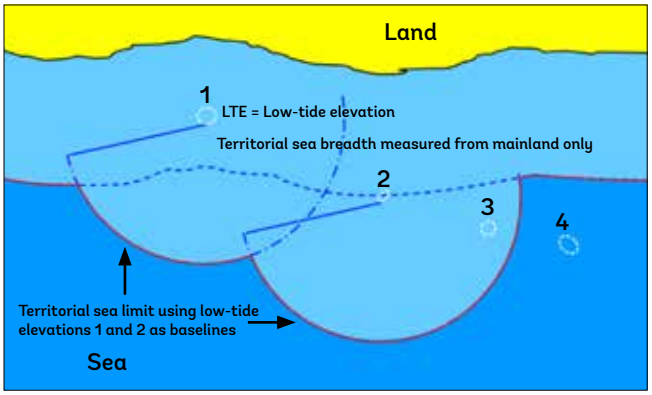
[51] The so-called "Package deal".
[52] LOSC, Art. 5.
[53] LOSC, Part V, Arts. 55-75.
[54] LOSC, Part VI, Arts. 76-85.
[55] LOSC, Art. 16.
[56] For boundaries in the territorial sea, LOSC, Art. 16. Also, for the EEZ, Art. 75 and continental shelf, Art. 84.
[57] LOSC, Art. 15.
[58] For EEZ, LOSC Art. 74; continental shelf, Art. 83.
[59] LOSC, Art. 13.

Figure 5. Illustration of types of baselines.



Source: Andi Arsana and Clive Schofield, *TALOS Manual* (2014).

Figure 6. LTEs and the generation of maritime zones.



Source: Andi Arsana and Clive Schofield, *TALOS Manual* (2014), Figure 4.4.
Note: LTEs 3 and 4 may not be used to define the baseline because they lie beyond the breadth of the Territorial Sea.

There are also specific rules regarding the drawing of baselines around ports,[60] across the mouths of rivers,[61] as well as detailed provisions regarding bays.[62] A coastal State's territorial sea may also be expanded beyond 12 miles to include "roadsteads"—areas normally used for the anchoring, loading, and unloading of ships.[63]

All the waters to the landward side of the baseline are the internal waters of the coastal States and subject to its full sovereignty. It is also possible in the case of coastlines which are deeply indented or cut into or fringed with islands in its immediate vicinity—like the coast of Norway—to draw straight baselines. These straight baselines must link mainland and island features and not depart appreciably from the direction of the coast. The sea areas within those lines must be sufficiently closely linked to the land to be subject to the regime of internal waters.

A provision that is however not widely relied upon is included in Article 7 of the LOSC on the drawing of straight baselines. It relates to situation where "because of the presence of a delta and other natural conditions [...] the coastline is highly unstable." In such situations, an appropriate point may be selected along the furthest seaward extent of the low water line and the straight baseline linking those points shall remain effective "notwithstanding the subsequent regression of the low-water line."

Archipelagic Baselines

The special regime for archipelagic States is drawn together for the first time by Part IV of the LOSC. It provides that a State constituted wholly by one or more archipelagos and other islands may claim archipelagic status. For the purposes of the LOSC, an archipelago is defined as "a group of islands, including parts of islands, interconnecting waters and other natural features which are so closely interrelated that such islands, waters and other natural features form an intrinsic geographical, economic and political entity, or which historically have been regarded as such."[64]

An archipelagic State "may draw straight archipelagic baselines joining the outermost points of the outermost islands and drying reefs of the archipelago" provided that the "main islands" of the archipelagic State are included within the archipelagic baseline system.[65] The requirements for the drawing of these straight archipelagic baselines are detailed and complex. The straight baselines linking the outermost islands and reefs must not depart to any appreciable extent from the configuration of the archipelago.[66] No single baseline segment

[60] LOSC, Art. 11.
[61] LOSC, Art. 9.
[62] LOSC, Art. 10.
[63] LOSC, Art. 12.
[64] LOSC, Art. 46.
[65] LOSC, Art. 47(1).
[66] It can be noted that although these rules appear to be reasonably strict, Prescott was of the view that "Three of the five tests are incapable of consistent objective interpretation." See, John R.V.

joining basepoints may normally be longer than 100 nm,[67] except that three percent of the total number of baseline segments enclosing an archipelago may exceed that up to 125 nm.[68] Finally, and perhaps most importantly, the ratio of water to land within the baselines of the archipelago must be between 1:1 and 9:1.[69]

This ratio requirement disqualifies immediately a number of big island States like the United Kingdom or Japan, which have too much land to meet the ratio, but it also means that some island groups which are made up of widely dispersed small islands may not have enough land to meet this ratio. For the purpose of computing the ratio of water to land, land areas may include waters lying within the fringing reefs of islands and atolls, including that part of a steep-sided oceanic plateau which is enclosed or nearly enclosed by a chain of limestone islands and drying reefs lying on the perimeter of the plateau.[70]

Maritime Boundaries

For many island States, some parts of the outer limits of their maritime zones will be adjacent to the high seas. In those cases, the coastal State must unilaterally delineate its outer boundaries in accordance with the LOSC rules[71] and submit maps or coordinates of those delineation lines to the UNSG.[72]

In the majority of situations, where the maritime zone abuts the maritime zone of another State, whether opposite or adjacent, the basic applicable principle is that the boundary should be concluded by agreement between the two States in accordance with international law.[73] Most boundaries are amicably agreed in this way. The treaty between the two States reflecting that agreement is technically only binding on the two States party, but because it delimits the areas of their respective sovereignty and/or sovereign rights, it must be respected by third States also.

In the event that agreement is not reached within a reasonable time, then it is possible to take advantage of the compulsory dispute settlement procedures set out in Part XV of the LOSC. Indeed, multiple cases have been brought before the International Court of Justice (ICJ), the International Tribunal for the Law of the Sea (ITLOS) and also arbitral tribunals established under the procedure in Annex VII.

The compulsory dispute procedure in Part XV works in the following way. Article 287 provides that when a State becomes a party to the LOSC it may, if it wishes, choose one or more methods of dispute settlement set out in that article, namely submission to:

a) ITLOS

b) The ICJ

c) An arbitral tribunal established under Annex VII

d) A special tribunal under Annex VIII (for certain types of disputes).

If a dispute subsequently arises and if both States have chosen a similar method of dispute settlement, then one State may bring proceedings using that procedure. If there is no commonality, the LOSC provides for the use of an arbitral tribunal under Annex VII, unless the parties agree to another procedure.[74] States may unilaterally elect to exclude disputes relating to maritime boundaries from this procedure, in which case any subsequent dispute goes to obligatory conciliation, under Annex V, if no other settlement procedure is agreed. [75] This was recently used for the first time regarding the maritime boundary dispute between Australia and Timor Leste under the auspices of the Permanent Court of Arbitration.[76]

Prescott, "Straight and Archipelagic Baselines", in Gerald H. Blake (ed.), *Maritime Boundaries and Ocean Resources*, (Beckenham: Croom Helm, 1987), Chap. 3, p.46. For a more detailed analysis of navigational issues related to archipelagic baselines and archipelagic waters see, Martin B. Tsamenyi, Clive H. Schofield and Ben Milligan, "Navigation through Archipelagos: Current State Practice", pp. 413-454 in Myron H. Nordquist, Tommy B. Koh, and John N. Moore, eds, *Freedom of the Seas, Passage Rights and the 1982 Law of the Sea Convention* (Martinus Nijhoff, 2008).

67 LOSC, Art. 47(2).

68 It is worth noting that as it is the coastal State that constructs the archipelagic baseline system and as there is no restriction on the number of baselines that an archipelagic State might draw, it is usually possible to adjust the baseline system to overcome the no more than three per cent of baseline segments exceeding 100 nm in length restriction and thus conform to the LOSC requirements. See, United Nations Division for Ocean Affairs and the Law of the Sea, *Handbook on the Delimitation of Maritime Boundaries*, (United Nations, 2000) at p. 8.

69 LOSC, Art. 47(1).

70 LOSC, Art. 47(7).

71 Concerning Territorial Sea, EEZ and Continental Shelf.

72 LOSC, Arts. 16, 74 and 83.

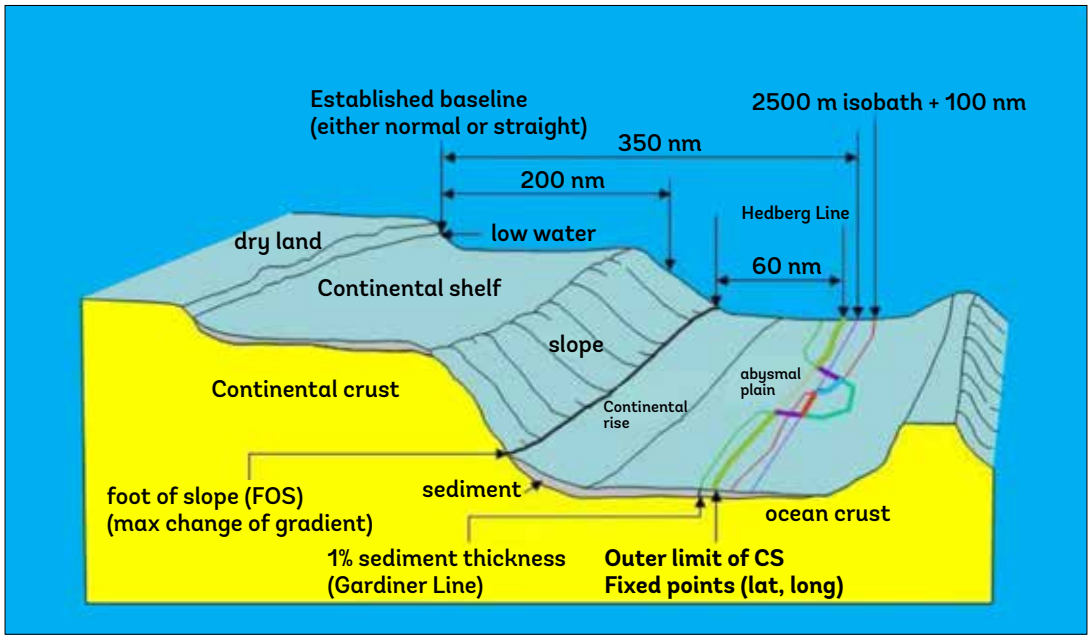
73 LOSC, Arts. 75 and 84.

74 LOSC, Art. 287(5).

75 LOSC, Art. 298.

76 In the *Matter of the Marine Boundary between Timor-Leste and Australia* (*Timor Sea* conciliation), PCA Case no. 2016-10, before a Conciliation Commission constituted under Annex V to the 1982 United Nations Convention on the Law of the Sea between the Democratic Republic of Timor-Leste and the Commonwealth of Australia. The Report and Recommendations of the Compulsory

Figure 7. Definition of the outer limits of the continental shelf.



Source: Andi Arsana and Clive Schofield, *TALOS Manual* (2014), Figure 5.12.

Commission on the Limits of the Continental Shelf

All coastal States are entitled to the seabed resources of their continental shelf, which is understood as the natural prolongation of their land territory to the edge of the continental margin or to a distance of 200 nm from their coastal baseline if the continental margin does not extend to that distance.

The ocean beyond the 200 nm line is high seas and beneath the high seas, the seabed, ocean floor and subsoil thereof is classified by the LOSC as "the Area."[77] The Area and its mineral resources are the "common heritage of mankind"[78] on whose behalf the International Seabed Authority[79] regulates the exploration and exploitation of these resources.[80] However, in situations where the edge of the continental margin of a coastal State extends beyond 200 nm from the baseline, it is important to have a method to determine the proper extent of the coastal State's sovereign rights and the beginning of "the Area". In Article 76, the LOSC lays down complex methods for calculating that edge of the margin.[81]

Recognizing the complexity, the LOSC also provides a technical mechanism to ensure that lines have been correctly drawn. Where a coastal State claims such an extended continental shelf, it has primary responsibility for delineating the outer limits of that shelf by straight lines, not exceeding 60 nm in length connecting fixed points defined by coordinates of latitude and longitude. The coastal State must then submit its proposed delineation line, with background information, to the Commission on the Limits of the Continental Shelf (CLCS) which reviews it in the light of the LOSC requirements and may make "recommendation" to the coastal State on its proposed delineation line.[82] The coastal State may then submit revised proposals reflecting the recommendations of the CLCS. If the coastal State follows the recommendation of the CLCS, then the limits that it establishes are "final and binding."[83] This means that they are also binding on other States.

Conciliation Commission between Timor-Leste and Australia on the Timor Sea (TSCR), 9 May 2018, available at https://pcacases.com/web/view/132.

77 LOSC, Art. 1(1).

78 LOSC, Art. 136.

79 LOSC, Art. 1(2).

80 LOSC, Art. 137. The International Seabed Authority (ISA) is mandated under the LOSC to "organize, regulate and control all mineral-related activities in the international seabed area for the benefit of mankind as a whole." ISA is based in Kingston, Jamaica. For further details, see: https://www.isa.org.jm/

81 LOSC, Art. 76(4).

82 LOSC, Art. 76(8).

83 LOSC, Art. 76(8).

Competent International Organizations

The LOSC established the International Seabed Authority (ISA), the ITLOS and the CLCS. It also recognizes the important regulatory functions of other bodies that it terms "competent international organizations." These include sectoral organizations such as the International Maritime Organization (IMO)[84] and fisheries management bodies at global, regional, and sub-regional level.[85]

The global fisheries body, the Food and Agriculture Organization of the UN (FAO), oversees a network of regional general fisheries (that is, not tuna) bodies—some with management authority and some that are purely advisory. Despite recent efforts to develop a comprehensive network of regional management regimes, there are still gaps, such as the Southwest Atlantic or the North Atlantic south of 35°N.[86]

A relative latecomer to this network of regional general fisheries bodies is the South Pacific Regional Fisheries Management Organization (SPRFMO) established in November 2009.[87] The main commercial resources fished in the SPRFMO Area are jack mackerel and jumbo flying squid in the Southeast Pacific and, to a much lesser degree, deep-sea species often associated with seamounts in the Southwest Pacific.[88]

There is, however, a comprehensive network of five RFMOs managing tuna and tuna-like species. These are: Inter-American Tropical Tuna Commission (IATTC, which dates from 1949); International Commission for the Conservation of Atlantic Tunas (ICCAT, 1966); Indian Ocean Tuna Commission (IOTC, 1993); and most recently, the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC, 2000).[89]

Regional Fisheries Bodies in the Pacific

Against this background, the South Pacific region has a number of fisheries management bodies and it is well established that its tuna stocks are the healthiest and best managed in the world.[90]

The Pacific Island Forum Fisheries Agency (FFA) was established in 1979, under the auspices of the South Pacific Forum (SPF) to help the 17 Pacific island member countries to sustainably manage their fishery resources that fall within their 200-mile EEZs.[91] FFA is an advisory body providing expertise, technical assistance, and other support to its members who make sovereign decisions about their tuna resources and participate in regional decision making on tuna management, including WCPFC.

Eight FFA members are also parties to the 1982 Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest, (Nauru Agreement or PNA) that controls the world's largest sustainable tuna purse-seine fishery.[92] The focus of PNA efforts to sustainably manage tuna is the Vessel Day Scheme (VDS). PNA members agree on a limited number of fishing days for the year, based on scientific advice about the status of the tuna stocks. Fishing days are then allocated by country and sold to the highest bidder. Many PNA conservation measures are world firsts—such as high seas closures to fishing, controls on Fish Aggregating Devices (FADs), protection for whale sharks, and the 100 percent coverage of purse-seine fishing vessels with observers. No dolphins are caught in PNA waters and the PNA is actively involved in limiting bycatch of other species.[93]

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84 LOSC, Art. 197.

85 LOSC, Art. 119(2).

86 There is a current effort to upgrade the Western and Central Atlantic Fishers Commission (WECAFC) from an advisory to a management body.

87 Established by the Convention on the Conservation and Management of the High Seas Fishery Resources of the South Pacific Ocean (2015), published by the South Pacific Regional Fisheries Management Organization (SPRFMO), available at: https://www.sprfmo.int/assets/Basic-Documents/Convention-web-12-Feb-2018.pdf It is an inter-governmental organization committed to the long-term conservation and sustainable use of the fishery resources of the South Pacific Ocean and in so doing safeguarding the marine ecosystems in which the resources occur.

88 Fifteen members from Asia, Europe, the Americas, and Oceania: Australia, Chile, People's Republic of China, Cook Islands, Cuba, Ecuador, European Union, Denmark in respect of the Faroe Islands, Republic of Korea, New Zealand, Peru, Russian Federation, Chinese Taipei, United States of America, and Vanuatu. Cooperating non-Contracting Parties (CNCPs) are: Curaçao, Republic of Liberia, and Republic of Panama.

89 Established by the Convention opened for signature at Honolulu in September 2000, which entered into force on 19 June 2004. The Convention was the first regional tuna fisheries agreement to be adopted after the conclusion of the 1995 UN Fish Stocks Agreement (UNFSA), and it reflects its requirements. It has 26 parties, seven participating territories and eight co-operating non-members.

90 See above.

91 Members: Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, and Vanuatu.

92 Members are Federated States of Micronesia, Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea, Solomon Islands, and Tuvalu.

93 Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Stocks (as amended in April 2010), available at: https://www.pnatuna.com/content/nauru-agreement.

2. 1992 UN Framework Convention on Climate Change and the 2015 Paris Agreement

The UN Framework Convention on Climate Change (UNFCCC)[94] was signed in 1992 at the UN Conference of Environment and Development (UNCED),[95] and came into force in 1994. With currently 197 parties, it has near-universal membership. Its negotiation was prompted by the publication of the first IPCC Assessment report in 1990 and it is based on the twin principles of precaution and common but differentiated responsibility. Its overarching objective is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".[96] Its institutional framework includes: the Conference of the Parties (COP); a secretariat and two subsidiary bodies; the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA); and the Subsidiary Body for Implementation (SBI). Implementation is supported by a dedicated financial mechanism.

General Obligations

Annex I of the UNFCCC lists the developed countries and the transition economy countries that are obliged by Article 3(1) to take the lead in combatting climate change and the obligations of the contracting Parties are differentiated in Article 4. Annex I countries have reporting and policy development obligations, whereas the reporting and other obligations of Non-Annex I countries are dependent on the provision of financing and technical assistance by the developed countries (listed in Annex II).[97] The 1997 Kyoto Protocol[98] clarified the obligations of Annex I countries with more precision requiring them to reduce their Greenhouse Gas (GHG) emissions by an average of 5.2 percent between 2008 and 2012.[99] Non-Annex I parties had no GHG reduction obligations, even though a number of emerging economies had already started to become major GHG emitters.[100]

The 2015 Paris Agreement

The 2015 Paris Agreement[101] replaces the "top down" approach of the Kyoto Protocol, with a "bottom up" approach, where all the contracting Parties, whether Annex I or not, agree to undertake and communicate their own Nationally Determined Contribution (NDC) reflecting their efforts to reduce national GHG emissions and to adapt to the impacts of climate change. To date, 189 of the 197 Parties to the UNFCCC have ratified the Paris Agreement. The Paris Agreement is a treaty under the UNFCCC, with the same institutions, however the Parties to the Paris Agreement also agree to the following specific objectives:

a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.

b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low GHG emissions development, in a manner that does not threaten food production.

c) Making finance flows consistent with a pathway towards low GHG emissions and climate-resilient development.

Nationally Determined Contributions

To achieve those goals, Article 4(2) of the Paris Agreement provides that "Each Party *shall* prepare, communicate and maintain successive nationally determined contributions that it intends to achieve" (emphasis added). So, each Party has the discretion to decide the content of its NDC, but it is obliged to make such a de-

[94] United Nations Framework Convention on Climate Change (UNFCCC), 1771 U.N.T.S. 107, 165 (May 9, 1992).

[95] Together with the Convention on Biological Diversity and the Convention to Combat desertification, one of the so-called Rio Conventions.

[96] UNFCCC, Art. 2. IPCC AR5 lays out "Reasons for Concern (RFCs)", see, IPCC, Climate Change 2014: Synthesis Report (2014), *Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Core Writing Team, R.K. Pachauri and L.A. Meyer [eds.]) at pp. 72-73.

[97] UNFCCC, Art 4(7).

[98] Kyoto Protocol to the United Nations Framework Convention on Climate Change, U.N. Doc FCCC/CP/1997/7/Add.1 (Dec. 10, 1997).

[99] Specific country commitments are set out in Annex B of the Kyoto Protocol.

[100] The Doha Amendment signed in Qatar in 2012 created a second commitment period under the Kyoto Protocol for 37 Annex I countries to cut their GHG emissions collectively by at least 18% below 1990 levels from 2013 to 2020. In October 2020, Nigeria became the 144th country to ratify the Doha Amendment, ensuring that it would come into force on the day it expired at the end of 2020. This entry into force, despite having some implications for carbon accounting, is largely symbolic.

[101] UNFCCC COP, Adoption of the Paris Agreement, Decision 1/CP.21, in COP Report No. 21, Addendum, at 2, U.N. Doc. FCCC/CP/2015/10/Add.1 (Jan. 29, 2016).

termination and communicate it. In addition, the Paris Agreement imposes strong procedural obligations to operationalize NDCs. Under the Paris Agreement, each Party is required to:

a) Provide the information necessary for clarity, transparency and understanding, in communicating its NDCs (Article 4[8]).

b) Communicate a successive NDC every five years (Article 4[9]).

c) Account for its NDCs to avoid double counting and promote environmental integrity and transparency (Article 4[13]).

d) Provide a national GHG inventory and the information necessary to track progress in implementing and achieving its NDCs (Article 13[7]).

Each Party commits to review their own NDC at least every five years in order to increase its "ambition" and commits that successive NDC will represent a "…progression beyond the Party's then current [NDC] and reflect its highest possible ambition."[102]

Even though the Paris Agreement sets out these requirements for all Parties, it recognizes the Parties' common but differentiated responsibilities and respective capabilities, in light of different national circumstances. It recognizes that developing countries will need financial, technological and capacity-building support to implement their commitments under the Paris Agreement.[103] Regarding mitigation actions envisaged in NDCs, there is a special provision for the least developed countries (LDCs) and SIDS who "may prepare and communicate strategies, plans and actions for low [GHG] emissions development reflecting their special circumstances."[104]

Adaptation Provisions

Adaptation receives clearer focus under the Paris Agreement. Parties to the Paris Agreement also commit to undertake and communicate ambitious efforts on adaptation.[105] The Paris Agreement requires all Parties to "engage in adaptation planning processes and the implementation of actions" as appropriate.[106] Parties are encouraged to submit and periodically update their adaptation communication describing their priorities, needs, plans, and actions.[107] Parties can plan and communicate their adaptation efforts through National Adaptation Plans (NAPs), NDCs, or other national communication tools.

Loss and Damage

Loss and damage is now integrated into the text of the Paris Agreement, as the Warsaw International Mechanism for Loss and Damage (WIM) agreed in 2013 is now incorporated into Article 8, but the Parties' obligations are only of a cooperative and facilitative nature, without any legal or financial obligations. The Paris Agreement recognizes the importance of averting, minimizing, and addressing loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events, and the role of sustainable development in reducing the risk of loss and damage.

Transparency Framework

The measurement, reporting, and verification (MRV) framework under the UNFCCC and Kyoto Protocol has evolved over time. The Paris Agreement now provides that Parties must regularly share a national inventory report of GHG emissions and information necessary to track progress in implementing and achieving NDCs and "should" provide information related to adaptation action.[108] The enhanced transparency framework also covers climate finance, technology development, and capacity-building.[109]

Finance

The UNFCCC already imposes a broad collective financial obligation on developed country Parties, requiring them to provide financial support for developing countries to implement their commitments. Similarly, the Paris Agreement obliges developed country Parties to provide financial support to developing country Parties with respect to mitigation and adaptation, while other Parties are "encouraged to provide" such support voluntarily.[110]

[102] Paris Agreement (PA), Art 4(3).
[103] PA, Art 3 and Art 4(3)-(5).
[104] PA, Art. 4(6).
[105] PA, Art 3 and Art 7. Art. 3 states "As nationally determined contributions to the global response to climate change, all Parties are to undertake and communicate ambitious efforts as defined in Articles 4, 7, 9, 10, 11 and 13 with the view to achieving the purpose of this Agreement as set out in Article 2 […]".
[106] PA, Art. 7(9).
[107] PA, Art. 7(10).
[108] PA, Art. 13.
[109] Developed country Parties "shall" and other Parties that provide support "should" provide information on these aspects.
[110] See, in general, PA, Art. 9.

Other Entry Points for International Cooperation

In addition to finance, Parties to the Paris Agreement are required to strengthen international cooperative action on technology development and transfer. All Parties are encouraged to cooperate to increase the capacity of developing countries, so that they are able to implement their obligations under the Paris Agreement and developed countries are urged to increase their support in that regard.

Finally, in implementing their obligations, Parties may pursue voluntary cooperation under Article 6 of the Paris Agreement, which sets out three mechanisms including (i) voluntary cooperation approaches under Article 6(2), (ii) the "sustainable development mechanism" under Article 6(4), and (iii) non-market approaches under Article 6(8). However, details and operating rules need to be fleshed out further to fully operationalize these mechanisms.

Paris Rulebook and Following Developments

In 2018 at UNFCCC COP 24, the Parties agreed on detailed rules and procedures for implementing the Paris Agreement and adopted the Paris Agreement Work Program, the so-called "Katowice Climate Package" or "Paris Rulebook."[111] The Parties agreed on various critical issues concerning the modalities of mitigation and NDCs, the transparency framework, adaptation, finance, the global stock take, and compliance. However, COP 24 still left a number of important issues to be resolved. In particular, the Parties were unable to agree on various critical issues including Article 6,[112] reporting requirements for transparency and common timeframes for climate pledges, and efforts to review and strengthen loss and damage mechanism, which are pending to be resolved during the upcoming COPs.

[111] The full set of decisions agreed to in Katowice is available at 'Katowice Climate Package' (UNFCCC) https://unfccc.int/process-and-meetings/the-paris-agreement/paris-agreement-work-programme/katowice-climate-package.

[112] Some of the most contentious issues included accounting rules to avoid double-counting, "corresponding adjustments" to international carbon trading under Art. 6(4), modalities for transitioning from CDM and CERs, whether or not to allow "share of proceeds" to fund adaptation under Art. 6(2).

3. Legal Aspects of Statehood

States are the primary subjects of international law possessing international legal personality, in the same way that individuals are the primary subjects of national law and possess legal personality under national law. Just as national laws recognize other legal entities with slightly different legal powers—such as companies, partnerships, charities, or even, in some countries, animals and nature in general; so international law also recognizes to different extents a range of non-state actors, such as international organizations,[113] and other entities including corporations, non-governmental organizations, and individuals.[114]

The main capacities associated with statehood under international law include the capacity to enter into binding international agreements, being subject to rights and obligations under international law, and the ability to make claims before international or national courts. It also includes the ability to become a member of the United Nations and other international organizations.

Although States are the primary subjects of international law, the requirements for statehood are difficult to define precisely.[115] They were described in a regional treaty concluded under the auspices of the Organization of American States (OAS) dating back to 1933: The Montevideo Convention on the Rights and Duties of States.[116] Article 1 of that Convention provides that:

[113] The International Court of Justice (ICJ), in 1949, concluded that United Nations is a subject of international law "capable of possessing international rights and duties and that it has the capacity to maintain its rights by bringing international claims." R*eparation for Injuries Suffered in the Service of the United Nations*, Advisory Opinion, (April 1949) I.C.J. No. 174. However, international legal personality differs among different international organizations depending on a number of factors including principally the competencies bestowed by the constituent instrument of the organization. See also, *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, (1996) I.C.J. GL No. 95.

[114] As opposed to States, other entities benefit from different degrees of legal personality and recognition from States. The rights and obligations of other entities will depend on various considerations that need to be determined on a case-by-case basis.

[115] In general, see James Crawford, *The Creation of States in International Law* (2nd edn., Oxford University Press, 2006) pp. 37-45.

[116] The Montevideo Convention on the Rights and Duties of States (adopted 26 December 1933, entered into force 26 December 1934) 165 LTNS 19. The Montevideo Convention has sixteen ratifications including Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, United States of America, Venezuela.

The State as a person of international law should possess the following qualifications:

a) A permanent population

b) A defined territory

c) Government

d) Capacity to enter into relations with other states.

The Montevideo requirements are generally taken to represent customary international law,[117] however it is clear that over recent history, a number of entities have been granted recognition as States without fulfilling all these criteria and that a number of entities that appear to fulfill the physical requirements have not achieved the international recognition required from other States. A key indicator of the capacity of an entity to enter into relation with other States is the willingness of other States to recognize that entity as having the capacity to do this. In turn, an important way in which the international community as a whole has exercised its recognition of this capacity since 1945 has been through its acceptance of an application to join the United Nations.

Generally speaking, a "defined territory" is accepted as a significant constituent of statehood even though what the term exactly means is subject to scholarly debate. Definitively settled borders are not a prerequisite for a defined territory. Moreover, the concept of territory includes "islands, islets, rocks, and reefs."[118] Presumably, even a very small amount of territory would be adequate to meet that criterion. A "permanent population" is the second element supporting the formation of statehood; again, it is not entirely settled what "permanent" in this context really means. In general, there is no minimum number necessary to meet this population criterion but "permanent population" usually refers to maintaining a "reasonably stable" population[119] though there is no quantitative or qualitative test available. Nationality is also not required to satisfy the "permanent population" requirement.[120] In the case of sea level rise, the "permanence" of a population might be threatened through wide-scale community relocation and migration.

In addition to the defined territory and permanent population criteria, "government" is usually accepted as one of the most crucial elements. Scholars argue that the territory element could be considered as "a constituent of government and independence rather than a distinct criterion of its own."[121] Though, there have been various situations where statehood has been accepted as present even when an "effective government" was absent.[122] The fourth element is "the capacity to enter into relations with other States", which is generally understood to include the maintenance of diplomatic relationships, the ability to sign treaties, and to abide by international obligations. This element lies at the intersection of independence and effectiveness of a government. In fact, many scholars emphasize "independence" as the determining element for statehood.[123]

Although the criteria for statehood inform when and how statehood may be created and may cease to exist, international law does not provide clear cut answers to those questions. International law addresses the various ways a State can become extinct including through merger, ab-

[117] Additional requirements have been considered at times. See, in general, Ian Brownlie, *Principles of Public International Law* (7th edn., Oxford University Press, 2008) pp. 70-76.

[118] See, *ibid.*, p. 105.

[119] Lowe, Vaughan. 2007. *International Law.* Oxford University Press, p. 154. Lowe's analysis may provide some insight on this issue: "There may be some point at which the international community would draw the line. For example, if the Pitcairn Islands (population, 45) were to become independent and seek admission to the United Nations, States might re-examine the relationship between the principle of sovereign equality and common sense. *The population must be reasonably stable.* They may wander around within the country, like the nomadic people of the Western Sahara, but they must *have some degree of social cohesion; a transient, dissociated population* (such as the groups of fisherfolk who reside on certain otherwise unoccupied islands on a seasonal basis) *is not enough*" (emphasis added).

[120] Crawford concludes "nationality is accepted to be within the realm dependent upon statehood, not vice versa." See, p. 52. In the *Nottebohm case* that has been the subject of ongoing controversy among scholars and adjudicators, the ICJ concluded that issues relating to nationality are generally accepted to be within the domain of the granting State: "[N]ationality is a legal bond having as its basis a social fact of attachment, *a genuine connection of existence*, interests and sentiments, together with the existence of reciprocal rights and duties. It may be said to constitute the juridical expression of the fact that the individual … is in fact more closely connected with the population of the State conferring nationality than with that of any other State." See, *Nottebohm Case* (Second Phase), I.C.J. Rep 1955 p. 4, 23.

[121] See, Crawford, p. 52.

[122] Crawford analyzes the concept of "effective government" through the illustration of the former Belgian Congo that was granted independence in 1960 as the Republic of the Congo (now, the Democratic Republic of Congo), Rwanda, Burundi and other cases of "premature independence." He concludes: "[S]tatehood is not simply a factual situation. It is a legally circumscribed claim of right, specifically to the competence to govern a certain territory. Whether that claim of right is justified as such depends both on the facts and on whether it is disputed. Like other territorial rights, government as a precondition for statehood is thus, beyond a certain point, relative. But it is not entirely so: each State is an original foundation predicated on a certain basic independence." See, in general, pp. 56-61.

[123] See, Crawford, p. 89 and Brownlie, p. 71.

sorption, or dissolution and provides some treaty-based solutions in respect to succession.[124] However, cessation of statehood in the context of sea level rise is unprecedented and is a notion which traditional international law has never had to contemplate. Therefore, drawing analogies based on existing examples and anomalies is particularly difficult and the examples may even be ill-suited.[125] Such a scenario is to date not clearly addressed by international law even though it has been subject to an extensive ongoing debate among scholars.[126]

4. Legal Framework for Human Mobility in the Context of Climate Change

As sea level rise threatens access to land, livelihoods, food security, and wellbeing for vulnerable communities, climate change may induce or exacerbate human mobility by interacting with other risk elements such as poverty, violence, and conflict.[127]

It needs to be highlighted at the outset that the term "climate refugee" is inappropriate; indeed, its use has been denounced widely, even drawing criticism from the UN Refugee Agency.[128] "Refugee" has a specific meaning in international law and is defined as a person "owing to well-founded fear of being persecuted *for reasons of race, religion, nationality, membership of a particular social group or political opinion*, is outside the country of his nationality and is unable, or owing to such fear, is unwilling to avail himself of the protection of that country… (emphasis added)."[129] This definition does not include people who leave their home States for climate-related reasons. Although there is as yet no internationally agreed term to cover such situations, the widely accepted umbrella term is "human mobility in the context of climate change", which generally refers to three movement patterns including displacement (forced movement of persons), migration (defined as voluntary movement of persons), and planned relocation (physical process of moving persons or groups of persons to a new location whether voluntary or involuntary).[130] It is important to note, however, that differentiating between "voluntary" and "forced" in this context is often difficult due to the complexity of the issues involved and the fact that affected people may be driven by various factors.[131]

Relevant Legal Frameworks in General

Climate change threatens the enjoyment of a wide range of substantive and procedural human rights, either directly or indirectly.[132] These include, in particular, the

[124] Vienna Convention on the Succession of States in respect of Treaties (adopted 23 August 1978, entered into force 6 November 1996) 1946 UNTS 3 (with 19 Signatories and 23 Parties) and Vienna Convention on the Succession of States in respect of State Property, Archives, and Debts (opened for signature 8 April 1983, not yet in force) Doc. A/CONF.117/14.

[125] Vidas, Davor. 2014. "Sea-Level Rise and International Law: At the Convergence of Two Epochs." *Climate Law* Vol. 4, pp. 70-84, at 78.

[126] See, e.g., Jane McAdam "'Disappearing states', statelessness and the boundaries of international law" *Climate Change and Displacement: Multidisciplinary Perspectives* (Hart, 2010) ed. Jane McAdam; Rosemary Rayfuse, "W(h)ither Tuvalu? International Law and Disappearing States" (June 2009), UNSW Law Research Paper No. 2009-9; Rosemary Rayfuse, "International law and disappearing states: utilising maritime entitlements to overcome the statehood dilemma" (2010) UNSW Law Research Paper No. 2010-52; Jenny Grote Stoutenburg, "When Do States Disappear? Thresholds of Effective Statehood and the Continued Recognition of "Deterritorialized" Island States" (2013) in Michael Gerrard and Gregory Wannier, eds, *Threatened Island Nations: Legal Implications of Rising Seas and a Changing Climate*; and Alejandra Torres Camprubí, *Statehood under water: Challenges of sea-level rise to the continuity of Pacific Island States* (Brill, 2016).

[127] McAdam, Jane and Sanjula Weerasinghe. 2020. "Climate change and human movement." *Climate Change, Justice and Human Rights*, Amnesty International Netherlands (edited by David Ismangil, Karen van der Schaaf & Lars van Troost). See, also, Kanta K. Rigaud, Alex de Sherbinin, et al., Groundswell: Preparing for Internal Climate Migration (2018), the World Bank. The report acknowledges migration as "human face of climate change" and highlights that unless urgent action is taken, over 140 million people will internally migrate by 2050 only in Sub-Saharan Africa, South Asia, and Latin America.

[128] See, UNHCR, Climate change and disaster displacement, available at: https://www.unhcr.org/en-us/climate-change-and-disasters.html For a general analysis, see Walter Kälin, Conceptualizing Climate-Induced Displacement, *Climate Change and Displacement: Multidisciplinary Perspectives* (Hart, 2010) ed. Jane McAdam, pp. 81-103.

[129] Convention relating to the Status of Refugees (adopted 28 July 1951, entered into force 22 April 1954) 189 UNTS 137 (Refugee Convention), Article 1A (2).

[130] See, in general, Platform on Disaster Displacement, Key Definitions, available at: https://disasterdisplacement.org/the-platform/key-definitions

[131] Kälin, Walter and Nina Schrepfer. 2012. "Protecting People Crossing Borders in the Context of Climate Change: Normative Gaps and Possible Approaches." UNHCR Legal and Protection Policy Research Series, PPLA/2012/01.

[132] The Preamble of the Paris Agreement recognizes the linkages between climate change and human rights providing that "Parties should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity." These interlinkages are well documented by a variety of instruments at the UN level and elsewhere. See, in particular,

rights to life, health, water, food, adequate housing, self-determination, culture, and development as well as procedural rights such as rights to access to information, participate in decision-making, and access to justice.[133] These negative impacts present themselves asymmetrically with heightened effects on vulnerable groups such as women, children, the elderly, and indigenous or other traditional communities with special dependency on and attachment to land.[134] Though these impacts do not automatically mean that a State will be held legally responsible for violating relevant obligations under international human rights law,[135] there is a growing body of case law—including through climate litigation—affirming that States' human rights obligations in this context include protecting people from foreseeable harm emanating from the impacts of climate change irrespective of a State's contribution to anthropogenic climate change.[136]

In general, as a reflection of the principle of State sovereignty and territorial integrity, States have the primary duty to provide protection and humanitarian assistance to persons affected by natural disasters and similar emergency situations within their jurisdiction or control.[137] States' existing obligations to respect, protect, and fulfil human rights under international and regional human rights law are applicable to all individuals subject to their jurisdiction, irrespective of these individuals' citizenship status.[138] In complementing a State's duty to protect, the international community as a whole bears a duty to cooperate with countries affected by sea level rise.[139] Cooperation in the context of interna-

United Nations Human Rights Council (HRC) Resolution No. 41/21, "Human rights and climate change" (12 July 2019), UN Doc A/HRC/RES/41/21; Office of the High Commissioner for Human Rights (OHCHR), "Mapping Human Rights Obligations relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment: Focus Report on Human Rights and Climate Change" (June 2014); OHCHR Report on the Relationship between Climate Change and Human Rights (15 January 2009), UN Doc. A/HRC/10/61. For an insightful treatment of the issue, see also, Siobhán McInerney-Lankford, Mac Darrow, and Lavanya Rajamani, *Human Rights and Climate Change: A Review of the International Legal Dimensions* (The World Bank Group, 2011). For further analysis on relevant aspects pertaining to slow onset events, see OHCHR, "The Slow onset effects of climate change and human rights protection for cross-border migrants" (22 March 2018), UN Doc A/HRC/37/CRP.4. See also, Jane McAdam, Bruce Burson, Walter Kälin and Sanjula Weerasinghe, "International Law and Sea-Level Rise: Forced Migration and Human Rights" (January 2016), report prepared by the Fridtjof Nansens Institutt in cooperation with the Andrew & Renata Kaldor Centre for International Refugee Law, University of New South Wales, FNI Report 1/2016.

[133] *Ibid.* For procedural rights, in particular, see also, Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (adopted 25 June 1998, entered into force 30 October 2001) 447 UNTS 2161.

[134] In addition to the sources listed above, see, HRC, Report of the Special Rapporteur on extreme poverty and human Rights: Climate change and poverty (17 July 2019), UN Doc. A/HRC/41/39; OHCHR Report: Analytical study on the promotion and protection of the rights of persons with disabilities in the context of climate change (22 April 2020), UN Doc. A/HRC/44/30; and OHCHR Report: Analytical study on gender-responsive climate action for the full and effective enjoyment of the rights of women (1 May 2019), UN Doc. A/HRC/41/26.

[135] Defining States' human rights obligations in the context of climate change as well as enforcing them have demonstrated multiple challenges. As of today, there is still no consensus on the scope of these obligations in the context of climate change. Challenges include not only determining causality and attributing relevant harm to specific duty-bearers but also challenges deriving from transnational impacts and intergenerational nature of climate change. The Advisory Opinion issued by the Inter-American Court of Human Rights could be particularly significant as it recognized the existence of a stand-alone right to a healthy environment under the American Convention and the adverse impact of climate change on human rights, also discussing the extraterritorial aspects of climate-related harm. For further details, see, *The Environment and Human Rights (State Obligations in Relation to the Environment in the Context of the Protection and Guarantee of the Rights to Life and to Personal Integrity – Interpretation and Scope of Articles 4(1) and 5(1) of the American Convention on Human Rights*), Advisory Opinion OC-23/18, Inter-Am. Ct. H.R., (ser. A) No. 23 (Nov. 15, 2017).

[136] For instance, in the recent case of *Urgenda v. the Netherlands*, the Supreme Court of the Netherlands concluded that the Netherlands violated the right to life and the right to family life as contained in the European Convention on Human Rights by failing to take action to avoid climate change impacts. The Court has ruled that the state has 'direct legal obligations' to reduce GHG emissions by at least 25% by the end of 2020, compared to 1990 levels. See, *State of the Netherlands v Urgenda* [2019] ECLI:NL:HR:2019:2006 (20 December 2019).

[137] This primary role derives from the principle of sovereignty as highlighted in Article 2 para 1 and para 7 of the UN Charter (adopted 26 June 1945, entered into force 24 October 1945). See also, UNGA resolution no 46/182 "Strengthening of the coordination of humanitarian emergency assistance of the United Nations" Annex, para 3. For a more in-depth analysis of the issue in the context of sea level rise, see, Principle 4 and its commentaries in *Sydney Declaration of Principles on the Protection of Persons Displaced in the Context of Sea Level Rise* adopted by the International Law Association in 2018. For protection of persons in the event of disasters (including slow onset events such as sea level rise), see Article 10 in *Draft Articles on the Protection of Persons in the Event of Disasters*, adopted by the International Law Commission at its 68th session in 2016, available with commentaries at: https://legal.un.org/ilc/texts/instruments/english/commentaries/6_3_2016.pdf

[138] See, in particular, International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976) 999 UNTS 171 (ICCPR) and International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) 993 UNTS 3 (ICESCR).

[139] See, Articles 1(3), 55, and 56 of the UN Charter. See, also Sydney Declaration, Principle 7. Note that to date, the scope of such duty to cooperate in the context of sea level rise and climate change in general is not entirely clear. Commentators have raised that related issues such as the content, who the effective duty bearer

tional human rights obligations has been explicitly mentioned under Article 2(1) of the ICESCR highlighting that States' obligations to take steps to achieve progressive realization of economic, social, and cultural rights in particular, depend not only on the availability of their resources but also on economic and technical cooperation at international level.[140]

(i) Internal Displacement

The 1998 UN Guiding Principles on Internal Displacement restate and compile international law standards relevant to internally displaced persons (IDPs).[141] Although not binding in themselves, they are based on well-established standards under international humanitarian law and human rights law extending the protection to all persons in a State's territory, irrespective of their nationality.[142]

(ii) Cross-border Displacement

Mobility in the context of climate change has, to date, mostly occurred internally, but cross-border movement is already common and may increase over time.[143] Environmental harm in general or climate change is not part of the grounds listed by the Refugee Convention to give rise to refugee status.[144] In general, persons crossing borders in the context of sea level rise are not recognized as refugees unless elements of persecution are also present.[145] However, the principle of non-refoulement can be applicable beyond refugee law.[146] This general principle prohibits States from removing people to any place where they would face a risk of torture; cruel, inhuman or degrading treatment; or arbitrary deprivation of life.[147]

(iii) Migration

When *in situ* adaptation is no longer an option, communities may opt to migrate internally or internationally to avoid harm. Though in practice, such arrangements usually occur bilaterally or at regional level, there are umbrella principles in human rights law and relevant international labor law instruments including the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families[148] and

is, and what responsibilities are entailed need further clarification. See, McAdam, Burson, et al. (2016), at para 120. For a detailed legal analysis on the extent of the international community's responsibility to take the actions necessary to protect those people most vulnerable to the effects of sea level rise, see, John H. Knox, "Linking Human Rights and Climate Change at the United Nations" (2009), *Harvard Environmental Law Review*, Vol. 33.

[140] See, also ICESCR, Arts 11, 15, 22, and 23 for explicit reference to international cooperation in the context of specific rights.

[141] The UN Guiding Principles define internally displaced persons ("IDPs") as "people or groups of people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border." United Nations Guiding Principles on Internal Displacement, 1998, UNHCR Doc. E/CN.4/1998/53/Add.2.

[142] See, for instance, general principle of non-discrimination, the right not to be arbitrarily displaced, right to an effective remedy, right to life, right to liberty and security of person, freedom of movement and freedom to choose his or her residence, and right to seek asylum among others.

[143] See, Internal Displacement Monitoring Centre (IDMC), "Synthesizing the state of knowledge to better understand displacement related to slow-onset events" (August 2018) developed in the context of Activity I.2 of the Task Force on Displacement Workplan; The Nansen Initiative, Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change (December 2015), available at: https://nanseninitiative.org/wp-content/uploads/2015/02/PROTECTION-AGENDA-VOLUME-1.pdf; and Guy S. Goodwin-Gill and Jane McAdam, Climate Change, Disasters and Displacement, (2017) UNHCR, available at: http://www.unhcr.org/afr/596f25467.pdf

[144] For an insightful treatment of the issue, see, Matthew Scott, *Climate Change, Disasters, and the Refugee Convention* (Cambridge University Press, 2020). Worth noting that some other regional instruments do not necessarily limit refugee status to the grounds listed in the 1951 Convention. People who cross borders to seek protection may substantiate their claims based on "events seriously disturbing public order" as mentioned under Article I(2) of the 1969 Organization of African Unity (OAU) Convention Governing the Specific Aspects of Refugee Problems in Africa and Conclusion III(3) of the 1984 Cartagena Declaration. See, OAU, Convention Governing the Specific Aspects of Refugee Problems in Africa ("OAU Convention"), 10 September 1969, 1001 UNTS 45. See also, The Cartagena Declaration on Refugees, adopted during the "Coloquio Sobre la Protección Internacional de los Refugiados en América Central, México y Panamá: Problemas Jurídicos y Humanitarios", held in Cartagena, 19-22 November 1984.

[145] Jurisprudence from the Pacific region in some cases concerning Kiribati and Tuvalu offer some insight on the issue. In the case of AF (Kiribati) where the appellant claimed refugee status on the basis of environmental changes in Kiribati caused by sea level rise, the Tribunal, concluded that the concept of "being persecuted" rests within human agency rather than environmental impacts, such as climate change, albeit leaving the door open for any possible future cases. See, AF (Kiribati) [2013] NZIPT 800413, at paras 54-55. Similarly, see, AC (Tuvalu) [2014] NZIPT 800517-520, paras 45-46.

[146] See, the 1951 Refugee Convention, Art 33(1): "No Contracting State shall expel or return ("refouler") a refugee in any manner whatsoever to the frontiers of territories where his life or freedom would be threatened on account of his race, religion, nationality, membership of a particular social group or political opinion."

[147] International human rights law establishes a legal basis for complementary protection; however, only certain rights are recognized as giving rise to an obligation of *non-refoulement*. For a comprehensive normative assessment, see, Jane McAdam, "Climate Change Displacement and International Law: Complementary Protection Standards" (May 2011) *UNHCR Legal and Protection Policy Research Series*, PPLA/2011/03.

[148] UN General Assembly, International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families (18 December 1990), A/RES/45/158.

in International Labor Organization conventions and recommendations.[149]

(iv) Planned Relocation

When disasters or long-term adverse impacts are unavoidable, then planned relocation[150] may be necessary in certain cases.[151] Relocation may entail drastic changes to lifestyle and livelihoods as well as risk of impoverishment, landlessness, food insecurity among various other risks,[152] so planned relocation needs to be carefully designed with meaningful consultation with affected communities. Although there is no international binding instrument specifically addressing the issue of planned relocation, relevant applicable standards can be found in the UN Guiding Principles on Internal Displacement, the Pinheiro Principles on Housing and Property Restitution,[153] and various other initiatives.[154] Furthermore, the policies and experience of multilateral development banks working on resettlement induced by development projects could potentially inform development of similar standards at the national and regional level addressing planned relocation in the context of climate change (for example, standards governing meaningful consultation with displaced persons, consent, livelihood restoration, and compensation among others).[155]

Other Selected Normative Developments

Under the UNFCCC regime, the 2010 Cancun Adaptation Framework marks an important milestone for human mobility in the context of climate change as its paragraph 14(f) calls on Parties to take "measures to enhance understanding, coordination and cooperation with regard to climate induced displacement, migration, and planned relocation," while "taking into account their common but differentiated responsibilities."[156] Additionally, in 2018, a Task Force on Displacement established pursuant to the Paris Agreement,[157] issued a set of recommendations to "facilitate orderly, safe, regular and responsible migration and mobility [...] in the context of climate change, by considering the needs of migrants and displaced persons, [...] by enhancing opportunities for regular migration pathways, including through labor mobility."[158] COP 24 endorsed these recommendations "inviting" countries to consider the recommendations, which was a crucial step for the recognition of human mobility in the context of climate change under the UNFCCC regime. The approach developed under the UNFC-

[149] See, in particular, the Convention concerning Migration for Employment (No. 97), the Convention concerning Migrations in Abusive Conditions and the Promotion of Equality of Opportunity and Treatment of Migrant Workers (No.143), the Recommendation concerning Migration for Employment (No. 86), the Recommendation concerning Migrant Workers (No.151), the Convention concerning Forced or Compulsory Labor (No. 29) and the Convention concerning Abolition of Forced Labor (No. 105). Please also note supplementary framework such as ILO Multilateral Framework on Labor Migration, which consists of non-binding principles and guidelines.

[150] Evacuation may also be undertaken as a last resort measure when there is an imminent threat to life. In the absence of voluntariness, where affected persons are evacuated against their will, relevant international law standards require that such measures are conducted in a proportionate, non-discriminatory way and in accordance with existing law and the principles of human dignity and liberty.

[151] Movement already occurs internally within customary lands or elsewhere (rural or urban), and relocation to another PIC, or beyond PICs is certainly not uncommon in the Pacific context and is expected to increase as climate change impacts are exacerbated. See, John Campbell, "Climate-Induced Community Relocation in the Pacific: The Meaning and Importance of Land" in *Climate Change and Displacement: Multidisciplinary Perspectives* (Hart, 2010) ed. Jane McAdam, pp. 57-79; Jane McAdam, "Historical Cross-Border Relocation in the Pacific: Lessons for Planned Relocations in the Context of Climate Change" (2014) *The Journal of Pacific History* Vol. 49, p.301. Also note that in certain cases, planned relocation could be based on a request from affected populations, whereas sometimes such demand may not be present. See, Jane McAdam and Elizabeth Ferris, "Planned Relocations in the Context of Climate Change: Unpacking the Legal and Conceptual Issues" (2015), *Cambridge Journal of International and Comparative Law*, Vol. 4, p. 137.

[152] Cernea, Michael M. 2008. "Compensation and benefit sharing: why resettlement policies and practices must be reformed." *Water Sci Eng.*, Vol. 1, pp. 89–120.

[153] UN Sub-Commission on the Promotion and Protection of Human Rights, Housing and property restitution in the context of the return of refugees and internally displaced persons, Progress report of the Special Rapporteur, Paulo Sérgio Pinheiro (8 June 2005) UN Doc E/CN.4/Sub.2/2004/22/Add.1.

[154] See, for instance, the *Peninsula Principles on Climate Displacement within States* (2013) and Brookings/Georgetown University/UNHCR, *Guidance on Protecting People from Disasters and Environmental Change through Planned Relocation* (7 October 2015).

[155] See, for instance, World Bank OP 4.12 on Involuntary Resettlement and ESS 5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement. For a detailed treatment of the issue, see Rina A. Kuusipalo, Duygu Cicek, and Loren Atkins, "Legal and Policy Considerations Relating to Human Mobility in the Context of Climate Change and World Bank Operations" (May 2020), *World Bank Legal Climate Change Thematic Working Group Learning Note Series.*

[156] UNFCCC, "Report of the Conference of the Parties on its sixteenth session," Cancun Adaptation Framework, Cancun, 2010, UNFCCC Doc. FCCC/CP/2010/7/Add.1, available at: http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4

[157] UNFCCC COP, "Adoption of the Paris Agreement. Proposal by the President," UNFCCC Doc. FCCC/CP/2015/L.9/Rev.1, 12 December 2015. Decision, Para.50, available at: https://unfccc.int/documentation/documents/advanced_search/items/6911.php?priref=600008831.

[158] UNFCCC, Decision -/CP.24, Report of the Executive Committee of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (Advance Unedited Version), Adopted 2-14 December 2018, available at: https://unfccc.int/sites/default/files/resource/cp24_auv_ec%20wim.pdf

CC framework refers to human mobility in the context of climate change holistically, therefore providing a venue in the context of all movement patterns in the context of climate change, whether internal or international.

Similarly, with its aim of "the substantial reduction of disaster risk and losses in lives, livelihoods and health", the Sendai Framework for Disaster Risk Reduction 2015–30, endorsed by the UN General Assembly, is particularly relevant in the context of disaster-induced displacement (including displacement due to slow-onset events such as sea level rise). It explicitly mentions the importance of addressing disaster displacement in the context of improving disaster preparedness[159] and strengthening disaster risk governance.[160] The Sendai Framework, even though a non-binding framework, is intended to guide the efforts of stakeholders at all levels, including global, regional, national, and local. Therefore, the inclusion of displacement in the Sendai Framework is considered as "an important step forward" for people displaced by disasters and creates an entry point for anticipating and preparing for displacement in this context.[161]

Another significant normative development is the adoption of the Global Compact on Safe, Orderly and Regular Migration (Global Compact for Migration) under the auspices of the UN in 2018.[162] Although it is an aspirational framework, it provides significant political commitments specifically addressing human mobility in the context of climate change. Objective 2 ("minimize the adverse drivers and structural factors that compel people to leave their country of origin") and Objective 5 ("enhance availability and flexibility of pathways for regular migration") are particularly relevant in this context.

5. Work of the International Law Association and the International Law Commission

The International Law Association (ILA) was founded in 1873. Its objectives are "the study, clarification and development of international law, both public and private, and the furtherance of international understanding and respect for international law". It has consultative status, as an international non-governmental organization, with a number of the United Nations specialized agencies. The ILA Committee on International Law and Sea Level Rise, established in 2012, was given a four-year mandate starting in 2014, "to study the possible impacts of sea level rise and the implications under international law of the partial and complete inundation of State territory, or depopulation thereof, in particular of small island and low-lying states; and to develop proposals for the progressive development of international law in relation to the possible loss of all or of parts of state territory and maritime zones due to sea level rise, including the impacts on statehood, nationality, and human rights."[163]

In the first phase (2014–18) it focused on (a) law of the sea issues, regarding the implications of sea level rise on maritime zones and boundaries and (b) migration and human rights issues. The Committee presented its Final Report in August 2018.[164] That report looked specifically at the short-term impacts of sea level rise on maritime zones and boundaries and also articulated some important principles for the protection of persons displaced in the context of sea level rise.[165] In relation to the impacts of sea level rise on maritime zones, the Committee's primary recommendation was reflected in

[159] *Sendai Framework for Disaster Risk Reduction 2015-2030*, UN Doc A/RES/69/283 (23 June 2015), para 33(h).

[160] *Ibid*., Para 28(d). See also paras 27 and 30 on relocation and human mobility in general.

[161] Kälin, Walter. 2015. "Sendai Framework: An important step forward for people displaced by disasters." The Brookings Institution, available online: https://www.brookings.edu/blog/up-front/2015/03/20/sendai-framework-an-important-step-forward-for-people-displaced-by-disasters/

[162] Intergovernmental Conference to Adopt the Global Compact for Safe, Orderly and Regular Migration, "Global Compact for Safe, Orderly, and Regular Migration" (December 10–11, 2018)., U.N. Doc. A/CONF.231/3.

[163] ILA, *Minutes of the Meeting of the Executive Council* (London, 10 November 2012), at 5. International Law Association, International Law and Sea Level Rise Committee, available online: http://www.ila-hq.org/en/committees/index.cfm/cid/1043. See, also: Davor Vidas, David Freestone and Jane McAdam, "International Law and Sea Level Rise: The New ILA Committee" *International Law Students' Association (ILSA) Journal of International and Comparative Law* Vol. 21 (2015), pp. 397–408. The authors were the Chair and co-Rapporteurs of the Committee, respectively.

[164] At the 78th ILA Conference in Sydney. ILA, *Final Report of the Committee on International Law and Sea Level Rise* (2018).

[165] *The Sydney Declaration of Principles for the Protection of Persons Displaced in the Context of Sea Level Rise.* Resolution 6/2018, Committee on International Law and Sea Level Rise. 78th Conference of the International Law Association, held in Sydney, Australia, 19–24 August 2018. Text available at http://www.ila-hq.org/index.php/committees.

a Resolution of the 78th ILA Conference.[166] That Resolution recognized the emerging State practice in the interpretation of the provisions of the 1982 LOSC,[167] and recommended that States should accept that, once the baselines and the outer limits of the maritime zones of a coastal or an archipelagic State have been determined in accordance with the detailed requirements of the 1982 Convention that reflect customary international law, these baselines and limits should not be required to be readjusted should sea level change affect the geographical reality of the coastline.[168] The Resolution also recommended that the ability of coastal and archipelagic States to maintain their existing lawful maritime entitlements should apply equally to maritime boundaries delimited by international agreement or by decisions of international courts or arbitral tribunals.[169]

In relation to displacement in the face of sea level rise, a second plenary Resolution of the ILA Conference,[170] drew attention to the recent efforts of the international community to develop a comprehensive legal and policy framework for the protection of people displaced in the face of climate change, and adopted its own "Sydney Declaration Of Principles on the Protection of Persons Displaced in the Context of Sea Level Rise."[171] The Sydney Declaration consists of twelve principles aiming to codify and progressively develop relevant norms of international law focusing on the protection of persons displaced in the context of sea level rise. Some of these principles are general in scope[172] and applicable to all forms of "human mobility"[173] while other specific principles are applicable in the context of evacuation, planned relocation, migration, internal displacement, and cross-border displacement of affected persons.[174]

In November 2018, the Committee was given a mandate for its second phase (2019–22).[175] That phase will be focusing on the study of international law issues prompted by the mid- to longer-term predictions of sea level rise. In addition to the issues related to the law of the sea and territory, and to the rights of the affected populations, it will also study statehood and international law personality questions, and other related issues of international law and international security.[176] One of the first issues concerning the law of the sea discussed was the disproportionate impact that sea level rise seems likely to have on archipelagic States.[177]

The International Law Commission (ILC) was established by the General Assembly in 1947, to undertake the mandate of the Assembly, under Article 13(1)(a) of the Charter of the United Nations to "initiate studies and make recommendations for the purpose of [...] encouraging the progressive development of international law and its codification". The members of the ILC are nominated by their governments and elected by the UN General Assembly.

In 2018, the ILC proposed the inclusion of the topic of "Sea-level rise in relation to international law" in its long-term program of work.[178] The proposal received support from nearly 120 UN Member States during the debate at the Sixth (Legal) Committee of the UN General Assembly,[179] and was adopted in a 2018 General Assembly resolution.[180] In turn, the ILC decided in May

[166] ILA Resolution 5/2018.

[167] LOSC. Also note that Article 31(3) of the 1969 Vienna Convention on the Law of Treaties, *ILM* 8 (1969):689, provides that in the interpretation of a treaty: "There shall be taken into account, together with the context: (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; (b) *any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation* (emphasis added)."

[168] ILA Resolution 5/2018.

[169] *Ibid.*

[170] ILA Resolution 6/2018.

[171] *Ibid.*

[172] See, Principle 4 on the primary duty and responsibility of States to protect and assist affected persons, Principle 5 on the duty to respect the human rights of affected persons, Principle 6 on the duty to take positive action, and Principle 7 on the duty to cooperate.

[173] As noted earlier in this study and by the Sydney Declaration, this term is widely used as an umbrella term addressing all forms of human mobility (i.e., displacement, migration, and planned relocation).

[174] See, Principles 8-12 for further details.

[175] ILA, Minutes of the Meeting of the Executive Council (London, 17 November 2018), at 3, and Annex 5.

[176] An organizing meeting for the second phase of its work (up to 2022) was held in Madrid in December 2019. See, Davor Vidas, "Madrid Meeting of the Committee on International Law and Sea Level Rise, December 2019", FIDE Foundation, at: https://www.fidefundacion.es/Madrid-Meeting-of-the-Committee-on-International-Law-and-Sea-Level-Rise-December-2019_a1173.html

[177] On which see David Freestone and Clive Schofield, "Sea Level Rise and Archipelagic States: A Preliminary Risk Assessment" (2021) *Ocean Yearbook* Vol. 35 (forthcoming).

[178] ILC, *Report of the Work of the Seventieth Session* (2018), UN Doc. A/73/10, Annex B. The proposal that was put forward by the Government of the Federated States of Micronesia (dated 31 January 2018) for the inclusion of the topic on the Long-Term Programme of Work of the ILC was taken into account and reflected in the preparation of this document accordingly. See, document ILC(LXX)/LT/INFORMAL/1 of 31 January 2018.

[179] See Patrícia G. Teles, "Sea-Level Rise in Relation to International Law: A New Topic for the United Nations International Law Commission" in M.C. Ribeiro et al., eds, G*lobal Challenges and the Law of the Sea* (Springer Nature, 2020) pp. 145–157.

[180] UNGA Resolution 73/265 (UN Doc. A/RES/73/265) of 22 December 2018. See also, more recently, UNGA Resolution 74/186 (UN Doc. A/

2019 to include the topic in its active work program and to initially address it in an "open-ended Study Group."[181] Following its syllabus prepared in 2018,[182] the ILC Study Group has structured the organisation of its work in terms of three main issue-areas ("subtopics") of international law: a) law of the sea, b) statehood, and c) protection of persons affected by sea level rise. The Study Group also considered a road map for its work and plans to initially address issues related to the law of the sea (subtopic A) in 2020, and issues related to statehood and the protection of persons affected by sea level rise (subtopics B and C) in 2021.[183]

The discussions held in October 2019 in the Sixth Committee of the UN General Assembly clearly demonstrated the increasing attention of many States to the international law implications of sea level rise. Many UN Members States commended the ILC for its proposed three-fold thematic structure of work,[184] and—regarding the law of the sea in particular—several States indicated their support for an approach to ensure certainty and stability under the LOSC.[185] The ILC plan of work is, in turn, organized around basically the same three issue-areas that the ILA Committee agreed in 2014, namely: the law of the sea; forced migration and human rights; and issues of statehood. The 2020 first issues paper by the co-chairs of the ILC Study Group outlines the general scope and outcome of the topic, the issues to be considered by the Study Group, the outcome to be reached, as well as the methodology to be used.[186]

RES/74/186) of 18 December 2019.

[181] UN Doc. A/74/10, paras 9 and 265.

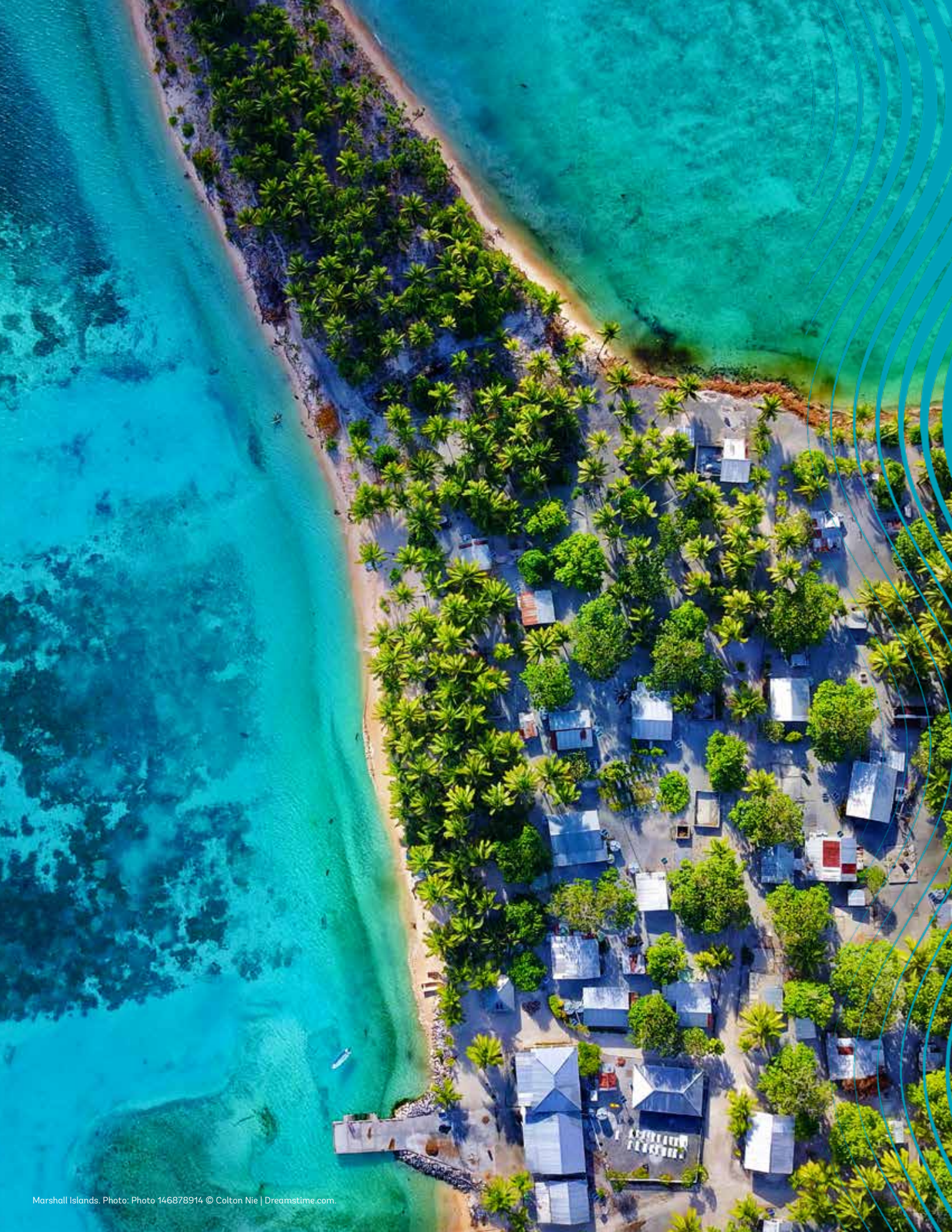
[182] UN Doc. A/74/10, para. 269; and UN Doc. A/73/10, annex B, especially para. 19. For ILC reports on this matter, see generally UN Doc. A/74/10 (2019), Chs. III and X; and UN Doc. A/73/10 (2018), Chs. III and XII, and Annex B.

[183] UN Doc. A/74/10, para. 267. It is planned that the conclusions of the ILC Study Group can be made available at the end of the current quinquennium (2017-2021) or more likely during the next (2021-2016), see, Teles, "Sea-Level Rise in Relation to International Law," pp. 155–156.

[184] See, e.g., statements in the UN Sixth Committee debate (October–November 2019) by Peru (UN Doc A/C.6/74/SR.27, para. 64); Fiji, on behalf of the Pacific small island developing States, including also Kiribati, Micronesia, Nauru, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu (*ibid*., para. 79); Romania (UN Doc A/C.6/74/SR.28, paras 14–15); Italy (*ibid*., para. 30); The Netherlands (*ibid*., para. 79); Argentina (UN Doc A/C.6/74/SR.29, para. 35); Ireland (*ibid*., para. 43); Thailand (*ibid*., para. 99): Portugal (*ibid*., para. 108); Mexico (*ibid*., para. 114); Japan (UN Doc A/C.6/74/SR.30, para. 34); Estonia (*ibid*., para. 61); Malaysia (*ibid*., para. 83); Philippines (UN Doc A/C.6/74/SR.31, para. 9); Indonesia (ibid., para. 29); and Bangladesh (*ibid*., para. 48).

[185] UN Doc. A/CN.4/734 (12 February 2020), para. 44.

[186] UN Doc. A/CN.4/740 (28 February 2020).



Marshall Islands. Photo: Photo 146878914 © Colton Nie | Dreamstime.com.

Part III

Key Legal and Policy Questions Faced by SIDS, and Pacific Atoll Countries in Particular, in Relation to Sea Level Rise

1. What are the legal implications of physical changes to different types of baselines under the 1982 LOSC as a result of sea level rise?

Sea level rise is likely to result in retreating coastlines and the inundation of small offshore features—all of which are used to measure maritime entitlements. These changes may make it difficult for coastal States to retain those entitlements according to the strict requirements of the LOSC.

The current IPCC predictions of global mean sea level rise will inevitably result in increased impacts on the coastal areas of low-lying States and islands within the next 30–50 years and these impacts will continue beyond the end of this century, even if global GHG emissions are drastically reduced. Indeed, many impacts are already being felt. Sea level rise is a "slow onset event" which means that the first impacts will be felt on the lowest lying and fragile coastal systems. In the first instance, low tide elevations (LTEs) may be completely inundated and if drying reefs are not able to grow at the same rate as the sea rises, they may also become submarine features. As discussed above, coastal systems are intrinsically dynamic so there will be adjustments to the shore; however, the most likely scenario is that the low water line will move, and although this movement may not be linear, the result is most likely to be a steady retreat landward.

A landward movement of the low water line—which is the "normal" coastal baseline—will mean that there will be corresponding landward movements of all the coastal States' maritime zone outer limits.[187] In addition, where baselines have been drawn around low- lying islands or insular features which generate their own maritime zones or coastal basepoint have been located on vulnerable features such as low-lying island, LTEs or drying reefs—as permitted by the LOSC—then the loss of these vulnerable features may well exacerbate this loss of maritime space.

Coastal Baselines

The range of maritime zones that a State may claim under the LOSC, are set out above;[188] all of which are in some way measured from the coast using the coastal baseline. In the measurement of all these zones, the coastal baseline plays a crucial role, as it does with the delimitation of a State's maritime boundaries with its neighbors. It is in recognition of this that a coastal State that uses any method other than the "normal" low water line as its baseline must commission and publicize charts of an adequate scale to show its baselines, and submit them (or their geographical co-ordinates) to the Secretary-General of the United Nations.[189] It is also obliged to publish, publicize, and similarly submit charts or co-ordinates of the delimitation lines of any maritime boundary agreements with other States.[190]

In drawing baselines—and particularly archipelagic baselines, which are considered in detail below—States have generally taken advantage of the LOSC rules to push their baselines, and thus their maritime entitlements, as far seaward as possible, using islands and other features, many of which may now be at risk of inundation.

In these circumstances, the actual position and legal status of the baseline itself are important. However, the wording of Article 5 LOSC is not totally free of controversy. It provides that:

> *Except where otherwise provided in this Convention, the normal baseline for measuring the breadth of the territorial sea is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State.*

The challenge with this wording is that it could be read in two different ways:

a) It could be understood to mean that the normal baseline is the "actual" low water line wherever that is.

a) It could be read to mean that it is the "charted" baseline shown on officially recognized charts—whether or not they are accurate.

The significance of this difference is particularly important in the context of sea level rise. If the first interpretation is correct, it means that the legal baseline moves with the actual coast (that is, it is ambulatory).

[187] Undoubtedly, in the event of the unlikely but possible movement of the baseline seaward, this will increase the size of coastal States maritime zones proportionately.

[188] See, Part II(1) of this study for further details.
[189] LOSC, Arts. 16(2), 47(9), 75(2), and 84(2).
[190] LOSC, Arts. 21(3) and 42(3).

However, if the legal baseline is the one shown on official charts, and those charts are not changed, then the legal baseline does not change, nor do any of the maritime zones measured from it. This is highly significant if the "actual" coastline moves as a result of sea level rise.

This whole question was looked at in some detail by the ILA expert Committee on Baselines. That Committee looked in detail at the documents surrounding the negotiation of the original wording (which is also found in Article 3 of the 1958 Convention on the Territorial Sea and Contiguous Zone), the documents prepared in advance of the LOSC Conferences (so-called *travaux preparatoires*), as well as national legislation and relevant decisions of the ICJ and other tribunals.[191] The Committee's conclusion in its 2012 Report—which is well informed but not legally binding—was that as a matter of general international law, coastal baselines are "ambulatory"—which means the legal baselines move with the natural coastline.[192]

As described above, offshore islands, and so called "rocks", are entitled to their own baseline and their own territorial sea; while islands, as strictly defined, may also generate their own EEZ and continental shelf.[193] The LOSC defines an island as "a naturally formed area of land, surrounded by water, which is above water at high tide."[194] However, in order to distinguish islands from "rocks" which only generate a territorial sea, an island must be capable of sustaining "human habitation or economic life" of its own.[195] There is no requirement that they be of a particular size or of any height above sea level.[196]

Even LTEs (insular features which are only above water at low tide) which are less than the breadth of the territorial sea from the baseline, may be used as a baseline.[197] For islands on atolls or having a fringing reef, the baseline may be measured from the seaward low water line of the reef. [198] The LOSC does not seem to require that these fringing reefs be above water at all times, but in order to have a low water line, it suggests that they must break the surface at some point.

If a coastal State is taking advantage of the straight baseline provisions, that is, "where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity,"[199] then these lines may not be drawn to or from LTEs, unless a lighthouse or similar installation—permanently above water—has been built on them.[200]

So, it should be clear from the above rules that the LOSC pays considerable attention to the difference between islands, in a strict sense, and insular features which cannot sustain human habitation or economic life which it terms "rocks" (whatever their physical composition). It also makes a strong distinction between insular features and LTEs in relation to the way they can be used as basepoints.

The threat posed by rises in sea level is therefore relatively straightforward. An LTE which is submerged at high tide may become completely submerged. If the fringing reefs cannot grow at a sufficient rate to keep above water even at low tide, then they will not have a low water mark. Hence both these types of feature will be disqualified from use as baselines if they are completely submerged. According to the "ambulatory baseline" theory, such baselines would then have to be redrawn along the actual coast, which itself may have eroded further landward.[201] As the LOSC allows the use of LTEs up to 12 nm

[191] Although there is no judicial interpretation of Art 5 as such, the ICJ and tribunals have in a number of cases relied on evidence of the actual location of coastal basepoints—rather than on their charted positions, see, e.g. *Territorial and Maritime Dispute between Nicaragua and Honduras in the Caribbean Sea* (Nicaragua v. Honduras), 2007 I.C.J. 659 (Oct. 8); *Maritime Delimitation and Territorial Questions between Qatar and Bahrain* (Qatar v. Bahrain), 2001 I.C.J. 40 (Mar. 16); *Award of the Arbitral Tribunal in the Matter of an Arbitration between Guyana and Suriname* (Guyana *v.* Suriname), 47 ILM 166 (2008) (Sept. 17, 2007), available at http://www.pca-cpa.org/upload/files/Guyana-Suriname%20Award.pdf.

[192] See, ILA Baselines Committee, Sofia Report, at p. 31. At https://www.ila-hq.org/index.php/committees. Available also as Coalter Lathrop, J. Ashley Roach and Donald Rothwell (eds), *Baselines under the International Law of the Sea* in *Brill Research Perspectives on the Law of the Sea*, (eds D Rothwell and D Vidas) 2018.

[193] LOSC, Art. 121(2).

[194] LOSC, Art. 121(1).

[195] LOSC, Art. 121(3).

[196] The ICJ in the 2012 *Territorial and Maritime Dispute (Nicaragua v Colombia)* cited *Maritime Delimitation and Territorial Questions between Qatar and Bahrain* (2001) and reaffirmed the "long-established principle" that "islands, regardless of their size… enjoy the same status, and therefore generate the same maritime rights, as other land territory" and further that a "comparatively small island may give an entitlement to a considerable maritime area." See, *Territorial and Maritime Dispute (Nicaragua v Colombia)* Judgment [2012] I.C.J. GL No. 124 (19 November 2012) at paras 139 and 176 respectively.

[197] LOSC, Art. 13(1).

[198] As shown on a map "officially recognized by the coastal State." See, LOSC, Art. 6.

[199] LOSC, Art. 7.

[200] Or where such baselines have "received general international recognition" See, LOSC, Art. 7(4).

[201] Although the "First Issues Paper" by the Co-Chairs of the ILC Study Group on sea-level rise in relation to international law states: "… nothing prevents Member States from depositing notifications, in accordance with the Convention, regarding the baselines and outer

from the shore, the areas lost could amount to kilometers rather than meters, and that loss of area is reflected not simply in the baseline but in the outer limits of the other maritime zones also, such as the EEZ.

In addition, low-lying offshore islands which are entitled to generate a full range of maritime zones or which are used as basepoints for straight baselines, are also vulnerable. If a "legal island" (that is, one that meets the LOSC definition) that is more than 12 nm from the coast becomes inundated at high tide as a result of rising seas, then it becomes *de facto* an LTE but its legal status may be open to challenge by other States. It could be argued that as a result of this change, the LTE may not be entitled to even a territorial sea nor could it be used as a basepoint for a straight baseline—unless a lighthouse or structure permanently above sea level has been built on it. If it is located with the 12 nm territorial sea generated by the coast itself and becomes an LTE, then it may still be used as a coastal basepoint. However, the loss of maritime zone area—particularly in the EEZ—from such changes of this kind could be substantial.

Archipelagic Baselines

The detailed provisions set out in Part IV of the LOSC relating to archipelagic status are set out above.[202] Generally, these provide that States comprised entirely of islands, or groups of islands, may draw "archipelagic baselines" around the "outermost points of the outermost islands and drying reefs of the archipelago."[203] However, they also prescribe the length of baseline sectors[204] and the key requirement that the ratio of land to water within the archipelagic baseline must be a minimum of 1:1 and not exceed 1:9.[205]

Hence, the archipelagic baseline consists of a series of line segments, some of which may be on the low water marks of islands and some of which may simply join up a series of base points on insular features, including drying reefs and LTEs; if they are within 12 nm of an island coast or on which permanent installations have been built. The substantial advantage which this status confers is the ability to measure all maritime zones and entitlements from that baseline. So, the 200 nm EEZ is measured from the line around the outermost points of the outermost islands and hence encloses a potentially enormous amount of ocean space, with consequential sovereign rights over the living resources located within or travelling through it.

However, if, as the ILA Baseline Committee suggests, baselines are ambulatory, then the maintenance of archipelagic status with these consequential maritime entitlements appears to require that the archipelagic State at all times meets the requirements of Part IV of LOSC. Sea level rise thus poses a substantial risk, not simply of the loss of low-lying island, LTEs and other features but also the consequential risk of the fact that these changes may compromise its ability to meet the detailed requirements of Article 47 regarding maximum lengths of baselines and ratio of land to water and thus its ability to maintain its archipelagic status.[206]

A recent survey of the current 22 State archipelagic baseline claims and their vulnerability to sea level rise identified the three most vulnerable types of archipelagic basepoints as low-lying islands, reefs, and LTEs.[207] All 22 archipelagic States used at least one of these types of basepoints: seven used low-lying islands; 14 used reefs (including all the Pacific States); and only two used LTEs. So, the risk is clear that if reefs are not able to grow at a sufficient rate to keep pace with sea level rise, these "drying reefs" will become submerged reefs and their value as basepoints will be lost. Depending on their position, this poses the risk that it may not be possible to maintain archipelagic status and the much-enhanced maritime entitlements to the EEZ which they generate.

limits of maritime zones measured from the baselines and, after the negative effects of sea-level rise occur, to stop updating these notifications in order to preserve their entitlements." See, ILC, First Issues Paper by Co-Chair of the Study Group on sea-level rise in relation to international law (28 February 2020), UN Doc No. A/CN.4/740 at para 104(f).

[202] Part II(1)

[203] LOSC, Art. 47(1).

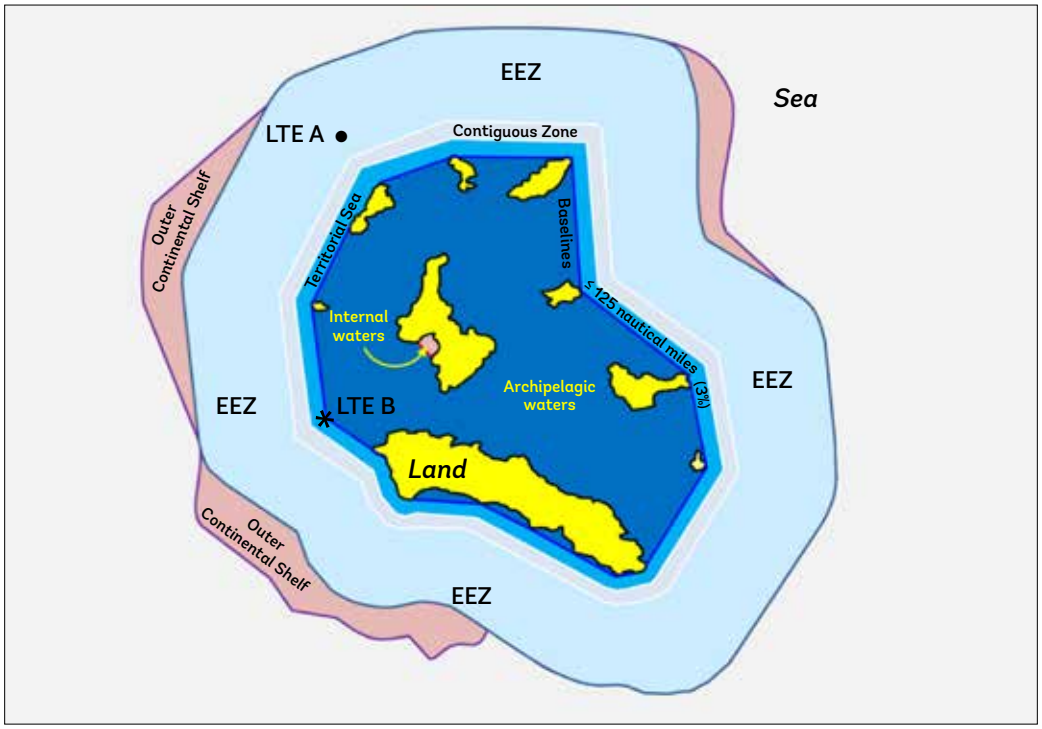
[204] None may be longer than 100 nm- except that 3% may extend to 125 nm. See, LOSC, Art. 47(2).

[205] LOSC, Art. 47(1).

[206] The LOSC has no express provisions relating to loss of rights and status as a result of physical changes.

[207] See, David Freestone and Clive Schofield (2021).

Figure 8. Archipelagic state zones.



Source: Andi Arsana and Clive Schofield, *TALOS Manual* (2014), Figure 4.2.

2. What is the difference between an "island" and a "rock"?

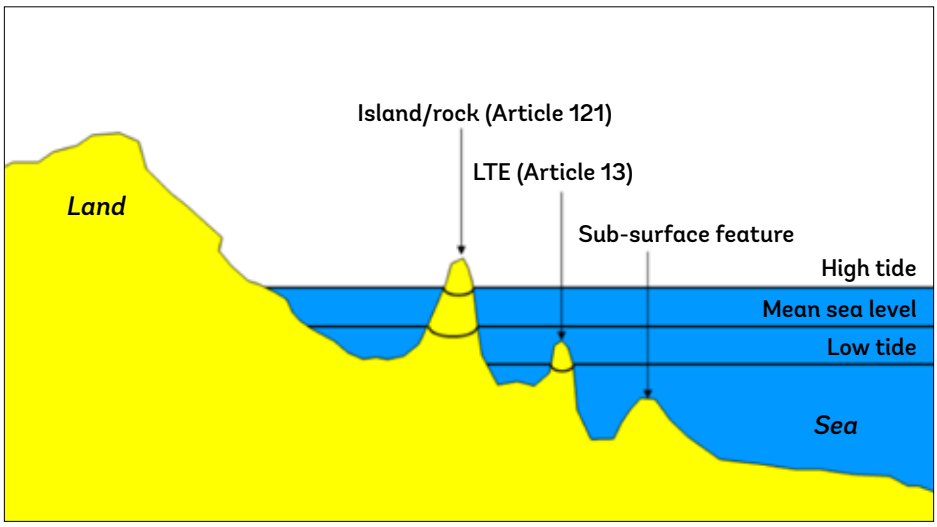
Arbitration tribunal awards provide detailed guidance on the difference between "rocks" and "islands" as defined by the LOSC, but questions still remain as to whether physical changes in islands brought about by sea level rise might require them to be reclassified as "rocks" with more limited maritime entitlements.

As we saw above, offshore islands, and so called "rocks", are entitled to their own baseline and their own territorial sea; while islands, as strictly defined, may also generate their own EEZ and continental shelf.[208] Article 121 LOSC defines an island as "a naturally formed area of land, surrounded by water, which is above water at high tide."[209] However, in order to distinguish islands from "rocks" which only generate a territorial sea, an island must be capable of sustaining "human habitation or economic life" of its own.[210] There is no strict requirement that they be of particular size or any height above sea level.

Given the importance of this issue in drawing baselines and measuring extensive maritime entitlements, there has been very little consideration, or interpretation, of Article 121 by international courts and tribunals. However, in the recent South China Sea Arbitration,[211] one of the complaints leveled by the Philippines against China was that China appeared to be trying to convert small insular features, mostly coral atolls, into islands by excavating the surrounding reefs to generate infill to raise the ground level and to increase their land area, on which airstrips and what appeared to be military installations were then built. The Award in that case contained the first detailed judicial analysis of Article 121.[212] It is important to note that China did not participate in those proceedings and has refused to accept the

[208] LOSC, Art. 121(2).
[209] LOSC, Art. 121(1).
[210] LOSC, Art. 121(3).
[211] *South China Sea Arbitration*, Philippines *v.* China, Award, PCA Case No 2013-19, ICGJ 495 (PCA 2016), 12th July 2016, Permanent Court of Arbitration [PCA].
[212] This following discussion draws heavily on David Freestone and Clive Schofield (2021).

Figure 9. Islands and LTEs.



Source: Andi Arsana and Clive Schofield, *TALOS Manual* (2014), Figure 4.3.
Note: If the LTE lies wholly outside the breadth of the territorial sea measured from the mainland or an island, it may not be used as part of the baseline.

outcome of the resulting Award,[213] but it nevertheless provides a number of important indications as to how future courts or tribunals may approach these issues.

The Tribunal devoted a great deal of attention to the provisions of Article 121(3) that deal with "rocks" and ruled that the term was not meant to apply only to features "composed of solid rock,"[214] otherwise "absurd results" would occur.[215] In the past, there has been considerable discussion as to whether both the requirements of "human habitation or economic life of its own" are needed to be satisfied for an insular formation to qualify as an island with full maritime zones.[216]

However, the Tribunal insisted that either of these tests can be satisfied—a disjunctive interpretation—but did observe that "economic activity is carried out by humans and that humans will rarely inhabit areas where no economic activity or livelihood is possible."[217] Furthermore, the Tribunal ruled that the economic activity must not be purely exploitative; the feature must sustain an activity "of its own."[218]

For this present discussion it is important that the Tribunal also took the view that the assessment of the status of a feature is to be determined on the basis of its "natural capacity, that is, without external additions or modifications intended to increase its capacity" to support human habitation or an economic life of its own.[219] This would confirm that reclamation activities, including the large-scale island building and reclamation activities undertaken by China, and to a lesser extent by other States, in the South China Sea, cannot transform a feature that was a rock within the meaning of Article 121(3) LOSC in its natural condition into a fully entitled island.[220] However, enhancing an existing fully entitled island to "maintain" its habitability does not compromise its ability to maintain the full suite of maritime zones—although it may, depending on the amount of work needed, be prohibitively expensive.[221]

[213] Statement of the Ministry of Foreign Affairs of the People's Republic of China on the Award of 12 July 2016 of the Arbitral Tribunal in the South China Sea Arbitration Established at the Request of the Republic of the Philippines (July 12, 2016) available at: https://www.fmprc.gov.cn/nanhai/eng/snhwtlcwj_1/t1379492.htm

[214] *South China Sea Arbitration*, at para. 540.

[215] *Ibid.*, at para. 481. Specifically, non-rocky features would generate EEZ and continental shelf rights whereas features composed of solid rock were denied such rights, regardless of whether they were capable of sustaining human habitation or an economic life of their own.

[216] See e.g., David Freestone, "Maritime Boundary Delimitation in the Eastern Caribbean" in *International Boundaries and Boundary Conflict Resolution* (C. Grundy-Warr, ed.) Proceedings of the 1989 Conference, International Boundaries Research Unit, Durham University, 1990, pp. 195-210, at 197-8.

[217] *South China Sea Arbitration*, at para. 497.

[218] *Ibid.*, at para. 543. So extractive activities such as guano mining would not count as having an economic life of their own.

[219] *Ibid.*, at para. 542.

[220] *Ibid.*, at para. 508.

[221] *Ibid.*, at para. 511. Such an enhancement would, of course, need to be carried out in an environmentally acceptable way respecting the obligations to "protect and preserve the marine environment" in

The Tribunal Award also stated that while an LTE cannot be converted through artificial intervention into a rock nor a rock into a fully entitled island within the meaning of Article 121,[222] nevertheless an LTE may also have an artificial island superimposed on top of it.[223] However, it is a breach of international law, the Tribunal ruled, to destroy valuable coral reefs and other fragile ecosystems in the process, especially where environmental impact assessments (EIAs) have not been undertaken, or, if they have, not been shared with neighboring States as required under the LOSC.[224]

The Tribunal was also "conscious that remote island populations often make use of a number of islands, sometimes spread over significant distances, for sustenance and livelihoods."[225] The Tribunal specifically ruled that in a situation where a local community is only able to sustain itself by utilizing a range of maritime features, it would not "fail to inhabit a feature on the grounds that its habitation is not sustained by a single feature."[226] Nor conversely would that group be "disabled from recognizing that such features possess an economic life of their own merely because not all the features are directly inhabited."[227] Further, concerning the determination of "human habitation" under Article 121(3), the Tribunal found, without determining an arbitrary number that the community involved "need not necessarily be large" and that, for example, "in remote atolls a few individuals or family groups could well suffice."[228] The Tribunal also found that periodic rather than permanent habitation by nomadic people "could also constitute habitation"[229] as would use by populations that are sustaining themselves through a "network" or "constellation" of related maritime features.[230] This view—which is not directly part of the issues involved in the Award and so *obiter dicta*—which in any event is only binding on the two States party to the Arbitration[231]—provides a very welcome perspective for many communities particularly in low-lying islands in the Pacific, and elsewhere, threatened by sea level changes. It suggests that if some individual islands in an archipelago are or become uninhabitable, this would not necessarily mean that the maritime entitlements of the whole archipelago would be lost.

However, the Tribunal did not have to consider the situation which is of direct concern here—which may be the one brought on by sea level rise. Namely, the situation of a fully entitled island able to support human habitation and an economic life of its own, that loses so much land area, or is so contaminated by salt water intrusion, that it can no longer sustain a human population. Does that feature then become a "rock" for these purposes and therefore lose its maritime entitlements, that is, its EEZ and continental shelf?

Unfortunately, there is no clear legal answer to that question. It is an unprecedented situation and one which no international judicial body has ever had to consider. The following sections discuss how a State may seek to defend its entitlements by physical means or by other means. But the legal arguments still continue as to whether baselines are indeed always "ambulatory" and must move with physical changes to the coast and land form. The ILA Sea Level Rise Committee thought that existing maritime entitlements should be maintained—but this is still very much an open issue.[232]

Art. 192 and "rare and fragile ecosystems" as well as the "habitats of depleted, threatened or endangered species," including giant clams and as well as species of turtles, corals and fish, in Art. 194(5) LOSC. This can really only be done, said the Tribunal in a nod to the jurisprudence of the ICJ, after an appropriate Environmental Impact Assessment as required by Art. 206 LOSC.

[222] *Ibid.*, at para. 508.

[223] *Ibid.*, at para. 1037.

[224] *Ibid.*, at paras. 966 and 989–991. See also, Arts. 205–206, LOSC

[225] *Ibid.*, at para. 547.

[226] *Ibid.*, at para. 544.

[227] *Ibid.*

[228] *Ibid.*, at para. 542.

[229] *Ibid.*

[230] *Ibid.*, at para. 544.

[231] A tribunal's incidental remarks (i.e., obiter dicta) are remarks that are not essential to resolve the case and therefore not binding. They may carry, however, some value for future cases.

[232] ILA Sea Level Rise Committee 2018 Report, pp. 30-32.

3. What are the legal implications for the outer limits of a State's maritime zones and maritime boundaries with other States, and for the rights of third States and their nationals, of changes in coastal baselines from which maritime zones are delineated or delimited?

It is not clear what the legal effect is of physical changes to coastal baselines that have been used as the basis for maritime boundary delimitation treaties or judicial decisions, even if the result is to extend the delimitation lines beyond 200 nm from the coast.

Possible Impacts on Outer Limits of Maritime Entitlements

The coastal baseline plays a crucial role in the measurement of all of a State's maritime zones.[233] As mentioned above, the LOSC requires that an EEZ "shall not extend beyond 200 [nm] from the baselines from which the breadth of the territorial sea is measured."[234] If a State has claimed an EEZ, then the area beyond the EEZ limit (usually 200 nm) is high seas—where the established freedoms of the high seas apply.[235] These include, subject to limitations set out in the LOSC, freedom of navigation, overflight, laying of submarine cables, construction of artificial islands/installations, fishing, and scientific research.[236]

The LOSC also states that "No State may validly purport to subject any part of the high seas to its sovereignty."[237] This means that if a coastal State tries to claim an EEZ wider than 200 nm, then that claim is not valid under international law and other States (third States) are not obliged to respect that claim.

Hence if a coastal baseline is affected by sea level rise and moves landward, as a result of coastal erosion or the inundation of offshore insular features which had been utilized to push coastal baselines seaward as permitted by LOSC, then, under an ambulatory approach,[238] the outer limits of the maritime zones will also be affected and move landward. This would mean that the outer areas of the previously claimed EEZ might now become high seas, where international law would normally allow the vessels of third States the freedoms of the high seas, including fishing.[239] Once the validity of that outer limit has been disputed, it would also be difficult for vessels navigating there to determine whether they were in the EEZ or the high seas, creating opportunities for confusion and possible conflicts.

The situation with the continental shelf is slightly different for some States. It depends on whether a State is lucky enough to have a geomorphological continental shelf that extends beyond 200 nm from its coast. A State with little or no natural continental shelf—such as the Pacific Coast States of South America—is still entitled to the resources of the seabed and ocean floor, including sedentary species, out to the 200 nm limit, again measured from the coastal baseline.[240] Hence if sea level rise causes the baseline to retreat, then the extent of those States' continental shelf entitlements will also move landward—in step with the EEZ.

However, those States that have continental margins that extend beyond 200 nm from their baselines are entitled to what is known as an "extended continental shelf" out to the physical edge of their continental margin. The water column above those extended continental shelf areas is high seas. In such situations, the LOSC sets out the complex formulae for calculating where the edge of the continental margin is.[241] Here again, the position of the baseline does have a role for some of the

[233] From this baseline can be measured the State's twelve nm territorial sea the outer boundary of which is a line "every point of which is [twelves miles] from the nearest point of the baseline …" The contiguous zone stretches a further twelve nm seaward. In addition, the coastal State is entitled to claim an [EEZ]out to 200 nm which gives it sovereign rights (although not full sovereignty) over the resources of the seabed and the superjacent waters. If it is fortunate enough to have a continently shelf that extends beyond 200 nm from the baseline it is also—subject to certain limitations—entitled to sovereign rights over those seabed resource of that shelf right to the outer edge of the continental margin.

[234] LOSC, Art. 57.

[235] LOSC, Art. 86.

[236] LOSC, Art. 87(2)—but there are important limitations on the exercise of these freedoms, including the obligation to pay "due regard" to the interests of other State in the exercise of them. See, David Freestone, "Modern Principles of High Seas Governance: The Legal Underpinnings" (2009) *Environmental Policy and Law*, Vol. 39(1), pp. 44-49.

[237] LOSC, Art. 88.

[238] See the discussion of this above in Part III(1).

[239] Subject always, of course, to regional fishery arrangements that may be applicable.

[240] LOSC, Art. 76(1).

[241] LOSC, Art. 76(4) - (6).

Figure 10. Impacts on maritime zone of receding baselines.

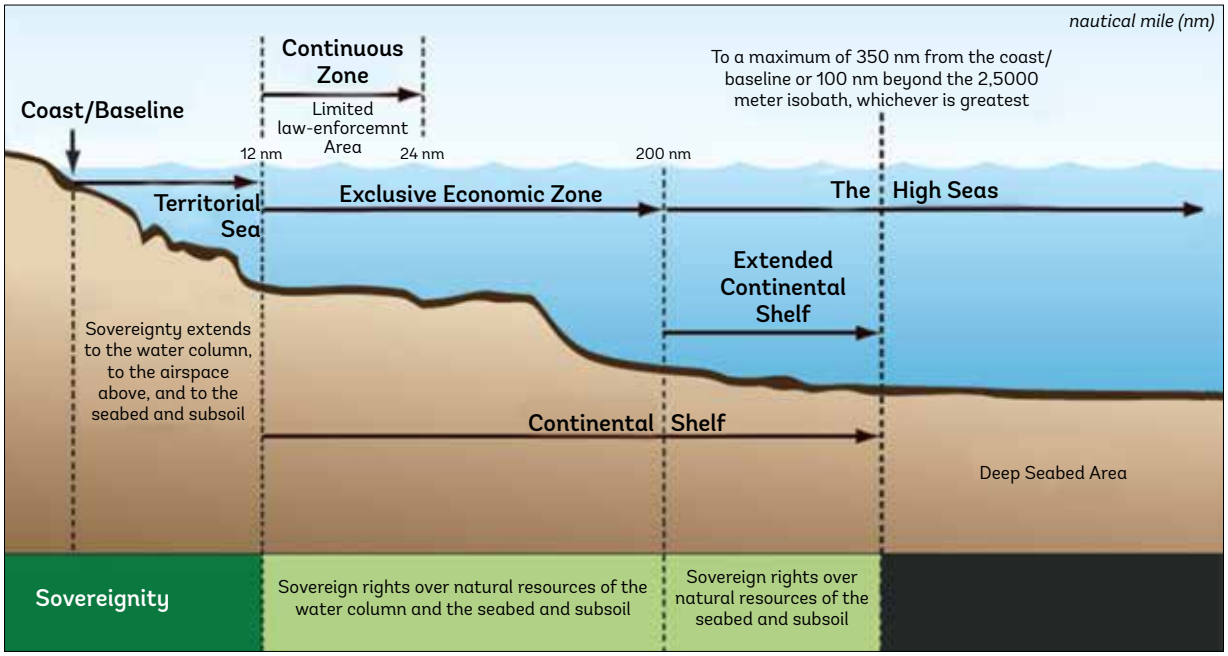
Source: Andi Arsana and Clive Schofield, *TALOS Manual*, (2014).
Note: This figure shows the impacts of receding baselines on maritime zones. As the coastline recedes it changes shape, leaving outcrops as islands or LTEs. The outer edge of the EEZ recedes also leaving areas beyond 200 nm, previously within the EEZ that become high seas.

calculations.[242] Once the coastal State has calculated the outer limit of its extended shelf beyond 200 nm, it is obliged to submit that information to the CLCS.[243] The CLCS, which is made up of 21 experts in the fields of geology, geophysics or hydrography,[244] reviews that information and makes "recommendations" as to whether or not they have been calculated properly in accordance with the LOSC requirements. In practice, these recommendations often mean that the coastal State has to re-calculate its claim in ways in which the CLCS indicates. The recommendations of the CLCS are not technically binding *per se*, but in order for the coastal State's shelf limits to be "final and binding" on all States, they must be based on the recommendations of the CLCS. If the coastal State were to seek to establish such limits without relying on the recommendations of the CLCS, then they would not be binding, and third States could dispute those unilateral limits.

The main objective of this complex process is to ensure some degree of international technical oversight of the way that coastal States calculate their extended shelf claims—because the ocean floor beyond those national continental shelf limits is termed "the Area" and is part of the "common heritage of mankind."[245] National claims, which are in excess of what the LOSC permits, encroach on that common heritage, so only claims that meet the LOSC criteria, as evaluated by the CLCS, need to be recognized by other States. To achieve that, the

[242] For instance, LOSC Art. 76(5) allows a line to be drawn in one of two ways: one of which is 350 nm from the baseline. Not many continental shelves extend that far, however.
[243] LOSC, Art. 76(8).
[244] LOSC, Annex II Art 2.
[245] LOSC, Art. 136 and see the whole regime of Part XII LOSC.

Figure 11. Maritime zones.



Source: Image courtesy of the NOAA Office of Ocean Exploration and Research available at: https://oceanexplorer.noaa.gov/okeanos/explorations/ex1810/ecs/welcome.html
Note: The position of the baseline of the extended continental shelf has a role for some of the calculations.

text of Article 76(8) LOSC provides they are "final and binding." The implication is that this is forever. There is certainly no procedure for re-evaluating them. There has never been any judicial interpretation of this issue but it seems that, even if the coastal State's baselines were subsequently to change as a result of sea level rise, the coastal State would still be entitled to maintain its full entitlement to the extended continental shelf which has been settled by that process.

Possible Impacts on Maritime Boundary Treaties

Coastal baselines are also used as the basis for the calculation or negotiation of maritime boundaries with adjacent and opposite states. Adjacent boundaries are not as common in the Pacific as elsewhere in the world,[246] but the preliminary calculation of a maritime boundary between adjacent states, as with opposite States, is usually based on the construction of a "median line, every point of which is equidistant from the nearest point of the baselines from which the breadth of the territorial seas of each of the two States is measured."[247] For the delimitation of the territorial sea, there is a presumption that neither side is entitled to claim beyond such a line, in the absence of agreement, historical title or other special circumstances.[248] For other zones, such as the EEZ or continental shelf, these delimitation lines must be negotiated by "agreement on the basis of international law [...] in order to achieve an equitable solution."[249]

These boundary delimitation agreements, which are treaties under international law, are only binding on the parties to the agreement. However, provided that they are in compliance with international law and do not extend beyond the areas which international law allows the coastal States to claim (for example, 200 nm for EEZ claims), then they are opposable to third States who must respect their provisions.

However, if coastal baselines are indeed ambulatory as suggested by the ILA Baseline Committee in 2012, then changes brought about by sea level rise might well cause some previously unprecedented situations. For

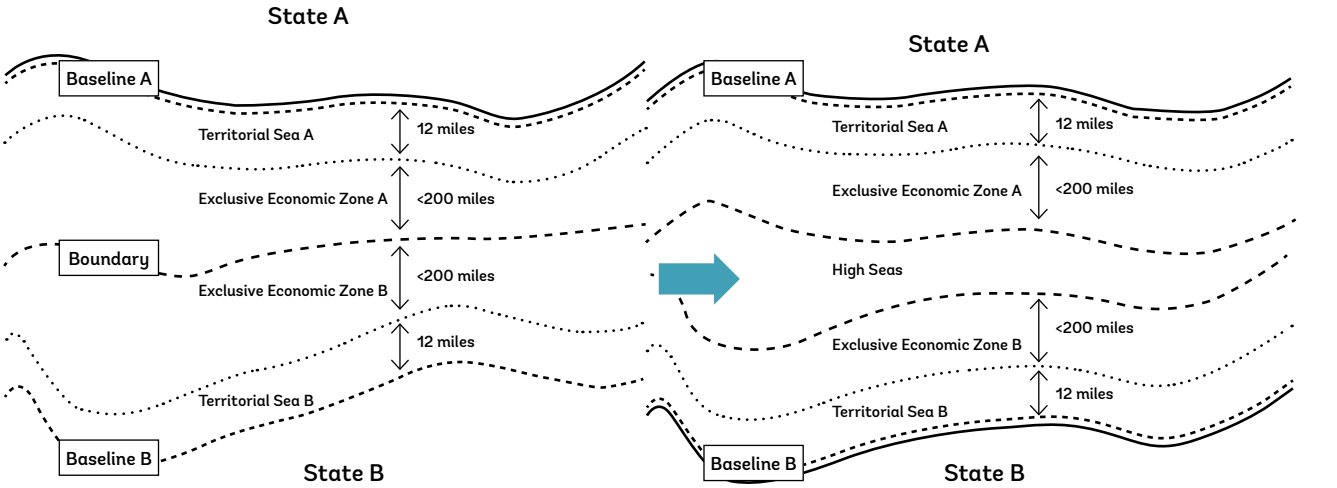
[246] It is rare for island or archipelagic States to have adjacent boundaries, but it does happen where parts of islands belong to different States—such as the Indonesia's boundaries with Borneo, Papua New Guinea, and with Timor Leste.

[247] LOSC, Art. 15.

[248] *North Sea Continental Shelf Cases (Federal Republic of Germany v. Denmark; Federal Republic of Germany v. Netherlands)*, I.C.J. Reports 1969, p.3, 20 February 1969.

[249] See, LOSC, Art. 74 (for EEZ), and Art. 83 (for continental shelf).

Figure 12. (i) Two States with boundary dividing EEZs and (ii) Coastlines retreat: New High Seas area is created (from left to right).



Source: Adapted from Julia Lisztwan, "Stability of Maritime Boundary Agreements" (2012) Yale Journal of International Law, Vol. 37.

example, a situation which has not to date been subject to judicial interpretation, arises if the distance between two opposite States is about 400 nm and the States have agreed an equidistance line to delimit the EEZs between them.[250] If, as a result of sea level rise, one or both of the coastal States loses offshore features and their coastlines recede so that they are now, for example, 410 nm apart, then there would be a 10 nm strip of what would normally be high seas between them. The LOSC only allows a State to claim a 200 nm EEZ. Indeed, Article 89 specifically provides that "[N]o State may validly purport to subject any part of the high seas to its sovereignty." Yet the existing maritime boundary treaty—which is still binding on the opposing State parties—provides that their outer boundary is the treaty delimitation line that is now more than 200 nm from their coasts.

The same problem would arise if the maritime boundary agreement did not designate an equidistance line but a more complex line. To the extent to which that treaty now purported to extend the coastal State's rights beyond 200 nm, it would still be binding on the other State party to the treaty.[251] However two States cannot bilaterally agree to exclude third States from an area of the high seas, so it could be argued that as a result of the physical changes that have taken place in the baselines, the treaty is now contrary to an express provision of Article 89 of LOSC. Does this mean that it might be argued that it would not be binding on, or enforceable against, third States? This again is a totally novel situation for international law—and if this issue were to go to court, then an international tribunal seems likely to take the view expressed in a number of other cases, discussed below, that the most important principle involved is the certainty and stability of agreed maritime boundary agreements.

The similar quandary might be faced in a situation where, as a result of a boundary dispute, a judicial tribunal has determined a boundary between two adjacent or opposite States. That judgment is technically only binding on the parties to the litigation but is usually taken by third States as definitive. If the coastlines or parts of the coastlines, which were used by the tribunal in determining an equitable solution, subsequently move landward as a result of changes brought about by sea level rise, so that the boundary decided by the tribunal is now more than 200 nm from the coast, does this invalidate the tribunal's decision?

None of these situations has yet to arise, so the legal situation is untested. On the one hand, the LOSC seems to suggest that third States are not required to recog-

[250] It is rare to have an agreement that simply agrees the principle without detailing all co-ordinates of the line—but it has happened, see, *e.g.*, two treaties negotiated by France in relation to Wallis and Futuna, with Tonga in 1980, and with Tuvalu, in 1987. See, ILA Sea Level Rise Committee 2018 Report, pp. 22-23.

[251] Because of the principle that treaties are only legally binding on the parties.

nize a coastal State's claim to sovereign rights over areas further than 200 nm from baselines. On the other hand, the only case where an international tribunal has discussed such an issue in relation to climate change and its possible impacts, is the 2014 case regarding the Bay of Bengal, *Bangladesh v India*, in which the Arbitral Tribunal in its Award noted that:

> *Maritime delimitations, like land boundaries, must be stable and definitive to ensure a peaceful relationship between the States concerned in the long term […] In the view of the Tribunal, neither the prospect of climate change nor its possible effects can jeopardize the large number of settled maritime boundaries throughout the world. This applies equally to maritime boundaries agreed between States and to those established through international adjudication.*[252]

It is important to note that this was not a part of the Tribunal's actual decision—simply its incidental remarks (or "*obiter dicta*")[253]—so this is not technically a binding judicial decision on the issue but if, as this Tribunal suggests, the principles of stability and certainty of agreed and settled boundaries is an overriding consideration, then this might cast some doubt on the issue of whether coastal baselines and maritime zone limits are always ambulatory, as discussed above, or whether maritime boundary treaties which were legitimate when they were agreed, or settled by a judicial body, should in any event continue to be regarded as binding. At this point, however, there is no clear answer to this question.

Fundamental Change of Circumstances

This leads to the next issue, about which there has been a lot of discussion in the scholarly literature, namely whether a State which is a party to a maritime boundary treaty can seek to set it aside on the basis that changes in coastline baselines brought about by sea level rise, constitute a change in circumstances which fundamentally undermines the basis on which that State agreed to the treaty.[254]

There are two basic questions involved. The first is largely factual—whether it is possible that a sea level rise-driven change in coastal baselines constitutes a fundamental change. The second is a technical legal issue, namely whether a maritime boundary treaty is a type of treaty which can be set aside on the grounds of a fundamental change of circumstances. Each will be considered in turn.

(i) Can a change in coastal baselines constitute a fundamental change of circumstances for a maritime boundary treaty?

The answer to this question has never been decided by any international court or tribunal, but the burden of proof on the complaining State is very high and to date it has never been attempted. The 1969 Vienna Convention on the Law of Treaties, which largely represents customary international law, generally binding on all States, lays down the requirements for such proof.[255]

The State arguing this would first need to show that there has been a change in the circumstances which applied when the treaty was concluded "which was not foreseen by the parties."[256] A change of coastal baselines from which delimitation lines were measured might in principle constitute such a change in circumstances but it would be much more difficult to show that sea level rise-driven changes were not foreseen; at least for any treaty concluded in the last thirty or more years since the phenomenon of climate change and sea level rise has been known. The State seeking to argue such a case must also prove that the existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty, and that moreover, the effect of the change is "radically to transform the extent of obligations still to be performed under the treaty." [257]

(ii) Can maritime boundary treaties ever be set aside on the grounds of a fundamental change of circumstances?

This is another legal issue which has also never been thoroughly tested before an international tribunal,[258] but on which there has been a great deal of scholarly writing.[259] A response to this question depends on an in-

[252] *The Bay of Bengal Maritime Boundary Arbitration* (*Bangladesh v. India*), PCA Case 2010–16, Award of 7 July 2014, para. 216-217. See also the *Aegean Sea case* below.

[253] See note 231 above.

[254] This is discussed at some length by the ILA Sea level Rise Committee in its 2018 Report, pp. 19-25.

[255] United Nations, *Vienna Convention on the Law of Treaties* (adopted 23 May 1969, entered into force 27 January 1980) 1155 UNTS 331 ("1969 Vienna Convention").

[256] 1969 Vienna Convention, Art. 62(1).

[257] 1969 Vienna Convention, Art. 62(1)(a) and (b).

[258] Although there are remarks from the ICJ in 1978 and a tribunal in 2014.

[259] Those who appear to regard maritime boundaries as included within the provisions of Article 62(2), so as not to contemplate the use of fundamental change of circumstances, include the ICJ in an *obiter dicta* in the *Aegean Sea Continental Shelf* (Greece v. Turkey),

terpretation of the 1969 Vienna Convention. The 1969 Vienna Convention specifically exempts two classes of treaties from being set aside on the grounds of fundamental change of circumstances of which one is that "the treaty establishes a boundary."[260]

The controversial legal issue is that a treaty must be interpreted in context, and it has been suggested that the States who negotiated the 1969 Vienna Convention were not considering maritime boundaries at the time, but only land boundaries. Although the issue has generated some controversy among scholars,[261] the ILA Sea Level Rise Committee in its 2018 detailed review of this issue, having cited the view of the Arbitral Tribunal in the *Bay of Bengal* case (above),[262] did conclude that there is a very strong community interest in guaranteeing the certainty and stability of treaties in general and of agreed maritime boundaries in particular;[263] this also seems to be the position of the International Court of Justice which in the 1978 *Aegean Sea Case* between Greece and Turkey regarding the delimitation of the Continental Shelf did remark that:

> *Whether it is a land frontier or a boundary line in the continental shelf that is in question, the process is essentially the same, and inevitably involves the same element of stability and permanence, and is subject to the rule excluding boundary agreements from fundamental change of circumstances.*[264]

So, in conclusion, this is again an unprecedented situation, so it is not possible to predict with any certainty how an international court or tribunal might react to some of the issues discussed above. It does seem likely however, that in cases of future disputes regarding agreed maritime boundary treaties or boundaries settled by international tribunals, that there will be a strong presumption of their continuing validity.[265] This view is supported by the ILC Study Group in its 2020 First Issues Paper.[266]

[1978] I.C.J. Reports 3, para 85 (19 December 1978); Alfred H.A. Soons, 'The Effects of a Rising Sea Level on Maritime Limits and Boundaries" (1990) *Netherlands International Law Review*, Vol. 37, pp. 207–232, at 228; David Freestone and John Pethick, "Sea Level Rise and Maritime Boundaries: International Implications of Impacts and Responses", in: G. Blake (ed.) *International Boundaries: Fresh Perspectives*, Vol. 5 (Routledge, 1994), pp. 73–90, at 78; Clive Schofield, "The Trouble with Islands: The Definition and Role of Islands and Rocks in Maritime Boundary Delimitation" in: Seoung-Yong Hong and Jon M. Van Dyke (2009) pp. 19-22; and, after a detailed examination of the *travaux preparatoires*, Julia Lisztwan, "Stability of Maritime Boundary Agreements" (2012) *Yale Journal of International Law*, Vol. 37, p. 186. Those who argue that the issue may still be an open issue include David D. Caron, "Climate Change, Sea Level Rise and the Coming Uncertainty in Oceanic Boundaries: A Proposal to Avoid Conflict", in: Seoung-Yong Hong and Jon M. Van Dyke (eds), *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea* (Brill/Martinus Nijhoff, 2009) (while not supporting the position), Jonathan Lusthaus, "Shifting Sands: Sea Level Rise, Maritime Boundaries and Inter-state Conflict" (2010) *Politics* Vol. 30, pp. 115–118; and Snjólaug Arnadottir, "Termination of Maritime Boundaries Due to a Fundamental Change of Circumstances" (2016) *Utrecht Journal of International and European Law* Vol. 32, p. 94 (which includes a discussion of arguments presented by Lisztwan); Stuart Kaye, "The Law of the Sea Convention and Sea Level Rise after the *South China Sea* Arbitration" (2017) *International Law Studies*, Vol. 93, p. 439.

[260] The second exception is not relevant here: '(b) if the fundamental change is the result of a breach by the party invoking it either of an obligation under the treaty or of any other international obligation owed to any other party to the treaty'.

[261] See literature above at note 257.

[262] See, the ILA Sea Level Rise Committee 2018 Report, pp. 19-25.

[263] *Ibid.*, p. 21.

[264] See, *Aegean Sea Continental Shelf Case*, para 85. As the Court found that it did not have jurisdiction to hear the case, these comments are not part of a binding judgement, and regarded as *obiter dicta* (incidental remarks).

[265] It is always open to State to renegotiate their boundaries—as has been done in a number of situations with land boundaries where the melting of glaciers which mark mountain boundaries has created uncertainty. See recent state practice regarding 'mobile' land boundaries between Italy and Austria, and Italy and Switzerland affected by the melting of glaciers. The exchange of diplomatic notes between Italy and Switzerland of 23 and 26 May 2008 first formalizes the problem of the *mobile border*, to move with the melting of the glacier. It came into force on 10 February 2010, available at: https://www.admin.ch/opc/fr/classified-compilation/20091908/index.html. For the Italian Law of 29 May 2009 (no. 72), approving the exchanged notes into internal law, see: http://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2009-05-29;72!vig= Cited in ILA 2018 Report at p. 23.

[266] The ILC Study Group's First Issues Paper takes a more definitive view: "Sea-level rise cannot be invoked in accordance with article 62, paragraph 2, of the 1969 Vienna Convention on the Law of Treaties, as a fundamental change of circumstances for terminating or withdrawing from a treaty which established a maritime boundary, since maritime boundaries enjoy the same regime of stability as any other boundaries. The international jurisprudence is clear in this respect." See, ILC (28 February 2020), A/CN.4/740, at para 141(c).

4. How might a State defend its existing maritime entitlements in accordance with international law?

Coastal States are entitled to use a number of physical means, including artificial islands, to defend their coastlines and coastal basepoints. They may also seek to argue at the legal and policy level that they are not obliged to amend their existing maritime entitlements in the face of sea level rise.

The previous sections have looked at the impacts that sea level rise is predicted to have on coastal baselines and archipelagic baselines and on the delineation and delimitation of a State's maritime zones, including maritime boundary agreements. As discussed above also, the question of whether coastal baselines are ambulatory under international law—so that they must be regularly re-charted to reflect changes brought about by sea level rise—is still not entirely settled and can probably only be finally resolved by the means discussed further below. At the same time, the predominant view at present is that physical movements of baselines as a result of sea level rise impacts will change the coastal State's entitlements to the zones measured from them. There are two basic approaches to defending entitlements. The first is by physical means—building sea defenses and strategically placed installations and maybe even raising island elevations. The second is by utilizing the existing international law framework and political institutions to argue for the international recognition of these existing entitlements as a matter of international law or policy, despite the impacts of sea level rise.

Physical Defenses

It is clear that in the early onset of these impacts, it will be the most vulnerable features which will be lost; first, LTEs may be inundated, low-lying islands may disappear or become "rocks" for the purposes of the LOSC, [267] and drying reefs which are unable to grow at sufficient pace to keep ahead of sea level rise may no longer be able to be used as basepoints. It is the loss of these offshore insular features in the short to medium term which are likely to have the biggest impacts on the measurement of baselines, in terms of distances lost, and hence the outer edges of a State's maritime entitlements.

Under international law there is nothing to prevent the coastal State from physically defending these important assets, although this may only be a short- or medium-term solution. The Tribunal in the *South China Sea Arbitration* held that enhancing an existing fully entitled island to maintain its habitability did not compromise its ability to maintain the full suite of maritime zones.[268] Although a totally artificial island does not generate any maritime zones around it,[269] defending an existing island or other feature that generates a territorial sea or an EEZ to prevent it disappearing is permitted by international law, although it may be prohibitively expensive.[270]

At one end of the scale, it will be recalled that simply placing a lighthouse or other artificial structure that is permanently above sea level on an LTE will allow that LTE to be used as a basepoint for a straight baseline,[271] or for an archipelagic baseline.[272] This does not have to be a sophisticated building. Just a framework or a single pole with solar powered light would be sufficient.

The provisions relating to ports also indicate that the outermost permanent harbor works which are a part of harbor system can also be regarded as part of the

[267] It becomes unable to sustain human habitation or an economic life of its own, see, LOSC, Art. 121(3).

[268] *South China Sea Award*, at para. 511. Such an enhancement would, of course, need to be carried out in an environmentally acceptable way respecting the obligations to "protect and preserve the marine environment" in Art. 192, LOSC and "rare and fragile ecosystems" as well as the "habitats of depleted, threatened or endangered species," including giant clams and as well as species of turtles, corals and fish, in Art. 194(5), LOSC. This can really only be done, said the Tribunal in a reference to the case law of the ICJ, after an appropriate Environmental Impact Assessment, as required by Art. 206, LOSC.

[269] The coastal State does have "exclusive jurisdiction" over artificial islands in its EEZ and may establish a "reasonable safety zone" that "shall not exceed 500 metres around them." Art. 60, LOSC.

[270] For an extreme example, Japan is reported to have spent over $200 million in the late 1980s on the construction of sea defenses for its southernmost insular feature, Okinotorishima, from which it claims EEZ and continental shelf rights. Further, in 2016, it was reported that Japan was planning to spend a further ¥13 billion (over US$100 million) to replace the existing elevated platform at Okinotorishima and to build additional facilities including a lighthouse and pier. See Nash Jenkins, "Japan is spending $107 million to rebuild a tiny Pacific Island," *Time*, 2 February 2016, available online: https://time.com/4205570/okinotorishima-japan-maritime-claims/; and, Julian Ryall, "Japan spends millions building structures on uninhabited rocks 1,740 km from Tokyo to mark its territory," *South China Morning Post*, 2 February 2016, available online: https://www.scmp.com/news/asia/east-asia/article/1908706/japan-spends-millions-building-structures-uninhabited-rocks-1740.

[271] LOSC, Art. 7(4).

[272] LOSC, Art. 47(4).

Figure 13. LTE with navigational aid installation.

Source: CaribbeanEnv, April 23, 2013.

coastline that can be extended; this would include breakwaters and groynes linked to the coast, but not offshore artificial structures and islands.[273]

At the other end of the scale, international law permits a coastal State to extend land mass by land reclamation activities, provided that they are conducted in an environmentally sound way and pay due regard to the interest of other States,[274] and to rebuild or elevate existing islands to allow them to retain their natural entitlements, again in an environmentally sustainable way.[275]

An example is provided by Pulau Nipa (or Nipah), that is one of many small islands in the Singapore Strait. [276] It had been reduced by sand mining to one hectare but was restored in 2004 to about 60 hectares, well above sea level.[277] It has remained as a part of Indonesia's archipelagic baselines system,[278] and also serves as a key basepoint for the construction of the western extension of the Indonesia–Singapore territorial sea boundary.[279]

In the *South China Sea Arbitration*, the Arbitral Tribunal took the view that it is not possible to change a feature which is naturally an LTE or a "rock" into an island—so as to generate a full suite of maritime zones. [280] The LOSC does establish a regime for the construction of artificial islands, installations, and structures in the EEZ,[281] or on the Continental Shelf,[282] where the coastal State has the "exclusive right to construct and to authorize and regulate" them. There is no specific provision relating to the construction of such items in internal waters or the territorial sea as this is an established function of the sovereignty which coastal States possess in those areas. But none of these structures may generate any of the normal suite of maritime zones.[283]

Some of the world's largest artificial islands are in the Gulf in Dubai (UAE), designed as high-end tourist attractions. This approach has also been taken in the Maldives, where a number of artificial islands—designed to provide new safe space for high-end resorts—are under construction. The Maldives have also built a large artificial island, Hulhumalé, close to the capital, Malé, on which a new city is being constructed.[284] It is reported to cover 400 hectares, rising to a height of three metres above current sea level, to house a hospital, schools, government buildings, and housing for 40,000 people, and to have cost "hundreds of millions of dollars."[285] The objective was to provide more land area for safe human habitation rather than to generate new maritime zones—for it is within an existing lagoon.[286] Artificial

[273] LOSC, Art. 11.

[274] See, *Sovereignty Over Pedra Branca/Pulau Batu Puteh, Middle Rocks and South Ledge* (*Malaysia v Singapore*), Judgment, Merits [2008] I.C.J. GL No. 130 (23 May 2008).

[275] See, *South China Sea Award*, at para 511.

[276] For details and a map, see, David Freestone and Clive Schofield (2021).

[277] *Ibid.*, p. 40.

[278] Providing basepoints TR.190 and TR.190A.

[279] See, Clive H. Schofield Ted L. McDorman and I Made Andi Arsana, "Treaty between the Republic of Indonesia and the Republic of Singapore relating to the delimitation of the Territorial Seas of the Two Countries in the Eastern Part of the Strait of Singapore", in Coalter Lathrop, ed., *The International Maritime Boundaries of the World*, Vol. VII, (Leiden/Boston: American Society for International Law (ASIL)/Martinus Nijhoff, 2016), pp. 4,813-4,824; and, Badan Informasi Geospasial [Agency for Geospatial Information] (BIG), *Peta Negara Kesatuan Republik Indonesia* [Map of the Unitary State of the Republic of Indonesia], (Cibinong, 2017).

[280] See, *South China Sea Award*, at paras 621–22. It also highlighted the need for the preparation of proper environmental impact assessments for such work to ensure that fragile ecosystems—like coral reefs - are not damaged or adversely impacted, at para 988.

[281] LOSC, Art. 60.

[282] LOSC, Art. 80.

[283] Although a 50 m "safety zone" may be placed around them, LOSC, Art. 60.

[284] As Freestone and Schofield (2021) comment: "This artificial island has been created in a manner reminiscent of that employed by China in the South China Sea and, indeed, this development is being largely financed by Chinese sovereign guaranteed loans to the Maldivian State-owned company responsible for the development of Hulhumalé." Nenad J. Dauenhauer, "On the front line of climate change as Maldives fights rising seas", *New Scientist*, 20 March 2017.

[285] See Emma Allen, "Climate Change and Disappearing Island States: Pursuing Remedial Territory" *Brill Open Law* (2018), pp. 1-23, at 5.

[286] The Maldives were also reported in 2012 to have commissioned a Dutch engineer to design floating islands as "life-boats" for the population in the case of extreme events. See, D. Black, "Floating islands to the rescue in the Maldives", *The Star*, 23

islands in the EEZ and on the Continental Shelf do not generate more than a safety zone of 50 m maximum,[287] but Hulhumalé is already within the internal waters of the Maldives.

Figure 14. Major land reclamation in Singapore.

Photo: © Koon Holdings Limited

International Law and Policy Approaches

The fact that baselines and maritime zones limits may be "ambulatory" and seem highly likely to retreat landward in the face of sea level rise poses both a physical challenge and a legal and policy challenge. It means that low-lying island States stand to lose not only parts of their land but also parts of their maritime zones which are measured from their coastal and archipelagic baselines, perhaps disproportionately. These small islands States have made the smallest contribution to the GHG emissions that are causing the phenomenon. There is, therefore, a strong moral justice argument that the international community should consider taking some action to protect them from some of the legal implications of these changes. One approach would be to reverse the apparent presumption of the ambulatory nature of coastal baselines and maritime zone entitlements. So how might that be done?

A pragmatic strategy has already been implemented in the Pacific Region where the Pacific Boundaries Project has been running for more than a decade to expedite the delineation of national maritime zones and the agreement of outstanding maritime boundaries between the States of the region. The basis for this is the 2010 Framework for a Pacific Oceanscape,[288] which urges the PICTs "in their national interest", to deposit with the UN coordinates and charts delineating their maritime zones, with as much detail as possible.[289] It also mandates a "regional effort to fix baselines and maritime boundaries to ensure the impact of climate change and sea level rise does not result in reduced jurisdiction of PICTs."[290] The program has had considerable success. Of the 73 potential maritime boundaries in the region, only 13 remain to be finalized.[291]

As discussed above, a number of international tribunals have commented that the maintenance of the integrity of international treaties—particularly those establishing boundaries—is a fundamental part of the system for the maintenance of international peace and security.[292]

The longer-term agenda of the 2010 Strategy is a united regional effort that establishes baselines and maritime zones so that areas could not be challenged and reduced due to climate change and sea level rise. However, national actions by themselves—even if coordinated at a regional level—may not be enough to bring about a change. It was clearly not an issue which the drafters of the 1982 LOSC had in mind during the decade they spent drafting the text of the convention but it is now an issue for which the international community needs to mobilize its brightest legal minds to resolve, sooner rather than later. If unresolved, it raises serious issues of equity and justice

August 2012, available online: https://www.thestar.com/news/world/2012/08/23/floating_islands_to_the_rescue_in_the_maldives.html; and, "Artificial Islands Concept for the Maldives", available online: http://futuristicnews.com/artificial-islands-concept-for-the-maldives/.

[287] LOSC, Art. 60.

[288] See, Cristelle Pratt and Hugh Govan, *Our Sea of Islands, Our Livelihoods, Our Oceania. Framework for A Pacific Oceanscape: a catalyst for implementation of ocean policy* (Pacific Islands Forum Secretariat, November 2010), available at: http://www.forumsec.org/wp-content/uploads/2018/03/Framework-for-a-Pacific-Oceanscape-2010.pdf. Strategic Priority 1 concerns jurisdictional rights and responsibilities See also useful background and summary of the Pacific Boundaries Project provided by Robyn Frost, Paul Hibberd, et al., 'Redrawing the map of the Pacific'(2016), *Marine Policy*, available online: https://www.sciencedirect.com/journal/marine-policy/articles-in-press.

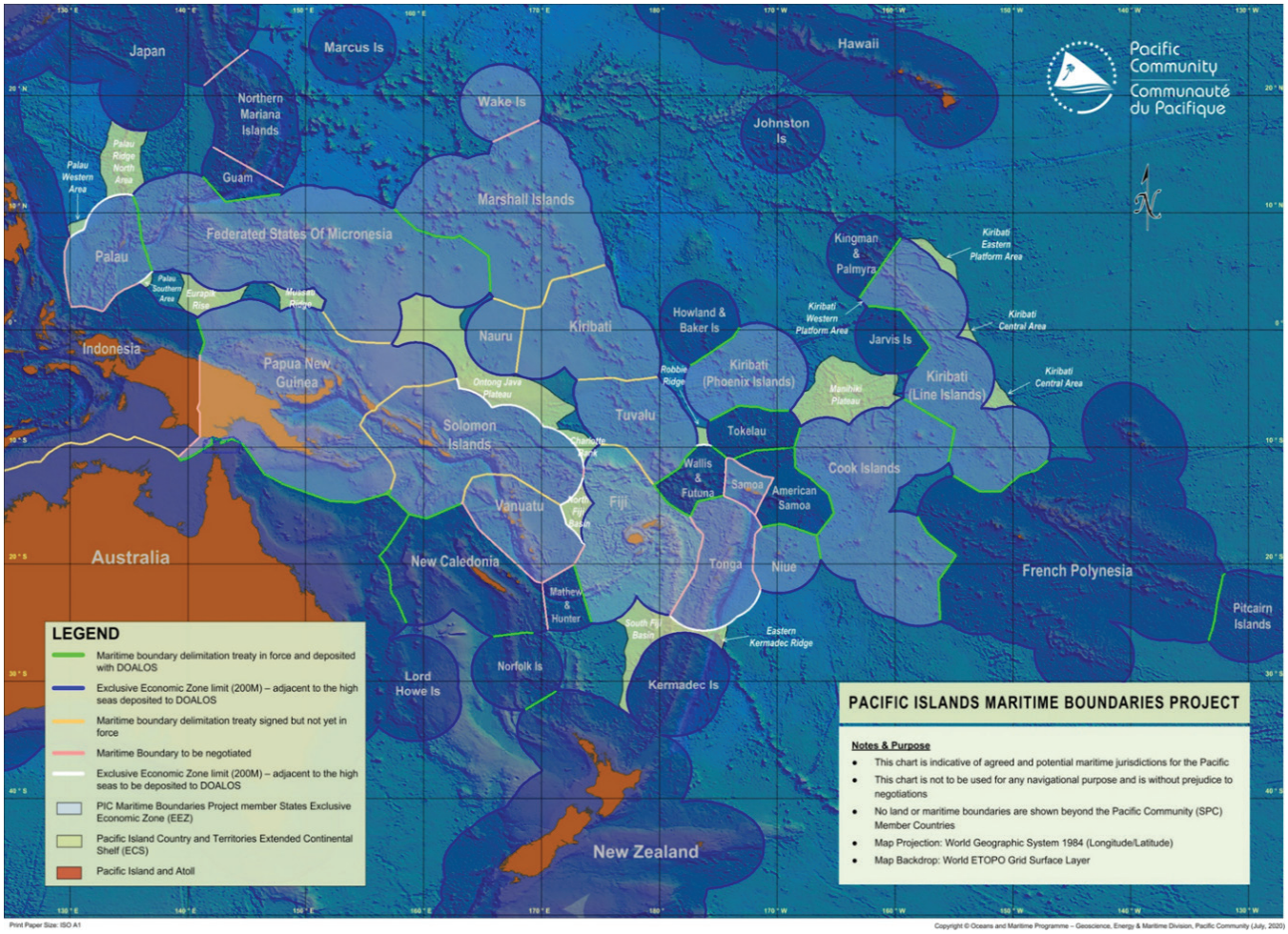
[289] See, the *Framework*, in Pratt and Govan at 57.

[290] Once the maritime boundaries are legally established, the implications of climate change, sea level rise and environmental change on the highly vulnerable baselines that delimit the maritime zones of PICTs should be addressed. This could be a united regional effort that establishes baselines and maritime zones so that areas could not be challenged and reduced due to climate change and sea level rise. See, Pratt and Govan, p.58.

[291] Dr Stuart Minchin, Director General of the Pacific Community (SPC), Pacific Regional Conference, 9 September 2020.

[292] See, *Aegean Sea Continental Shelf* case, at para 85 and *The Bay of Bengal Maritime Boundary Arbitration*.

Figure 15. The Status of Pacific Regional Maritime Boundaries as of July 2020.



Source: SPC, Oceans and Maritime Programme, Geoscience, Energy & Maritime Division (July 2020).

in the international legal order and may in the future even constitute a risk to international peace and security.

There are a number of possible ways in which an established rule of international law might be changed. The ILA Sea Level Rise Committee considered in some detail all the options which had been suggested by the late Professor Hayashi (former head of the UN Division for Ocean Affairs and Law of the Sea [DOALOS]) in a paper dating from 2011.[293] These included the development of customary international law,[294] a protocol to the UNFCCC,[295] utilisation of the amendment provisions of the LOSC,[296] a decision of the Meeting of the State

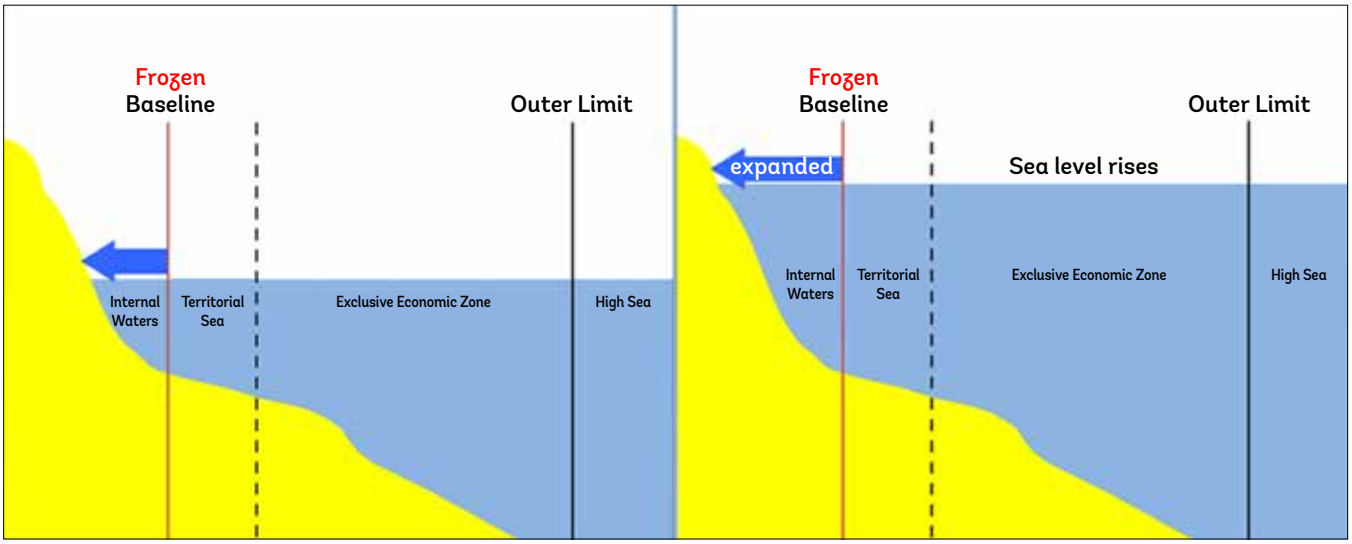
[293] Even though he himself admitted some of them might not be practical. See Moritaka Hayashi, "Sea-level rise and the law of the sea: future options" In *The World Ocean in Globalisation: Climate Change, Sustainable Fisheries, Biodiversity, Shipping, Regional Issues*, Davor Vidas and Peter Johan Schei, eds. (Boston: Brill, 2011), pp. 187–206 at 205, ILA 2018 Report, at 15.

[294] Soons, Alfred H.A. 1990. 'The Effects of a Rising Sea Level on Maritime Limits and Boundaries.' *Netherlands International Law Review*, Vol. 37, pp. 207–232. See also David D. Caron, "When law makes climate change worse: rethinking the law of baselines in light of a rising sea level", (1990) 17 *Ecology Law Quarterly*, 621; and David Freestone, "International Law and Sea Level Rise" in *International Law and Global Climate Change*, (Robin Churchill and David Freestone, eds) 1991, pp. 109-125, at 115.

[295] As proposed in 1990 by the Coastal Zone Management Subgroup of the IPCC, reported by David Freestone and John Pethick, "Sea Level Rise and Maritime Boundaries: International Implications of Impacts and Responses", in: G Blake (ed.) *International Boundaries: Fresh Perspectives*, Vol. 5 (Routledge, 1994), pp. 73–90, at 76.

[296] See, LOSC, Arts. 311–316. For a discussion of the complexity of this procedure, see e.g. David Freestone and Alex G. Oude Elferink, 'Flexibility and Innovation in the Law of the Sea: Will the LOS Convention amendment procedures ever be used?' in A.G. Oude Elferink, (ed.), *Stability and Change in the Law of the Sea: The Role of the LOS Convention*, (Boston/Leiden, Nijhoff, 2005) pp. 163–216.

Figure 16. Consequences of "freezing" coastal baselines to maintain maritime entitlements.



Source: Arsana and Schofield (2017).
Note: If coastal baselines and outer limits are maintained (or frozen) when the physical coastline retreats, then it results in an expanded area of internal waters behind the baseline.

Parties to the LOSC (SPLOS),[297] a diplomatic conference open also for States non-parties to the LOSC, or an agreement adopted by the UN General Assembly after negotiation in its subsidiary bodies or informal consultations.[298]

Of these options, the one that has attracted the most attention is the idea of the development of a new rule of customary international law. As long ago as 1990, scholars had argued that rather than spend large amounts of money physically defending their coastlines, vulnerable States might be better served by directing their efforts to the development of a new rule of customary international law which recognized existing maritime entitlements, despite changes brought about by sea level rise.[299] It is possible for customary law to be regional or universal, but in order to address the specific situation of small island States this new customary rule would need to be universal—to be binding on all States—particularly on those who most frequently exercise the freedoms of the high seas. A regional custom would only be binding amongst the countries of the region.

However, the development of a new rule of general customary international often takes a long time, as it not only needs evidence of State practice in support but also *opinio juris*.[300] It starts, however, with the development of uniform State practice, and there is at least *prima facie* evidence of the development of a regional State practice in the Pacific islands—many of which are the most vulnerable to losses of baseline points and, consequently, territory from sea level rise.[301] The Pacific

[297] Note that Art. 319(2)(e) LOSC appears to allocate only administrative roles to this meeting, e.g. under LOSC Annex II, Art. 293 and Annex VI, Arts. 4(4), 18 and 19, discussed in Freestone and Oude Elferink, pp. 207–209.

[298] All discussed further by Moritaka Hayashi, 'Sea Level Rise and the Law of the Sea—Future Options", in: Davor Vidas and Peter J. Schei (eds), *The World Ocean in Globalisation: Climate Change, Sustainable Fisheries, Biodiversity, Shipping, Regional Issues* (Boston/Leiden: Brill/Martinus Nijhoff, 2011), pp. 200–206.

[299] See, Soons (1990).

[300] In certain fields, such as the law of the sea, customary international law (CIL) has sometimes developed rapidly. The ILC in its work on identification of CIL has pointed out that "The relevant practice must be general, meaning that it must be *sufficiently widespread and representative, as well as consistent. Provided that the practice is general, no particular duration is required*" (emphasis added). See, ILC Draft conclusions on identification of customary international law, with commentaries (2018), adopted by the ILC at its seventieth session and submitted to the General Assembly, UN Doc. A/73/10, Draft Conclusion 8. Relevant Commentary on Draft Conclusion 8 states "a relatively short period in which a general practice is followed is not, in and of itself, an obstacle to determining that a corresponding rule of customary international law exists" (para 9).

[301] For discussion of Regional State Practice, see, David Freestone and Clive Schofield, "Islands Awash Amidst Rising Seas: Sea Level Rise and Insular Status under the Law of the Sea" in Proceedings of the 2018 Singapore Conference on Climate Change (2019) *International Journal of Marine and Coastal Law* Vol. 34 (3), pp. 391-414; and (same authors) "Securing Ocean Spaces for the Future? The Initiative of the Pacific SIDS to Develop Regional Practice Concerning Baselines and Maritime Zone Limits" (2019)

Island States are among those "States whose interests are specially affected," a significant attribute regarding the establishment of a general practice in the formation of a new rule of customary international law, that was recognized by the ICJ in the 1969 *North Sea Continental Shelf cases*.[302]

Another approach is to assess whether State practice has actually changed the traditional interpretation of the LOSC. The 1969 Vienna Convention on the Law of Treaties does envisage that in interpreting treaties, "any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation" shall be taken into account, together with the context.[303] In 2016, the ILC looked at the question of what constitutes "subsequent practice" for these purposes and it suggested that this would include State conduct in the application of a treaty, after its conclusion, which establishes the agreement of the parties regarding the interpretation of the treaty, or it could be conduct by one or more parties in the application of the treaty, after its conclusion.[304] So if it can be shown that there is consistent state practice in the interpretation of the LOSC rules on baselines, this would be important evidence of an emerging customary law interpretation of the issue of "ambulatory" baselines.

In addition to a number of important joint political statements by the leaders of PICs,[305] there has also been a major effort under the Pacific Oceanscape Programme to accelerate the conclusion of maritime boundaries between the States and territories of the region and to determine with much more detail and precision the existing extent and delineation of national maritime zones. The Pacific Maritime Boundaries project working within this framework has assisted and facilitated the conclusion of a remarkable number of agreements in the region as well as assisted with the development of more detailed delineation of maritime limits using coordinates based on modern geodetic data. [306]

The project has also assisted with one submission to the CLCS, although 16 more are in preparation.[307] An example of a more modern approach to delineation of national limits is provided by the Republic of the Marshall Islands which, on 18 March 2016, passed comprehensive new legislation repealing "in its entirety" the 1984 Maritime Zones Declaration Act, and declaring anew all its maritime zones in a detailed document running to more than 400 pages.[308] This represents one of the latest developments in an emerging pattern of practice in the Pacific region whereby States are unilaterally declaring and publicizing their maritime jurisdictional baselines, limits, and boundaries. Even though the LOSC only requires notification to the UNSG of certain types of limits and boundaries (such as straight and archipelagic baselines), it has become regional practice to notify the UN of all maritime lines and zones, with full geodetic data. While stability in the spatial scope of a State's maritime jurisdiction has clear administrative as well as enforcement benefits, the wider implication of this practice is that it appears to be a deliberate attempt to pre-empt arguments that physical changes to its coastline, particularly those resulting from climate change induced sea level rise, would have resulting impacts on its baselines and/or on the outer limits of its zones.[309] Similar legislation, designating new archipelagic waters and designating the outer limits of the national EEZs, has also been passed by Kiribati[310] and Tuvalu.[311]

Ocean Yearbook Vol. 33, pp. 58-89.

[302] *North Sea Continental Shelf cases* (1969) I.C.J. Reports, p. 3 at paras. 73–74.

[303] 1969 Vienna Convention, Art. 31(3)(b).

[304] *Report of the International Law Commission: Sixty-eighth session* (2 May–10 June and 4 July–12 August 2016) A/71/10.118 at 121. The ILC adopted "Draft conclusions on subsequent agreements and subsequent practice in relation to the interpretation of treaties, with commentaries" at its seventieth session, in 2018, and submitted to the General Assembly as a part of the Commission's report covering the work of that session (A/73/10).

[305] See, e.g., the 2015 Taputapuātea Declaration, the Delap Commitment and the Boe Declaration—all discussed in Freestone and Schofield "Securing Ocean Spaces for the Future? The Initiative of the Pacific SIDS to Develop Regional Practice Concerning Baselines and Maritime Zone Limits" (2019), pp.58-89.

[306] See, Robyn Frost et al. (2016) pp. 302–303 and 306–309.

[307] *Ibid.*

[308] Act No. 13 of 2016. Source at: http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/PDFFILES/DEPOSIT/mhl_mzn120_2016_1.pdf. Discussed in detail by David Freestone and Clive Schofield, 'Republic of the Marshall Islands: 2016 Maritime Zones Declaration Act: drawing lines in the sea' (2016) *International Journal of Marine and Coastal Law* Vol. 31, 720–746.

[309] This and the following section draw on Freestone and Schofield (2016).

[310] Baselines around the Archipelagos of Kiribati Regulations 2014 (2014), http://www.un.org/depts/los/ LEGISLATIONANDTREATIES/PDFFILES/KIR _2014_archipel_baselines_regulations.pdf. Also, Exclusive Economic Zone Outer Limit Regulations 2014 (2014) (Kiribati), http://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/KIR_2014_eez_outer_limits_regulations.pdf (Kiribati). Cited by Stuart Kaye, 'The Law of the Sea Convention and Sea Level Rise after the *South China Sea* Arbitration' (2017) *International Law Studies*, Vol. 93 at 444.

[311] Declaration of Archipelagic Baselines 2012, LN No. 7 of 2012 (Tuvalu), available at: www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/tuv_declaration_archipelagic_baselines2012_1.pdf.

The issue of how to expand that regional understanding to include the wider community of States is difficult. Any international recognition is going to be important, but deliberately precipitating international discussion of the issue—by proposing a UNGA resolution or developing a regional agreement under Article 311(3) of the LOSC, may galvanize support for this, but also run the risk of crystalizing opposition to such a new general rule.

5. What are the legal implications of an island State becoming uninhabitable?

This is an unprecedented situation for international law, which the international community will need to address. But international law and practice does suggest a presumption of State continuity provided the State can honor its international obligations and responsibilities.

At some point in the twenty-second century, or possibly earlier, a number of island territories may become uninhabitable. Not necessarily because they are totally inundated, but because the land area available for living and growing crops has been reduced below a critical threshold, or the soil itself and the freshwater lens beneath the island has become too saline to support life. At that point, if not well before, human populations will need to move. The question is—will that result in the extinction of the State if the normal requirements for statehood include a permanent population and a defined territory?

At present, the idea of an island State without inhabitable island space and no population is still a hypothetical situation, but it is worth addressing as it poses a completely novel problem for international law. Besides, some of the legal challenges and practical constraints imposed by the impacts of sea level rise in this context might become topical in just a few decades, well before statehood becomes an issue. Part II(3) of this paper provided an overview of applicable rules of international law relating to statehood. These rules were developed during the relatively stable climatic period of the last 11,500 years (the Holocene) and international law has never had to address the issue of a viable, functioning sovereign State slowly losing its population and possibly its territory also due to the impacts of sea level rise.[312] The issues involved are sensitive and a number of options are possible and available, so what follows is essentially a summary of the key issues and an attempt to identify in broad brush some of the approaches which commentators have suggested.[313]

A territory and a permanent population are two of the key requirements for statehood laid out in the Montevideo Convention, discussed earlier. Traditionally, territory has been central to the doctrine of international jurisdiction. A State has exclusive jurisdiction in the territory over which it exercises sovereignty. Sovereignty has been defined as the "totality of international rights and duties recognized by international law as residing in an independent territorial unit—the State." [314] It entails the passing of legislation, the ownership of assets, and the other attributes of government. A State also has personal jurisdiction over its nationals and other entities, like ships or companies, registered under its laws. These primary grounds for jurisdiction would arguably continue even without an exclusively owned land territory, as long as the entity of government itself persists.

The main organs of government through which a State exercises its jurisdiction are the legislature, the judiciary, and the executive—the administration. As the slow onset of sea level rise begins to make inroads into the island territory, these organs will need to be relocated, probably sooner rather than later. This relocation may in the first instance be within the State. In certain cases, a State may also maintain a symbolic presence, for example, through a parliament building on a built-up higher ground where the parliament meets once or twice a year. If the situation is reached where no further higher ground is available, the relocation will need to be to another State, either to another higher island or to a

[312] Davor Vidas (2014), p. 83. See also, Davor Vidas, David Freestone, and Jane McAdam, "International Law and Sea Level Rise: The New ILA Committee," (2015), *ILSA Journal of International and Comparative Law*, Vol. 21(2), pp. 397-408.

[313] Rayfuse, Rosemary. 2009. "W(h)ither Tuvalu International Law and Disappearing States." UNSW Law Research Paper No. 2009-9; Jenny Grote Stoutenburg, "When Do States Disappear? Thresholds of Effective Statehood and the Continued Recognition of 'Deterritorialized' Island States" in Michael Gerrard and Gregory Wannier, eds, *Threatened Island Nations: Legal Implications of Rising Seas and a Changing Climate* (2013), pp. 76-77; Catherine Blanchard, "Evolution or Revolution: Evaluating the Territorial State-Based Regime of International Law in the Context of the Physical Disappearance of Territory due to Climate Change and Sea-Level Rise" (2015) *Canadian Yearbook of International Law*, Vol. 53 pp. 66-118.

[314] See, in general, Crawford, pp. 32-33. "Jurisdiction" on the other hand, refers to "particular aspects of the substance, especially rights (or claims), liberties, and powers", see, Brownlie, p. 106.

mainland area. The details of this relocation will probably be different in each case, but commentators have suggested a few alternatives. The most obvious example of an alternative is that the relocating State may be able to lease or buy land areas in another State.[315] This is why analogies have been drawn with situations where a government has moved into exile.[316]

There are various examples of governments operating "in exile" outside of their own territory. The general presumption is that such an arrangement is temporary. The disconnect between the territory and population obviously poses various limitations with regard to the capacity of such a government to function compared with the situation of a government operating within its own territory. Thus, where a government might be forced to operate outside of its territory on a permanent basis, the scope of its sovereignty and independence may well be questioned, if not effectively impacted.

In such a scenario, where a government has to relocate, there are a number of key issues to consider. Is the relocated government able to function effectively, generate its own income, and protect the assets and the nationals that still owe allegiance to it? Can it continue to function on the international plane? This does not mean simply maintaining a number of ambassadors or overseas legations—although it will probably have to do that—but whether it can really govern; that is, can it meet the obligations and responsibilities which international law imposes upon it? These would include being able to honor the international treaty obligations it has undertaken by, for example, ratifying human rights treaties and the obligations derived from customary international law. There is also a question as to the continued ownership of the islands and maritime areas from which it has relocated.

Each of these questions will need to be addressed on an individual basis, but there does appear to be a presumption of State continuity under international law[317] and, in principle, there is no reason why a sovereign State could not relocate its seat of government. The details would have to be negotiated with the host State that is offering refuge or is being paid to provide land on a lease or in perpetuity. Indeed, the host State may be prepared to offer certain political assistance of its own—in the way that France and Spain offer protection to the micro-State of Andorra, San Marino operates under the general protection of Italy, but enters into treaties on its own, and Liechtenstein, whose foreign relations are generally handled by Switzerland.

In the short term, well before these scenarios take place, the increasing uninhabitability of parts of affected countries and other adverse effects of sea level rise may create significant constraints on affected States' capacity to function effectively both at internal and external levels. Governments might, for instance, become less and less able to implement their obligations to protect civil and political rights of their populations and the full realization of economic, social, and cultural rights; repay loans and service debts; or fulfil treaty obligations to cooperate with other countries on specific matters. The following paragraphs outline some of the key legal implications and applicable legal regimes, albeit not exclusive.

Membership of International Organizations

One of the privileges associated with statehood is the ability to seek membership of international organizations, even though such membership is not always exclusively reserved for States.[318] Particular conditions for membership vary; certain international organizations may have more stringent preconditions for membership. Article 4.1 of the UN Charter states, "Membership in the United Nations is open to all other peace-loving *States* which accept the obligations contained in the present Charter and, in the judgment of the Organization, *are able and willing to carry out these obligations*" (emphasis added).

Maritime Entitlements

The question of continued ownership and sovereignty over the former islands and maritime areas which were generated by those islands is a truly new issue and

[315] See, Emma Allen (2018), pp. 1-23. They may rather choose to merge with another State, as Zanzibar and Tanganyika did in 1964 to form Tanzania. Becoming a new State raises another wide swathe of legal issues which will not be dealt with here. For the discussion of a suggested totally new entity, see, Maxine Burkett, "The Nation Ex-Situ: On Climate Change, Deterritorialized Nationhood, and the Post-Climate Era" (2011) *Climate Law*, Vol. 2, pp. 245-374.

[316] McAdam, Jane. 2010. "'Disappearing States', Statelessness and the Boundaries of International Law." *Climate Change and Displacement: Multidisciplinary Perspectives.* Oxford, Hart, ed. Jane McAdam, pp. 105-130, at 116-118.

[317] Crawford concludes that "*A State is not necessarily extinguished by substantial changes in territory, population or government, or even, in some cases, by a combination of all three.* [...] And, generally, the presumption—in practice *a strong presumption*—favours the continuity and disfavours the extinction of an established State." See, pp. 700-701. For a detailed analysis on the issue, see also, Crawford, pp. 667-699.

[318] Some international organizations do admit non-State entities as members.

contains a number of unknowns. It is possible that the relocated State may claim ownership and sovereignty over the islands and insular features that remain above water. After all, many States claim ownership of islands in distant parts of the world. While they remain above water, they will at least generate a 12 nm territorial sea.

The challenge is that the majority of the wealth of the ocean resource, such as pelagic tuna resources, lies further offshore as does the majority of continental shelf resources. In order to maintain sovereign rights over these resources, the relocated State will need to be able to maintain its wider maritime zone entitlements, to a 200 nm EEZ and if relevant an extended continental shelf beyond 200 nm.

The 1982 LOSC does not really provide help with this issue. It indicates that an insular feature that "cannot sustain human habitation or an economic life of its own" is not entitled to an EEZ or continental shelf.[319] Similarly, if there is no feature above water at high tide, then no maritime zones are recognized by the LOSC. However, the total or partial loss of maritime entitlements has been described as an outcome that is "intrinsically inequitable and contrary to intentional law."[320] There is considerable State practice developing in the Pacific region, discussed above,[321] to support the view that island and coastal States should not be required to adjust their coastal baselines and maritime entitlements in response to changes brought about by sea level rise. If this were to gather sufficient support from other States to crystallize into a rule of customary international law or a universally accepted interpretation of the LOSC, then maritime entitlements could be maintained. As they could if a new international legal instrument were to recognize their continued ownership in some way.[322] But the relocated State would still need to be able to allocate resources to policing and defending those areas.

Treaty Obligations

There will inevitably be a few treaty obligations that the relocated State may simply not be able to honor. International law may provide a remedy in that it presumes that there could be situations where the original circumstances leading to the conclusion of a treaty may have changed and thus parties cannot be taken to have consented to the performance of the treaty under the new circumstances. This principle, discussed above, is called "fundamental change of circumstances,"[323] and may be very relevant in this situation. But otherwise the relocated State would need to honor its general international law obligations, including its treaties. This is particularly important as the final and essential requirement of statehood is the "capacity to enter into relations with other States."[324] This capacity ultimately depends upon the recognition by other States of the relocated government as a State. To maintain this recognition, it will need to show itself capable of, and willing to take advantage of its international rights and meet its international duties.

Protection of Persons

In a possible scenario where the government and population (either partially or entirely) have to be relocated, then the protection of the population becomes a particularly complex issue. A State has the primary duty to ensure the protection of persons under its jurisdiction or control. If the affected State loses its status as a State, who would function as the duty-bearer in respect to the human rights of the affected population who had to move due to sea level rise or to people who remain? This would be a crucial issue to be addressed. In theory, preservation of statehood may alleviate such risk of legal lacunae. In practice, however, even before statehood becomes an issue, there is a clear risk that sea level rise impacts may hamper a State's capacity to provide protection and fulfil the progressive realization of economic, social, and cultural rights of its people.

State Responsibility

Under international law, State responsibility generally refers to legal responsibility for the violation of an international obligation and associated consequences.[325] For State responsibility to arise, there has to be a violation of an international obligation attributable to a State. In the presence of a valid defense, such responsibility may

[319] LOSC, Art. 121(3).

[320] Rayfuse, Rosemary. 2010. "International Law and Disappearing States: Utilizing Maritime Entitlements to Overcome the Statehood Dilemma." *University of New South Wales Faculty of Law Research Paper* no 2010-52 at 9. Blanchard, pp. 96-97. Also, Clive Schofield and David Freestone, "Options to Protect Coastlines and Secure Maritime Jurisdictional Claims in the Face of Global Sea Level Rise" in Gerrard and Wannier, p. 162.

[321] See also 2018/5 Resolution of the ILA.

[322] See options discussed in 2018 ILA Report.

[323] Or *rebus sic stantibus*. 1969 Vienna Convention, Art. 62.

[324] Montevideo Convention, Art. 1.

[325] See, in general, UN International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts, with commentaries*, U.N. Doc. A/56/10 (2001).

be avoided.[326] For instance, can sea level rise be accepted as *force majeure*?[327] Alternatively, could other grounds precluding wrongfulness, such as distress or necessity, be invoked by States affected by sea level rise as defense mechanisms in situations where they breach their obligations due to constraints imposed by sea level rise? International law does not provide clear cut answers to these questions. These grounds could be arguably used but the threshold would be potentially high, considering the causes and effects of climate change in light of the modern scientific thinking.

In general, it is argued that it would be incorrect to presume that the loss of one or more elements of the Montevideo criteria would automatically lead to the cessation of statehood,[328] if only because of the risk of rendering significant numbers of people stateless, either legally (*de jure*) or practically (*de facto*).[329] Moreover, governments can still maintain some functional capacity and exercise sovereign rights through options such as government-in-exile. While it is not certain, it is most likely that the international community will be willing to recognize the continuity of statehood for those states threatened by submergence due to sea level rise,[330] so long as they maintain some symbolic territory and population and, most importantly, a functional government, so that status quo could be maintained. However, despite the strong presumption of continuity of statehood for so long as crucial elements of statehood are maintained, continuity of statehood might still be questioned in situations where the loss of territory or the exile of the population and government become permanent. Even, before then, while these elements weaken, statehood may erode over time, or at least be questioned.

6. What are the legal and policy options relating to human mobility in the context of climate change?

International law does provide a framework for addressing issues of human mobility in the face of sea level rise, but it is fragmented. This section sets out the relevant legal tools and policy options that might help people adapt in situ and that facilitate human mobility if it becomes necessary.[331]

As laid out in Part II(4), the regime addressing human mobility in the context of climate change is highly fragmented.[332] Various proposals have been presented by scholars including the possibility of a new convention to specifically address this issue.[333] However, a new inter-

[326] Such grounds precluding "wrongfulness" may include consent, force majeure and fortuitous event, distress, state of necessity, and self-defense. See, ILC Draft articles on Responsibility of States for Internationally Wrongful Acts, Chapter V in general.

[327] ILC, Draft articles on Responsibility of States for Internationally Wrongful Acts, Article 23 on force majeure reads as follows: "The wrongfulness of an act of a State not in conformity with an international obligation of that State is precluded if the act is due to *force majeure, that is the occurrence of an irresistible force or of an unforeseen event, beyond the control of the State, making it materially impossible in the circumstances to perform the obligation*."

[328] McAdam (2010) at p. 117.

[329] Although "de facto" statelessness might occur when the State is no longer able to protect its citizens—which may be in advance of loss of statehood. Commentators have flagged this, see, "Climate Change and Statelessness: An Overview" submitted by the United Nations High Commissioner for Refugees with the support of the International Organization for Migration and the Norwegian Refugee Council to the 6th session of the Ad Hoc Working Group on Long-Term Cooperative Action (AWG-LCA 6) under the UN Framework Convention on Climate Change (15 May 2009). Also Michelle Foster and Helene Lambert, "Statelessness as a Human Rights Issue: A Concept Whose Time Has Come" (2016), International Journal of Refugee Law, Vol. 28(4), pp. 564-584; Marija Dobrić, "Rising Statelessness Due to Disappearing Island States: Does the Current Status of International Law Offer Sufficient Protection?" (2019), *Statelessness & Citizenship Review*, Vol 1(1), pp. 42-68. The two existing conventions addressing the issue of statelessness, namely, the 1954 Convention relating to the Status of Stateless Persons and the 1961 Convention on the Reduction of Statelessness are only applicable to *de jure* statelessness and not widely ratified.

[330] The issue of recognition of states has been subject to competing theories as some believe that an entity cannot be accepted as a state unless it is generally recognized as such by other states (constitutive theory) whereas others accept that recognition has no legal effect on the formation of statehood (declaratory theory).

[331] For ease of reference these are summarized in tabular form in Appendix I.

[332] Indeed, it has been argued that it is the confusion surrounding the fragmented regime rather than gaps in the legal regime itself that leads to the current de facto protection gaps. See, in particular, Benoit Mayer, *The Concept of Climate Migration: Advocacy and its Prospects* (Edward Elgar Publishing, 2016).

[333] Biermann, Frank and Ingrid Boas. 2010. "Preparing for a Warmer World: Towards a Global Governance System to Protect Climate Refugees," in *Global Environmental Politics*, pp. 60-88, MIT Press. Docherty, Bonnie and Tyler Giannini. 2009. "Confronting a Rising Tide: A Proposal for a Convention on Climate Change Refugees." *Harvard Environmental Law Review*, Vol. 33, pp. 349-403. For a comprehensive treatment of relevant proposals, see, Michele K. Solomon and Koko Warner, "Protection of Persons Displaced as a Result of Climate Change: Existing Tools and Emerging Frameworks" in *Threatened Island Nations: Legal Implications of Rising Seas and a Changing Climate*, eds. Michael B. Gerrard and Gregory E. Wannier (Cambridge Press, 2013). Although others are unconvinced: Jane McAdam, "Swimming against the Tide: Why a Climate Change Displacement Treaty is not *the* Answer" (2011),

national treaty would need considerable political capital to conclude, bring into force, and implement.[334] Moreover, a generalized treaty may not necessarily provide the key tools to address specific, localized concerns that might be better dealt with at the regional, bilateral and national levels.[335] This section will highlight specific legal and policy options in the context of different mobility scenarios.

In Situ Adaptation Where this is Feasible and Desirable

There is little doubt that allowing people to adapt in their original location—*in situ* adaptation to sea level rise impacts—is the preferred option, but not always physically possible.[336] It does require a great deal of forward planning and preparedness, which in turn requires resources.

The Paris Agreement recognizes that adaptation is a country-driven process which needs to adopt a "gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems."[337] Assessing climate impacts, vulnerability, and risks including the impacts of adaptation and climate resilience strategies that aim to assist those who wish to remain *in situ* need to inform legal and policy interventions. Identifying medium- and long-term adaptation needs and communicating these needs through instruments such as NDCs and NAPs remain crucial in accessing adaptation financing and therefore ensuring effective implementation of adaptation measures.

"Adaptation with Dignity" requires "not only a focus on defending sustainable livelihoods but doing so in a way which enables people to live with their human rights respected."[338] States' existing obligations to respect, protect, and fulfil human rights would need to inform legal and policy interventions at the national level.[339] Procedural rights, notably the rights to information and to participate in decision-making, play a key role in enabling affected people to make informed decisions. Core principles such as non-discrimination, transparency, and human dignity are also relevant for adaptation measures.

In 2015, the UN General Assembly endorsed the definition of resilience in the Sendai Framework as: "The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions."[340] To foster resilience, it is important to understand vulnerabilities and capacity to cope with sea level rise and climate change risks and impacts. Coping with the existing root causes of vulnerability and poverty will increase communities' resilience.[341]

Disaster risk management schemes are important tools to increase resilience. The Sendai Framework for Disaster Risk Reduction identifies four priorities in this respect: (i) understanding disaster risk, (ii) strengthening disaster risk governance to manage disaster risk, (iii) investing in disaster risk reduction for resilience, and (iv) enhancing disaster preparedness for effective response. It outlines necessary actions to achieve these targets including through governance, policymaking, investment, and international cooperation.[342]

The UN Office for Disaster Risk Reduction (UNDRR) has provided guidance in Words into Action Disaster Displacement: How to Reduce Risk, Address Impacts and Strengthen Resilience. This guiding document complements the Sendai Framework by providing further guid-

International Journal of Refugee Law, Vol 23(1), pp. 2-27.

[334] McAdam (2011) at p. 25.

[335] See, in general, Michael M. Cernea, Elizabeth Ferris, and Daniel Petz, "On the Front Line of Climate Change and Displacement: Learning from and with Pacific Island Countries" (2011), as part of Brookings-Bern Project on Internal Displacement.

[336] See, Pacific Islands Forum Secretariat, 2008 Niue Declaration on Climate Change, available at: https://www.forumsec.org/2008/02/21/the-niue-declaration-on-climate-change/; and the Report from the Nansen Initiative Pacific Regional Consultation, Human Mobility, Natural Disasters, and Climate Change in the Pacific: Outcome Report (21-24 May 2013, Rarotonga, Cook Islands).

[337] PA, Art. 7(5).

[338] McAdam, Jane and Ben Saul. 2010. "Displacement with Dignity: International Law and Policy Responses to Climate Change Migration and Security in Bangladesh." *German Yearbook of International Law*, Vol. 53, p. 268. See also, Dug Cubie, "In-Situ Adaptation: Non-Migration as A Coping Strategy for Vulnerable Persons" in *Climate Change, Migration and Human Rights: Law and Policy Perspectives*, eds. Dimitra Manou, Andrew Baldwin, et al. (Routledge, 2017).

[339] As briefly outlined under Part II(4), many argue that States' relevant obligations under human rights law need to be complemented through international cooperation to address technical and financial constraints that affected States may be facing. The duty to cooperate can play an important role in the context of sea level rise, though its scope and content is contested and requires further clarification.

[340] Sendai Framework for Disaster Risk Reduction 2015–2030 (adopted 3 June 2015), UNGA Res A/RES/69/283 69/283.

[341] Cubie, at p. 104.

[342] See, Sendai Framework for Disaster Risk Reduction 2015–2030, in particular, paras 27, 28, 30, 33, and 36.

ance on how human mobility can be integrated in disaster risk management schemes.[343] Even more relevant is the regional Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management 2017–2030 that was adopted by the Pacific Islands region in 2016 as voluntary guidelines to support efforts to enhance resilience to climate change and disasters. This framework puts particular emphasis on human mobility by highlighting the need to integrate it into both regional and national policies within the context of disaster preparedness, response, and recovery.[344] The Vanuatu Climate Change and Disaster Risk Reduction Policy 2016–2030, for instance, highlights the need for targeted support for IDPs[345] and calls for development of a national policy addressing internal displacement and resettlement.[346] This policy led to the 2018 Vanuatu National Policy on Climate Change and Disaster-Induced Displacement stressing durable solutions for Vanuatu's IDPs.[347]

Integrating adaptation strategies into sustainable development policies and programs could be another important tool helping people to stay. Although Agenda 2030 for Sustainable Development[348] does not explicitly address human mobility in the context of climate change, the Sustainable Development Goals (SDGs) do provide meaningful entry points for governments and other development actors to help people adapt by building their resilience and factoring migration into development strategies.[349]

Migration as a Means of Adaptation

When *in situ* adaptation is no longer an option, migration as adaptation can be an effective tool to avoid later potential displacement.[350] As discussed in Part II(4), there are umbrella principles enshrined in human rights law and relevant international labor law instruments that can guide legal and policy actions at national and regional levels. The host countries' relevant human rights obligations would apply to anyone within their jurisdiction irrespective of nationality.[351] However, these standards would need to be complemented with immigration frameworks addressing primarily the issues of admission, residence permits, and access to labor market. Current migratory schemes in the region may provide meaningful entry points for further policy development in the context of migration.[352]

Currently, in the Pacific region, there are various existing immigration schemes related to employment, family, education, or other forms of privileged access to territory. The Nansen Initiative's regional consultations in the Pacific region highlight that former ties with certain countries contributed to the formation of sub-regional "clusters" of States and have facilitated some form of voluntary migration through privileged access to temporary or permanent residence in 'hub' States, including New Zealand, USA, France, and more recently Australia.[353] The way existing clusters are structured as well

[343] UN Office for Disaster Risk Reduction (UNDRR) "Words into Action Disaster Displacement: How To Reduce Risk, Address Impacts And Strengthen Resilience" (2019) available at: https://www.preventionweb.net/files/58821_wiadisasterdisplacement190511webeng.pdf

[344] Framework for Resilient Development in the Pacific An Integrated Approach to Address Climate Change and Disaster Risk Management (FRDP) 2017—2030, available at: http://tep-a.org/wp-content/uploads/2017/05/FRDP_2016_finalResilient_Dev_pacific.pdf

[345] The Vanuatu Climate Change and Disaster Risk Reduction Policy 2016-2030 (adopted in 2015), available at: https://www.nab.vu/sites/default/files/nab/vanuatu_cc_drr_policy_minus_att4v4.pdf, see Section 7.6.1

[346] *Ibid*., Section 7.6.6.

[347] Vanuatu National Policy on Climate Change and Disaster-Induced Displacement (2018), available at: https://www.pacificclimatechange.net/sites/default/files/documents/iom-vanuatu-policy-climate-change-disaster-induced-displacement-2018.pdf

[348] UN General Assembly, "Transforming our world: the 2030 Agenda for Sustainable Development" Resolution adopted by the General Assembly on 25 September 2015, UN Doc. No. A/RES/70/1.

[349] Particularly relevant goals include: ending poverty by building resilience of vulnerable populations to extreme events under Goal 1; achieving food security and promoting sustainable agriculture and strengthening capacity for adaptation to environmental changes under Goal 2; reducing the number of people suffering from water scarcity under Goal 6; promoting the implementation of planned and well-managed migration policies under Goal 10; reducing the number of deaths and people affected by disasters through effective DRR practices and strengthening development planning for resilient cities and settlements under Goal 11; and building adaptive capacity in the face of climate change and integrating climate change measures in policies under Goal 13. For further details, see International Organization for Migration (IOM), Task Force on Displacement Activity II.2 "Mapping Human Mobility (Migration, Displacement and Planned Relocation) and Climate Change in International Processes, Policies and Legal Frameworks" (August 2018).

[350] McAdam, Burson, et al. (2016), p. 39.

[351] While the enjoyment of some rights is strongly connected to nationality (e.g., political rights), core human rights, such as the right to life, the right to liberty and security of person, and human rights to education, health and cultural identity are afforded to everyone irrespective of nationality or other status.

[352] See, Bruce Burson and Richard Bedford, "Clusters and Hubs: Toward a Regional Architecture for Voluntary Adaptive Migration in the Pacific" (December 2013), Discussion Paper, Nansen Initiative.

[353] *Ibid.* The Discussion Paper concludes: "The dynamic process of cluster formation and development provides opportunities for the enhancement of regional mobility. Existing and emerging sub-regional clusters will need to be encouraged and supported in their attempts to foster and promote intra-cluster mobility" p. 46.

as levels of opportunities available for each cluster are disparate.[354]

These frameworks are generally not comprehensive enough to address wide-scale migration and challenges brought by sea level rise and climate change.[355] Existing laws and policies will probably need to be reviewed in the light of key legal frameworks as outlined above,[356] with a view to providing flexibility in allowing the transition to worker status, allowing residency options, alleviating the requirements for sponsorship for residence, and adopting a less stringent approach to the existing quota arrangements.[357] Data on gender and other vulnerable groups and on interactions between remittances and adaptive capacity would also contribute to a better understanding of where gaps are.[358]

Box 1. Impacts of migration on the Marshallese migrants and the Compact of Free Association (COFA).

The Freely Associated States (FAS) of the Republic of the Marshall Islands (RMI), the Federated States of Micronesia (FSM), and the Republic of Palau (Palau) all enjoy a special relationship with the United States through their Compacts of Free Association (COFAs). These COFAs govern diplomatic, economic, security, and defense relations and also include immigration provisions giving citizens of the FAS the right to enter, work, and live in the U.S. subject to certain restrictions. In light of the distinctive legal context presented by COFAs, the Marshall Islands Climate and Migration Project (MICMP), [359] has studied the extent to which climate-related stressors have driven migration within the Marshall Islands and from the Marshall Islands to the U.S. as well as the impacts of migration on the Marshallese migrants and their home communities. MICMP identifies potential priority areas that need to be addressed within the COFA framework as climate change impacts are expected to increase migration. The COFA framework creates a category of "lawful non-immigrants" for RMI citizens enabling them to benefit from various U.S. federal programs and services, reside and work in the U.S. and its territories. However, there are still some challenges with the existing COFA programs including migrants' access to certain critical benefits in the U.S., like health insurance, as well as problems relating to access to education.

[354] For a detailed analysis, see, *ibid*., pp. 24-40.

[355] Solomon and Warner, p. 277. For a more detailed treatment of the issue, see also, Richard Bedford and Charlotte Bedford, "International Migration and Climate Change: A Post-Copenhagen Perspective on Options for Kiribati and Tuvalu" in *Climate Change and Migration: South Pacific Perspectives* (Institute of Policy Studies, 2010) *ed.* Burson.

[356] In Part II(4).

[357] Burson and Bedford, pp. 8-10. See, also, John Campbell and Olivia Warrick, "Climate Change and Migration Issues in the Pacific" (2014), produced as part of the Pacific Climate Change and Migration (PCCM) Project entitled, "Enhancing the Capacity of Pacific Island Countries to Manage the Impacts of Climate Change on Migration" supported by the European Union and implemented by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the International Labour Organization (ILO) and the United Nations Development Programme (UNDP).

[358] Campbell and Warrick, p. 31.

[359] For further details, see, Kevin Morris, Maxine Burkett, and Brittany L. Wheeler, "Climate-Induced Migration and the Compact of Free Association (COFA): Limitations and Opportunities for the Citizens of the Republic of the Marshall Islands" (2019) Policy Brief of the Marshall Islands Climate and Migration Project, University of Hawai'I at Mānoa. The report is available online at: https://static1.squarespace.com/static/596d5a162e69cf240a0f043b/t/5e3cfc7fb5004465df14d6c9/1581055113094/MICMP2019_COFAPolicyBrief.pdf This research is part of the Marshall Islands Climate and Migration Project (MICMP) which is conducted in Partnership with the Pacific Island Climate Science Center (PICSC), NOAA's Pacific Research and Integrated Science Assessments Program (Pacific RISA), and The Marshall Islands Conservation Society (MICS). The Marshall Islands Climate and Migration Project generally deals with the role of climate change and ecosystem services in the migration decisions of Marshallese islanders. Further information is available at: www.rmi-migration.com

Planned Relocation

As sea level rise becomes more intense later in the century, some planned relocations as a preventive measure to move people out of risk-prone areas might be inevitable.[360] Forced evacuations and arbitrary displacement are generally prohibited under international law.[361] However, States' existing human rights obligations to protect the right to life may obligate States to evacuate persons facing serious and imminent risk to their lives due to sea level rise impacts.[362] Similarly, when it is impossible or unsafe to return, human rights obligations may also oblige a State to relocate affected persons temporarily or permanently in the face of a foreseeable harm provided that such measures are proportionate, necessary and conducted for a legitimate purpose, that is, to protect the right to life and health of affected persons.[363]

The UNHCR and other key actors recommend that the governments of PICs consider planning at the legal, policy, and institutional level to address planned relocations as part of their long-term climate change adaptation plans.[364] Guidance is available from a wide range of initiatives on existing standards and lessons learned relating to displacement occurring in the context of development projects. The UNHCR also recommends that planned relocation is considered as a measure of last resort and planned to take into account relevant human rights principles, such as free, prior, and informed consent of affected communities; effective and meaningful participation; appropriate and fair compensation; the right to an adequate standard of living including adequate housing; and the right to an effective remedy.[365]

Box 2. Fiji's Planned Relocation Guidelines (2018).

Fiji is one of the few countries which has a framework in place for addressing planned relocation as part of their adaptation strategies in relation to disasters and slow-onset events related to climate change. Fiji has already relocated Vunidogoloa village in Vanua Levu in 2014 and communities in Vunisavisavi in 2015. In light of past experiences and the pressing threat posed by adverse impacts of climate change, Fiji's Planned Relocation Guidelines[366] launched at COP24, outline principles related to planned relocation and identify concrete actions pertaining to different stages and relevant stakeholders involved. These Guidelines also highlight the importance of an inclusive and gender responsive consultative and participatory process and are designed to serve as a coordination mechanism to improve the collaboration of relevant stakeholders. Following this policy development, Prime Minister Honourable Josaia Voreqe Bainimarama launched the world's first relocation fund on the margins of the 74th United Nations General Assembly: Climate Relocation and Displaced Peoples Trust Fund for Communities and Infrastructure,[367] with the aim to receive additional funds for 45 other villages identified and possible others to be relocated in the near future. This trust fund aims to supplement the existing Environment and Adaptation Climate Levy through which Fiji is providing seed funding.

[360] For an extensive discussion in scholarly literature, see, Jane McAdam and Elizabeth Ferris, "Planned Relocation in the Context of Climate Change: Unpacking the Legal and Conceptual Issues" (2015) *Cambridge Journal of International and Comparative Law*, Vol. 4(1) pp. 137–66; Jane McAdam, "Historical Cross-Border Relocation in the Pacific: Lessons for Planned Relocations in the Context of Climate Change" (2014) *Journal of Pacific History*, Vol. 49(3), pp. 301–27.

[361] Guiding Principles on Internal Displacement, Principle 6; Kampala Convention, Arts. 3(1), 4(1) and 4(4). The Committee on Economic, Social and Cultural Rights (CESCR) has recognized that "forced evictions are *prima facie* incompatible with the requirements of the Covenant and can only be justified in the most exceptional circumstances, and in accordance with the relevant principles of international law." See, CESCR, General Comment No 7: Forced Evictions (1997) Doc. No. E/1998/22 at para 1.

[362] See, e.g., ECtHR, *Budayeva and Others v. Russia*, App. No. 153391/02 (2008). See also, the Sydney Declaration, Principle 8 and its commentary. For a comprehensive analysis on the issue, see Bruce Burson, Walter Kälin, Jane McAdam, and Sanjula Weerasinghe, "The Duty to Move People Out of Harm's Way in the Context of Climate Change and Disasters" (2018) *Refugee Survey Quarterly* Vol. 37, pp. 379 - 407. The authors also state: "To date, no regional court or international treaty-monitoring body has had the opportunity to examine the tension between the State's duty to protect life, on the one hand, and the individual's right to liberty of movement and freedom to choose one's residence (which also encompasses the right to stay), on the other" see pp. 395-396 for further details.

[363] *Ibid.*, p. 398. See also, the Sydney Declaration, Principle 9 and its commentary.

[364] *Planned Relocations, Disasters and Climate Change: Consolidating Good Practices, Preparing for the Future*, Background Document, UNHCR, Brookings Institution and Georgetown University Consultation, Sanremo, Italy, 12–14 March 2014.

[365] *Ibid.*

[366] *Planned Relocation Guidelines: A framework to undertake climate change related relocation* (2018), available at: https://cop23.com.fj/wp-content/uploads/2018/12/CC-PRG-BOOKLET-22-1.pdf The Planned Relocation Guidelines was developed under the guidance of the Ministry of Economy of the Fijian Government with support from the Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ).

[367] Permanent Mission of Fiji to the United Nations, World's First –Ever Relocation Trust Fund for People Displaced by Climate Change Launched by Fijian Prime Minister (25 September 2019) available at: https://www.un.int/fiji/news/world%E2%80%99s-first-%E2%80%93ever-relocation-trust-fund-people-displaced-climate-change-launched-fijian-prime

Internal and Cross-border Displacement

Large-scale internal displacement as a result of the adverse impacts of climate change is reported to be already occurring.[368] Without planned responses, widespread displacement across borders may also become inevitable. The relevant international framework addressing internal displacement is largely considered adequate at the normative level.[369] Their implementation, however, can be strengthened at national level by incorporating relevant standards into legal and policy instruments. The Office of the High Commissioner for Human Rights (OHCHR) has recommended that domestic frameworks align with the UN Guiding Principles on Internal Displacement—the prevailing normative framework—and States' obligations to respect, protect, and fulfil related human rights.[370]

Concerning cross-border displacement, however, gaps remain. The Nansen Initiative, a "State-led, bottom-up consultative process intended to identify effective practices," has developed a "Protection Agenda." This work has diagnosed a general lack of preparedness leading to "*ad hoc* responses" in many cases and it has highlighted priority areas for enhanced action.[371]

As mentioned earlier, human rights law and the principle of *non-refoulement* may provide some protection in cases of cross-border displacement. In September 2015, Mr. Teitiota, a citizen of Kiribati, filed a communication with the UN Human Rights Committee, alleging that New Zealand had violated his right to life under the International Covenant on Social and Political Rights (ICCPR) by denying his asylum application and forcibly returning him to Kiribati where he had claimed to face risks to his life posed by sea level rise. In January 2020, the UN Human Rights Committee disagreed that this risk was 'imminent', but it expressly recognized the potential risk of loss of life due to sea level rise.[372]

Selected Platforms for Future Action and Cooperation

The UNFCCC Cancun Framework explicitly recognizes the issue in the context of the climate regime and creates the possibility for it to be dealt with under the adaptation framework, thereby enabling adaptation financing to cover this issue.[373] The UNFCCC Task Force on Displacement, established under the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM), has been set up specifically to enable greater cooperation among international organizations and facilitate cooperative approaches among relevant stakeholders to "avert, minimize and address displacement related to the adverse impacts of climate change."[374]

In 2013, the Nansen Initiative conducted important discussions with experts, State representatives, and other stakeholders to identify relevant gaps and opportunities for further action in the context of the Pacific region,[375] and compiled a broad set of effective practices and priority areas for further action.[376]

Additionally, both the Global Compact for Migration and the Global Compact on Refugees reflect political commitments towards global governance of migration[377] and

[368] Internal Displacement Monitoring Centre (IDMC), Pacific Response to Disaster Displacement, https://www.internal-displacement.org/sites/default/files/brochure_prdd_final_260520_min_v2.pdf. See, also, World Bank report, Groundswell: Preparing for Internal Climate Migration. The report acknowledges migration as "human face of climate change" and highlights that unless urgent action is taken, over 140 million people will internally migrate by 2050 only in Sub-Saharan Africa, South Asia, and Latin America.

[369] See, in general, Kälin and Schrepfer above. See also, McAdam, Burson, et al. (2016), at p. 29.

[370] OHCHR, Regional Office for the Pacific, "Protecting the Human Rights of Internally Displaced Persons in Natural Disasters: Challenges in the Pacific" (2011), available at: http://pacific.ohchr.org/docs/IDP_report.pdf See also, Siobhán McInerney-Lankford, "Human Rights and Climate Change: Reflections on International Legal Issues and Potential Policy Relevance" in *Threatened Island Nations: Legal Implications of Rising Seas and A Changing Climate* (Cambridge, 2013), eds. Michael B. Gerrard and Gregory E. Wannier. At pp. 238-239.

[371] These areas include: "(1) collecting data and enhancing knowledge on cross-border disaster-displacement; (2) enhancing the use of humanitarian protection measures for cross-border disaster-displaced persons, including mechanisms for lasting solutions; and (3) strengthening the management of disaster displacement risk in the country of origin." See, The Nansen Initiative, Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change (December 2015).

[372] UN Human Rights Committee, Views Adopted by the Committee under Article 5(4) of the Optional Protocol, concerning Communication No. 2728/2016 (*Teitiota v New Zealand*), 7 January 2020, CCPR/C/127/D/2728/2016.

[373] UNFCCC Cancun Framework, at para 14(f).

[374] UNFCCC, Report of the Task Force on Displacement, September 17, 2018, available at: https://unfccc.int/sites/default/files/resource/2018_TFD_report_17_Sep.pdf

[375] The Nansen Initiative, "The Report from the Nansen Initiative Pacific Regional Consultation, Human Mobility, Natural Disasters, and Climate Change in the Pacific: Outcome Report", Pacific Regional Consultation in Rarotonga, Cook Islands (21-24 May 2013).

[376] See, in general, Platform on Disaster Displacement, available at: https://disasterdisplacement.org/

[377] For a comprehensive analysis, see, Walter Kälin, The 2018 Global Compacts on Refugees and Migration (2018) *International Journal of Refugee Law*, Vol. 30(4).

provide a new capacity development mechanism for enhancing information sharing between countries as well as technical support to governments in designing laws and policies addressing human mobility in the context of climate change. The Global Compact on Migration in particular, aims to "minimize the adverse drivers and structural factors that compel people to leave their country of origin" and urges States to develop adaptation and resilience strategies to sudden-onset and slow-onset natural disasters (explicitly referring to sea level rise), emphasizing that *in situ* adaptation is a priority.[378] Where *in situ* adaptation is not feasible, it calls on States to "enhance availability and flexibility of pathways for regular migration" and specifically highlights the need to "cooperate to identify, develop and strengthen solutions" for such migrants including through designing planned relocation and visa options.[379]

7. How is the international community able to provide support for States that need to adapt to impacts from sea level rise?

There is a myriad of mechanisms available for financial support and technical assistance in designing and implementing adaptation measures, including legal and policy strategies. These are also set out in tabular form in Appendix II.

Increasing access to various financing options, fostering technical assistance and capacity-building support are key to ensuring that some of the adaptation measures covered earlier are in fact feasible. This section will provide a broader overview of existing mechanisms that can offer financial support and technical assistance in designing and implementing adaptation measures, including legal, and policy strategies.[380]

The Paris Agreement mandates "continuous and enhanced international support" to be provided to developing country Parties for the implementation of their adaptation efforts, including strengthening cooperative action on technology development and transfer.[381] Parties agree to strengthen their cooperation on enhancing action on adaptation, taking into account the Cancun Adaptation Framework, including with regard to:

a) Sharing information, good practices, experiences and lessons learned, including, as appropriate, as these relate to science, planning, policies and implementation in relation to adaptation actions.

b) Strengthening institutional arrangements, including those under the Convention that serve this Agreement, to support the synthesis of relevant information and knowledge, and the provision of technical support and guidance to Parties.

c) Strengthening scientific knowledge on climate, including research, systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision-making.

d) Assisting developing country Parties in identifying effective adaptation practices, adaptation needs, priorities, support provided and received for adaptation actions and efforts, and challenges and gaps, in a manner consistent with encouraging good practices.

e) Improving the effectiveness and durability of adaptation actions.[382]

NAPs and NDCs, and other instruments, can help countries communicate their national adaptation needs and priorities as well as their finance needs including existing sources of financing available that need to be complemented further.[383] In that regard, identifying the relevant financing channels, enhancing program and project development to access financing, and using instruments such as NAPs and NDCs to reflect adaptation priorities will be important.

[378] United Nations Global Compact for Safe, Orderly and Regular Migration: Intergovernmentally Negotiated and Agreed Outcome (July 13, 2018), Objective 2, para 18(i).

[379] Global Compact on Migration, Objective 5, para 21(h).

[380] For an insightful assessment of the role of developing and developed countries relating to climate finance under the UNFCCC regime, see also, Di Leva and Morita (2008), pp. 29-32.

[381] PA, Art. 7(13) and Art. 10(2).

[382] PA, Art. 7(7).

[383] Gallo et al. demonstrate the increasing emphasis on marine issues (70% of 161 NDCs refer to ocean and marine issues). Developing countries and LDCs (SIDS in particular) focus on marine climate impacts and adaptation as their livelihood depend on the ocean and is substantially challenged by relevant climate impacts. The study suggests that vulnerabilities associated with sea level rise (*e.g.*, the population living in low-lying coastal areas) are particularly influential in the design of relevant climate policies. For further details, see, Natalya D. Gallo, David G. Victor, and Lisa A. Levin, "Ocean Commitments under the Paris Agreement" (2017), *Nature Climate Change*, Vol. 7. See also, Dorothee Herr and Emily Landis, "Coastal blue carbon ecosystems: Opportunities for Nationally Determined Contributions" (2016) available online at: https://www.nature.org/content/dam/tnc/nature/en/documents/BC_NDCs_FINAL.pdf

Box 3. NDCs of Atoll Countries with ocean-related commitments.

Of the 128 NDCs submitted by coastal States, 107 included adaptation components.[384] Of those 79 coastal countries highlighting climate vulnerabilities to coastal ecosystems and fisheries in their NDCs, 47 pledged to hybrid adaptation whereas 38 focused on "Nature-based Solutions" (for example, conservation of coastal and/or marine ecosystems) and 31 committed to engineered actions such as construction of seawalls, levees, wells, and irrigation infrastructure. The Marshall Islands' NDC[385] highlight the need to design new policies and plans for "constructing elevated settlements for future consolidation of the population" and stresses mangrove rehabilitation as an adaptation action with mitigation co-benefits. Kiribati's NDC[386] highlight actions in respect to the maritime and coastal sectors involving mangroves, coastal vegetation, and seagrass beds. The NDC also identifies primary obstacles in implementing climate action including lack of technical capacity, reliable data for informing adaptation decision-making and resources.

Support through Climate Finance

Under the Paris Agreement, developed country Parties should continue to take the lead in mobilizing climate finance that should represent "a progression beyond previous efforts:"[387]

> *The provision of scaled-up financial resources should aim to achieve a balance between adaptation and mitigation, taking into account country-driven strategies, and the priorities and needs of developing country Parties, especially those that are particularly vulnerable to the adverse effects of climate change and have significant capacity constraints, such as the [LDCs] and [SIDS], considering the need for public and grant-based resources for adaptation.*[388]

The Green Climate Fund (GCF) and the Global Environment Facility (GEF), as well as the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF), administered by the GEF, were entrusted as operating entities under the dedicated financial mechanism of the UNFCCC and are also mandated to serve the Paris Agreement.[389] In COP 24, Parties decided that the Adaptation Fund "shall" serve the Paris Agreement effective 1 January 2019.[390] The Paris Agreement calls on the institutions serving the Paris Agreement, including the operating entities under the UNFCCC, to "aim to ensure efficient access to financial resources through simplified approval procedures and enhanced readiness support for developing country Parties, *in particular for the least developed countries and small island developing States*, in the context of their national climate strategies and plans (emphasis added)."[391]

The GEF [392] was established by the World Bank in 1991, to support the financing of "global environmental goods."[393] The three original "Implementing Agencies" were United Nations Environment Programme, United Nations Development Programme, and the World Bank with four focal areas—Ozone Depletion, Climate Change, Biodiversity Conservation, and International Waters. In 1994, the GEF was restructured to allow it to become the financial mechanism for the UNFCCC and the Convention on Biological Diversity, and land degradation, and later chemicals and waste, were added as

[384] Nathalie Seddon, Sandeep Sengupta, et al., "Nature-based Solutions in Nationally Determined Contributions: Synthesis and recommendations for enhancing climate ambition and action by 2020" IUCN and University of Oxford, available at: https://portals.iucn.org/library/sites/library/files/documents/2019-030-En.pdf at p. 19.

[385] The Republic of the Marshall Islands, "Nationally Determined Contribution" (submitted 22 November 2018) available at: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Marshall%20Islands%20Second/20181122%20Marshall%20Islands%20NDC%20to%20UNFCCC%2022%20November%202018%20FINAL.pdf

[386] Republic of Kiribati, "Intended Nationally Determined Contribution," UNFCCC (submitted 26 September 2015), available at: http://www4.unfccc.int/submissions/INDC/Published%20Documents/Kiribati/1/INDC_KIRIBATI.pdf

[387] PA, Art. 9(3).

[388] PA, Art. 9(4).

[389] Decision 1/CP.21, at para 59.

[390] Decision 13/CMA.1 and Decision 1/CMP.14 on "Matters relating to the Adaptation Fund" Docs No. FCCC/PA/CMA/2018/3/Add.2 and FCCC/KP/CMP/2018/8/Add.1 respectively.

[391] PA, Art. 9.9.

[392] Global Environment Facility, available at: https://www.thegef.org/

[393] The Instrument for the Establishment of the Restructured GEF, available at: https://www.thegef.org/documents/instrument-establishment-restructured-gef For history see David Freestone, "The Establishment, Role and Evolution of the Global Environment Facility: Operationalizing Common but Differentiated Responsibility?" *Liber Amicorum for Thomas A. Mensah: Law of the Sea, Protection of the Marine Environment and Settlement of Disputes.* (Ndlaye and Wolfrum, eds.) Martinus Nijhoff, 2007, pp. 1077-1107.

focal areas.[394] Other financial intermediary funds operating under the GEF are the SCCF, LDCF, Capacity Building Initiative for Transparency, and Nagoya Protocol Implementation Fund. The GEF supports various projects relating to adaptation measures in the Pacific.[395] Financial contributions from donors are replenished every four years. Under the GEF-7 replenishment period (2018–22), the GEF has mobilized US$4.1 billion.[396] However, much more is needed for global adaptation. There are varying estimates in respect to adaptation costs and investment needs. The annual global cost of adaptation has been estimated at between US$28 billion and more than US$100 billion a year by 2030 and US$70 billion to US$500 billion by 2050.[397]

The SCCF was established in 2001 at UNFCCC COP 7 in Marrakech to finance projects relating to, in particular, adaptation, technology transfer, and capacity building.[398] The SCCF has a portfolio of more than US$350 million which has been providing support for about 85 projects at the global level.[399]

The LDCF, also established at COP 7, is designed specifically for LDCs. The LDCF assists LDCs in preparing and implementing their National Adaptation Plans of Action (NAPAs) targeting primarily water, agriculture, disaster risk management, and infrastructure sectors among others.[400] Moving forward, funding support for NAP processes through the SCCF is also contemplated.[401]

The Adaptation Fund[402] was established by the 1997 Kyoto Protocol (Article 12), but operationalized at COP 13 in December 2007 in Bali, Indonesia. Since January 1st, 2019, the Adaptation Fund has been serving the Paris Agreement. The World Bank serves as trustee on an interim basis. The Adaptation Fund supports adaptation projects by bridging the adaptation funding gap and aims to bolster countries' adaptive capacities through Direct Access modality, which is designed to enable "National Implementing Entities"[403] to directly access adaptation funding and have ownership on adaptation action.[404] Although designed to be funded by a "share of the proceeds" from Clean Development Mechanism transactions under the Kyoto Protocol[405] it is also a donor fund and in 2019, the Adaptation Fund reached close to US$90 million in new pledges.

The GCF[406] was launched in 2010 during UNFCCC COP 16, in Cancun, Mexico, to serve as an operating entity of the Financial Mechanism of the UNFCCC (together with the GEF) to provide funding for mitigation and adaptation action. The outcome of the Paris Agreement also highlighted the key role of the GCF for post-2020 framework. The World Bank serves as the trustee and an Accredited Entity of the GCF. The combined pledges and contributions made to the GCF for its first replenishment (GCF-1), approved by the GCF Board on November 14, 2019, US$9.87 billion.[407]

Moreover, the Climate Investment Funds (CIF) were created in 2008 for six Multilateral Development Banks including the Asian Development Bank, African Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, International Finance Corporation, and World Bank, to fill an immediate financial gap. CIF consists of two funds, namely, the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). The Pilot Programme for Climate Resilience (PPCR) is a targeted program developed under the SCF. Regional Technical Support Mechanism,

[394] It is now the financial mechanism also for 1994 UN Convention to Combat Desertification, 2001 Stockholm Convention on Persistent Organic Pollutants, and the 2013 Minamata Convention on Mercury, and administers the Multilateral Fund for the Montreal Protocol.

[395] Under the World Bank's Pacific Resilience Program, GEF provides funding through SCCF among other funding mechanisms. See, also Increasing Resilience to Climate Change and Natural Hazards Project (P112611) in Vanuatu and Kiribati Adaptation Program - Phase III Project (P112615) supported by the GEF.

[396] GEF Replenishment Cycles, available at: https://www.thegef.org/sites/default/files/pictures/gef_replenishment_cycles_gef7.png

[397] See, in general, Stephane Hallegatte et al., "The Economics of (and Obstacles to) Aligning Development and Climate Change Adaptation: A World Bank Group Contribution to the Global Commission on Adaptation" (2018), available online at www.gca.org

[398] UNFCCC COP Decision 7/CP.7, Report of the Conference of the Parties on its Seventh Session, held at Marrakesh from 29 October to 10 November 2001, Funding under the Convention, UNFCCC Doc. FCCC/CP/2001/13/Add.1.

[399] Special Climate Change Fund—SCCF, *Global Environment Facility*, available at: https://www.thegef.org/topics/special-climate-change-fund-sccf

[400] Least Developed Countries Fund—LDCF, *Global Environment Facility*, available at: https://www.thegef.org/topics/least-developed-countries-fund-ldcf

[401] SCCF, available at: https://www.thegef.org/topics/special-climate-change-fund-sccf

[402] Adaptation Fund, available at: https://www.adaptation-fund.org/

[403] For further details, see: https://www.adaptation-fund.org/apply-funding/implementing-entities/national-implementing-entity/

[404] For details on "Direct Access" visit: https://www.adaptation-fund.org/about/direct-access/

[405] Kyoto Protocol, Art 12. Note that the Doha Amendments extended it to the share of proceeds of Joint Implementation projects under Art. 6 of Kyoto.

[406] Green Climate Fund (GCF), available at: https://www.greenclimate.fund/

[407] GCF, "Status of Pledges and Contributions (First Replenishment: GCF-1)" (July 2020), available at: https://www.greenclimate.fund/sites/default/files/document/status-pledges-gcf1_2.pdf

as a registered network of pre-approved experts on various climate-related topics, can be used to provide advice on available finance opportunities and general technical assistance including in developing project and program proposals, on the request of PICs.[408]

Loss and Damage

The continuous work of SIDS with the Association of Small Island States (AOSIS) has been crucial in prompting discussions of loss and damage within the UNFCCC COP 19 establishing the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) and the Executive Committee (ExCom) of the WIM has led to significant change in the discourse concerning loss and damage. Now included in the Paris Agreement through Article 8, the conversation is still in progress, but finance for loss and damage remains a contentious issue.

Specifically, the areas of cooperation and facilitation to enhance understanding, action and support under Article 8 of the Paris Agreement may include:

a) Early warning systems.

b) Emergency preparedness.

c) Slow onset events.

d) Events that may involve irreversible and permanent loss and damage.

e) Comprehensive risk assessment and management.

f) Risk insurance facilities, climate risk pooling and other insurance solutions.

g) Non-economic losses.

h) Resilience of communities, livelihoods and ecosystems.

There have been continual calls from developing countries to include loss and damage in mandate of the operating entities of the financial mechanism and expand the institutional arrangements under the WIM to ensure that developing countries would benefit from its work. The Santiago Network for averting, minimizing, and addressing loss and damage associated with the adverse effects of climate change[409] was created "to catalyze the technical assistance of relevant organizations […] for the implementation of relevant approaches at the local, national and regional level, in developing countries that are particularly vulnerable to the adverse effects of climate change."[410] Science confirms that actual loss and damage is already occurring,[411] but little progress has been in developing a financial mechanism to support the WIM.[412]

Relevant World Bank Products and Services and Other Support Modalities

The World Bank offers a range of financing options including the Catastrophe Deferred Drawdown Option (Cat DDO), Contingent Emergency Response Components (CERCs) in Investment Project Financing (IPF), stand-alone investment projects, or Development Policy Operations (DPOs) that are prepared in response to natural disasters, including under the IDA Crisis Response Window (CRW), and disaster risk intermediation services and products.[413] Climate change is one of the special themes for the IDA19 replenishment period (2020–23) which has US$82 billion available.[414]

In addition to financing instruments, World Bank products and services that can provide support for States in addressing the impacts of sea level rise include Advisory Services and Analytics (ASA). These are non-lending activities that can support the design or implementation of relevant policies to adapt to the impacts of sea level rise, strengthen relevant institutions, and build capacity.[415]

[408] Regional Technical Support Mechanism (RTSM), available at: https://rtsm.pacificclimatechange.net/

[409] UNFCCC, About the Santiago Network, available at: https://unfccc.int/topics/adaptation-and-resilience/resources/santiago-network/about-the-santiago-network

[410] COP25, Decision 2/CMA.2, "Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts and its 2019 review" (advanced unedited version), available at: https://unfccc.int/sites/default/files/resource/cma2_auv_6_WIM.pdf para 43.

[411] IPCC 1.5°C Special Report (2018); see also, Mechler, R., Singh, C., Ebi, K. et al., "Loss and Damage and limits to adaptation: recent IPCC insights and implications for climate science and policy" (2020), *Sustainability Science*, Vol. 15, pp. 1245–1251.

[412] COP 25 decision calls for the Executive Committee "to further engage and strengthen its dialogue with the Standing Committee on Finance by providing input in line with decision 2/CP.19, paragraph 5(c)(ii), to the Standing Committee on Finance when, in accordance with its mandate, it provides information, recommendations and draft guidance relating to the operating entities of the financial mechanisms under the Convention and the Paris Agreement, as appropriate." Available at https://unfccc.int/sites/default/files/resource/cma2_auv_6_WIM.pdf para 37.

[413] For a detailed treatment of these instruments, see, World Bank LEG Climate Change Thematic Working Group Learning Note "Legal Aspects of World Bank Financing for Recovery from Natural Disasters and Health-Related Emergencies" (March 2020).

[414] IDA19 Replenishment, available at: https://ida.worldbank.org/replenishments/ida19

[415] This report is prepared as part of the "Building Resilience in Pacific Atoll Island Countries Study" which is built on an initial assessment under the Programmatic Advisory Services & Analytics (ASA) on Building Climate and Disaster Resilience in the Pacific (P152037).

Another significant actor in the field of disaster risk management is the Global Facility for Disaster Reduction and Recovery (GFDRR), a grant-funding mechanism, managed by the World Bank. This is a global partnership providing support to developing countries in reducing their vulnerability to climate change and disaster risks through funding and technical assistance.[416] GFDRR builds its support on the priority areas identified by the Sendai Framework for Disaster Risk Reduction 2015–30.[417]

Regional catastrophe disaster risk pools can also constitute an effective approach to disaster risk management and address some of the impacts of climate change. The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) aims to support PICs with disaster risk modeling and assessment tools[418] and provide a forum for PICs to discuss integrated financial solutions for disaster risk management.[419] The World Bank Treasury has acted as an intermediary for risk transfer contracts for a number of PICs to secure competitive rates from the international reinsurance market. Under PCRAFI, the Pacific Catastrophe Risk Insurance Company (PCRIC) was established as a regional insurance program to support member countries with post disaster funding.[420]

Finally, the NDC Partnership is a global initiative made up of governments and international institutions, including the World Bank Group, hosted by the World Resources Institute (WRI) and the UNFCCC. It aims to provide technical and financial support for countries to achieve their NDCs. It was launched during the UNFCCC COP 22 in 2016. The NDC Support Facility (NDC-SF) is a multi-donor trust fund established to contribute to the implementation of NDCs. It works with the NDC Partnership to mobilize financial and technical support to help countries meet their NDCs.[421] The Pacific NDC Hub,[422] as part of the NDC Partnership, is designed to support countries in the region with implementing and enhancing their NDCs. It aims to provide technical assistance, support member countries for NDC implementation, enhancement, and financing aspects.

Adaptation and resilience are important components of future Pacific NDCs; these mechanisms have considerable potential to develop national capacities. Countries can consider adding a component in their NDC to reflect their financing needs to meet that NDC. Inclusion of finance gaps in NDCs is voluntary but can be an effective tool. Countries can also create friendly environments for investments through various policy actions.[423]

[416] GFDRR currently has more than 400 partnerships including community-level actors, civil society, academia, and international organizations. For further details on the GFDRR's funding structure and partnerships, see: https://www.gfdrr.org/en/funding-structure-partnerships

[417] Namely Priority 1: Understanding disaster risk, Priority 2: Strengthening disaster risk governance to manage disaster risk, Priority 3: Investing in disaster risk reduction for resilience, and Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.

[418] Strengthening the Pacific Risk Information System (PACRIS), a database containing detailed, country-specific information on assets, population, hazards, and risks.

[419] The countries are the Republic of Marshall Islands, Samoa, Solomon Islands, the Kingdom of Tonga, Republic of Vanuatu, and the Cook Islands.

[420] Support is provided through direct premium subsidies from the Government of Japan, Grants, national budgets, IDA credits. PCRIC offers modeled-loss-type parametric products covering earthquake, tropical cyclone, and extreme rainfall.

[421] The NDC Support Facility, available at: https://www.worldbank.org/en/programs/ndc-support-facility

[422] The Regional Pacific NDC Hub is a collaborative effort by PICs and the Deutsche Gesellschaft für Internationale Zusammenarbiet (GIZ) GmbH, the Global Green Growth Institute (GGGI), the NDC Partnership Support Unit (NDCP SU), the Pacific Community (SPC), and the Secretariat for the Pacific Regional Environment Programme (SPREP), with initial funding of 2.1 million Euros from the UK, Australia, and Germany. For further information, see https://ndcpartnership.org/news/pacific-nationally-determined-contributions-ndc-hub-fully-operational-next-year.

[423] Fransen, Taryn and Ichiro Sato, et al. 2019. "Enhancing NDCs: A Guide to Strengthening National Climate Plans by 2020." Prepared by the World Resources Institute and United Nations Development Programme, available at: https://www.wri.org/ndcs

Appendix I

Key Legal and Policy Options Pertaining to Human Mobility in the Context of Climate Change

This table sets out the general considerations of law and policy related to each legal and policy option below as well as the actions and resources required to implement such options and challenges. This is not a comprehensive treatment of the issue and should be read in the light of Part II(4) and Part III(6) of this report as well as various resources listed below throughout the table. There may be various other frameworks and considerations depending on the regional and country context. SIDS and coastal States will further benefit from exploring a wider range of opportunities beyond sources listed below.

Legal and policy options	Generally applicable legal and policy frameworks	Actions and resources required to implement such option	Challenges and/or barriers (if any) to implement such option (at the local and international levels)
***In situ* adaptation where this is feasible and desirable**	1. The UNFCCC international climate law regime remains important in guiding climate change mitigation and adaptation actions. Key instruments under this framework are described in Part II(2) including both binding legal instruments (e.g., the UNFCCC and Paris Agreement) as well as various significant non-binding instruments such as the Cancún Adaptation Framework. 2. Disaster law and policy frameworks also constitute an important basis to increase the resilience of communities affected by sea level rise. The Sendai Framework on Disaster Risk Reduction 2015–2030—though non-binding—provides valuable guidance at the international level. 3. States' obligations under human rights law also guide relevant measures addressing sea level rise.	1. UNFCCC international climate law regime mandates continuing mitigation and adaptation efforts. NDCs and NAPs can be used to reflect countries' specific needs (including finance) and vulnerabilities. 2. At domestic level, conducting risk and vulnerability assessments and building national strategies based on these assessments is an important way to address country-specific considerations. Such strategies, in compliance with human rights law, can improve disaster risk management while also addressing specific vulnerabilities and needs of affected populations. 3. Technical, institutional, and financial capacity will be needed to design and implement relevant policies and actions. International cooperation will be key in implementing relevant measures.	1. Heightened impacts of sea level rise may exacerbate existing vulnerabilities, which in turn can increase the risk of displacement. National capacities may need enhancing. The costs of *in situ* adaptation may become prohibitive as the risks and impacts intensify. 2. Accessing technical and financial support is crucial for countries which are disproportionately affected by the impacts of sea level rise. 3. International cooperation can play an important role, although the scope of duty to cooperate under international law still requires further clarification.

Legal and policy options	Generally applicable legal and policy frameworks	Actions and resources required to implement such option	Challenges and/or barriers (if any) to implement such option (at the local and international levels)
Migration as adaptation	1. Human rights law provides certain protections though these standards need to be complemented with immigration frameworks addressing primarily the issues of admission, residence permit, and access to labor market. 2. Existing frameworks at regional level may be used as entry points (see, e.g., existing arrangements between certain PICs and New Zealand, USA, and Australia). These frameworks are not designed to address the impacts of climate change *per se*, therefore, further review and strengthening of these existing frameworks may be needed in response to the complexities posed by migration in the context of climate change.	1. The Climate Change and Migration Issues in the Pacific Report (2014), provide a comprehensive treatment of the issue by presenting specific considerations relating to the Pacific context, gaps, and recommended legal and policy steps.[424] 2. The Report stresses the need for national policy development on migration in the context of climate change as well as further policy dialogue among PICs, and between PICs and other host countries/potential destinations.[425] 3. To inform further legal and policy development, it urges States to focus on the integration of climate change and migration policy, the costs of climate change-related migration on sending and receiving communities, the gendered implications of migration, and the role of remittances in adaptive capacity.[426] 4. Furthermore, to complement policy developments enabling access to labor market, it is also important to build the capacity of migrants to compete in the labor markets of host communities.	1. Legal and policy gaps combined with cultural and political sensitivities around the issue of migration increase challenges to implement migration as adaptation as a policy option. 2. Funding gaps also remain a practical barrier.

[424] Campbell, John and Olivia Warrick. 2014. "Climate Change and Migration Issues in the Pacific." Produced as part of the Pacific Climate Change and Migration (PCCM) Project entitled, "Enhancing the Capacity of Pacific Island Countries to Manage the Impacts of Climate Change on Migration" supported by the European Union and implemented by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), the International Labour Organiȝation (ILO) and the United Nations Development Programme (UNDP).

[425] *Ibid.*

[426] *Ibid.*

Legal and policy options	Generally applicable legal and policy frameworks	Actions and resources required to implement such option	Challenges and/or barriers (if any) to implement such option (at the local and international levels)
Planned relocation	There is no international binding instrument specifically addressing the issue of planned relocation, but relevant applicable standards can be found in the UN Guiding Principles on Internal Displacement, the Pinheiro Principles on Housing and Property Restitution,[427] and various other initiatives.[428]	1. Despite the considerable legal and policy gap relating to planned relocation in the context of climate change, various principles relating to the practice of development-induced displacement and resettlement can be applicable in addition to lessons learned from other practices. 2. Practical tools are available in sources such as the Report on "Planned Relocation, Disasters and Climate Change: Consolidating Good Practices and Preparing for the Future."[429] 3. For States considering this option, it will be important to plan at legal, policy, and institutional levels. Lessons learned and other practical tools may be useful in guiding States in adopting relevant legal and policy frameworks at national level.	1. Lack of legal and policy frameworks may impede effective implementation of planned relocation processes. 2. In addition to legal, policy, and institutional gaps, it is important to consider significant contextual complexities including implications on livelihoods, identity, self-determination, and legal status. 3. Accessing financing may also be a significant challenge in implementing this option.
Providing protection and assistance in situations of internal displacement	1. Internal displacement induced by climate impacts is already occurring and is projected to continue. 2. Various legal and policy frameworks provide guidance in addressing internal displacement. UN Guiding Principles on Internal Displacement address the needs and rights of IDPs in all phases of displacement. 3. States' human rights obligations are also important. 4. Other instruments including those addressing disaster relief will also be relevant.	1. The international frameworks addressing internal displacement are generally adequate, but their implementation can be strengthened at national level by incorporating relevant standards into legal and policy instruments. 2. Strengthening institutional frameworks would also improve countries' capacity to provide effective protection and assistance in situations of internal displacement.	Challenges relating to the implementation of human rights obligations at the domestic level as well as limited access to technical and financial support may impair protection of IDPs.

[427] UN Sub-Commission on the Promotion and Protection of Human Rights, Housing and property restitution in the context of the return of refugees and internally displaced persons Progress report of the Special Rapporteur, Paulo Sérgio Pinheiro (8 June 2005) UN Doc E/CN.4/Sub.2/2004/22/Add.1.

[428] See, for instance, the Peninsula Principles on Climate Displacement within States (2013) and Brookings/Georgetown University/UNHCR, Guidance on Protecting People from Disasters and Environmental Change through Planned Relocation (7 October 2015).

[429] "Planned Relocation, Disasters and Climate Change: Consolidating Good Practices and Preparing for the Future" (2014) prepared in collaboration with the Brookings Institution, the Institute for the Study of International Migration (ISIM) at Georgetown University and UNHCR through multiple expert meetings. The first of these meetings was held in Sanremo, Italy, in March 2014. The report of that meeting is available at: http://www.unhcr.org/54082cc69.pdf. The second meeting was held in Washington, DC, in February 2015. The third meeting was held in Bellagio, Italy, in May 2015. Specific guidance stemming from discussions at each of these meetings on undertaking planned relocation in the context of disasters and environmental change, including the effects of climate change has been developed and is available at: http://www.brookings.edu/research/papers/2015/10/07-planned-relocation-guidance.

Legal and policy options	Generally applicable legal and policy frameworks	Actions and resources required to implement such option	Challenges and/or barriers (if any) to implement such option (at the local and international levels)
Providing protection and assistance in situations of cross-border displacement	1. Human rights law and refugee law (where applicable) can offer protection in situations of cross-border displacement, but there are major legal gaps. Refugee law provides protection to persons who fall under the legal definition of a "refugee." Nonetheless, in certain cases, international refugee law can still be applicable (see, Part II[4]). 2. The law on statelessness offers limited protection but the definition of a stateless person is narrow and relevant instruments are not widely ratified (i.e., the Convention relating to the Status of Stateless Persons and Convention on the Reduction of Statelessness). 3. Human rights law offers certain protection though not without gaps and inherent implementation challenges. 4. Critical issues including admission, access to basic services, and return are not adequately addressed under these frameworks.	1. The Nansen Initiative's Protection Agenda provides a valuable, non-binding, roadmap by highlighting gaps and good practices. 2. According to the Protection Agenda, priority areas for further action include: (i) collecting data and enhancing knowledge on cross-border disaster-displacement, (ii) enhancing the use of humanitarian protection measures for cross-border disaster-displaced persons, including mechanisms for lasting solutions, and (iii) strengthening the management of disaster displacement risk in the country of origin.[430] 3. Effective management of these priority areas depends on coordinated action at all levels including through international and regional platforms as well as coordination at the country level through a multisectoral approach and with meaningful participation of all stakeholders.[431]	1. Practical, financial and legal gaps may need to be addressed. 2. The lack of an international institution with a clear mandate to protect cross-border displaced persons in the context of climate change and disasters undermines concerted efforts.[432] Identifying potential forums (such as the Pacific Islands Forum in the context of the Pacific region) is important to address this gap. 3. Funding gaps concerning cross-border displacement may also hamper effective action. To ensure access to funding, countries should include human mobility considerations into climate change adaptation, disaster risk reduction, and development initiatives and processes.

[430] See, The Nansen Initiative, Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change (December 2015), Volume I, available at: https://nanseninitiative.org/wp-content/uploads/2015/02/PROTECTION-AGENDA-VOLUME-1.pdf
[431] *Ibid.* at p. 44.
[432] *Ibid.* at p. 18.

Appendix II

Selected Funds, Financing and Other Options Available to SIDS

The funds, financing, and other options available to SIDS and coastal states listed below represent a fraction of available options. In addition to climate funds—relevant World Bank modalities, initiatives from various MDBs and bi-lateral aid agencies provide financing and technical support for projects and programs addressing climate action, with an increasing focus on adaptation.[433] *SIDS and coastal States will further benefit from exploring a wider range of opportunities beyond sources listed below.*

Selected funds/ financing/ other options available	Types of projects that can be funded/ financed or provided with technical or other types of assistance	Fund/grant size, or type of technical or other assistance	General requirements to qualify for funding/ financing, technical assistance or other types of assistance
Global Environment Facility (GEF)	The GEF provides funding for projects or programs that intend "to meet the objectives of the international environmental conventions and agreements" which include the UNFCCC. The GEF funding can be accessed through four modalities including full-sized projects, medium-sized projects, enabling activities and programmatic approaches. The GEF supports countries in their mitigation and adaptation efforts. See also GEF Policy and Program Cycle Policy for additional details.	Under the GEF-7 replenishment period (2018-2022), the GEF has mobilized US$4.1 billion.	Country eligibility for GEF funding can be satisfied through (i) ratification of the conventions the GEF serves and conformity with the eligibility criteria decided by the COP of each convention, or (ii) eligibility to receive World Bank financing or to receive UNDP technical assistance through its target for resource assignments. In addition to the country eligibility criteria, the project must be driven by the country, be consistent with national priorities that support sustainable development, and be aligned with GEF priority areas including biodiversity, mitigation, land degradation, international waters and chemicals and waste (for more details, see Annex A of the GEF-7 Programming Directions Documents [3 April 2018]). The public must be involved in project design and implementation (See, Policy on Public Involvement in GEF-Financed Projects).

[433] See for instance, UNFCCC, Bilateral and Multilateral Funding, https://cop23.unfccc.int/topics/climate-finance/resources/multilateral-and-bilateral-funding-sources

Selected funds/ financing/ other options available	Types of projects that can be funded/ financed or provided with technical or other types of assistance	Fund/grant size, or type of technical or other assistance	General requirements to qualify for funding/ financing, technical assistance or other types of assistance
Special Climate Change Fund (SCCF)	The SCCF primarily funds adaptation. It also funds technology transfer, mitigation in selected sectors, and economic diversification.	SCCF has a portfolio of more than US$350 million.	All developing country Parties to the UNFCCC are eligible under the SCCF. A concept for a project must be submitted to the GEF Secretariat through one of its Implementing Agencies[434] with a letter of endorsement from the country's appointed GEF Operational Focal Point or government representative.
Least Developed Countries Fund (LDCF)	The LDCF helps countries prepare and implement National Adaptation Programs of Action (NAPAs). Any sector identified as a priority area under the NAPA is relevant for the LDCF (see, in general).	Available funding can be accessed here.	LDCs are eligible under the LDCF. A concept for a project must be submitted to the GEF Secretariat through one of its Implementing Agencies with a letter of endorsement from the country's appointed GEF Operational Focal Point or government representative.
Adaptation Fund	There are no prescribed sectors or approaches but the Adaptation Fund finances concrete adaptation projects and programs in developing countries that are particularly vulnerable to the adverse effects of climate change.	The Adaptation Fund reached nearly US$90 million in new pledges.	Multilateral, regional, and national organizations can apply for accreditation as implementing entities by the Adaptation Fund Board. Once an organization has received accreditation, it can submit project proposals for approval by the Board. Project and program proposals undergo either a one-step or a two-step approval process.

[434] See, United Nations Development Programme, United Nations Environment Programme, World Bank, African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, International Fund for Agricultural Development, United Nations Food and Agricultural Organization, United Nations Industrial Development Organization, World Wildlife Fund, Inc., Conservation International, International Union for Conservation of Nature, and Development Bank of Southern Africa.

Selected funds/ financing/ other options available	Types of projects that can be funded/ financed or provided with technical or other types of assistance	Fund/grant size, or type of technical or other assistance	General requirements to qualify for funding/ financing, technical assistance or other types of assistance
Green Climate Fund (GCF)	The GCF provides funding for both mitigation and adaptation action, technology development and transfer (including carbon capture and storage), and capacity building.	The combined pledges and contributions made to the GCF for its first replenishment (GCF-1), approved by the GCF Board on November 14, 2019, US$9.87 billion.	The GCF works through a diverse range of partners. Recipient countries have direct access to funding through accredited national and sub-national implementing entities and intermediaries (through rigorous fiduciary requirements to become accredited). Alternatively, countries can access funding through accredited international entities, such as MDBs, UN agencies, and regional organizations.
The Climate Investment Funds (CIF) and the Pilot Programme for Climate Resilience (PPCR)	The CIF consists of two funds, the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). The PPCR is a targeted program developed under the SCF. Regional Technical Support Mechanism, as a registered network of pre-approved experts on various climate-related topics, can be used to provide advice on available finance opportunities and general technical assistance including in developing project and program proposals, on the request of PICs.	Available funding can be accessed here.	Countries can access the PPCR through the development banks working in their country by providing an expression of interest. Countries are selected by a PPCR expert group based on certain criteria (including transparency and vulnerability, country distribution, preparedness, and types of hazards).
Relevant World Bank products and services and other support modalities	The World Bank offers a range of financing options including the Catastrophe Deferred Drawdown Option (Cat DDO), Contingent Emergency Response Components (CERCs) in Investment Project Financing (IPF), stand-alone investment projects, or Development Policy Operations (DPOs) that are prepared in response to natural disasters, including under the IDA Crisis Response Window (CRW), and disaster risk intermediation services and products.[435] Climate change is one of the special themes for the IDA19 replenishment period (2020–23) which has US$82 billion available.	Available funding depends on the relevant products, services, and support modalities.	Eligibility criteria depend on the relevant products, services, and support modalities.

[435] For a detailed treatment of these instruments, see, World Bank LEG Climate Change Thematic Working Group Learning Note "Legal Aspects of World Bank Financing for Recovery from Natural Disasters and Health-Related Emergencies" (March 2020).

Selected funds/ financing/ other options available	Types of projects that can be funded/ financed or provided with technical or other types of assistance	Fund/grant size, or type of technical or other assistance	General requirements to qualify for funding/ financing, technical assistance or other types of assistance
Regional catastrophe disaster risk pools - Pacific	The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) aims to provide the PICs with disaster risk modeling and assessment tools and financial solutions for the reduction of their financial vulnerability to natural disasters and to climate change.	Initial capitalization provided to PCRIC from donor partners through the InsuResilience Global Partnership and PCRAFI Multi-Donor Trust Fund, administered by the World Bank. Source of premia include direct premium subsidies from the Government of Japan, Grants, national budgets, IDA credits.	Pacific Catastrophe Risk Insurance Company (PCRIC) offers modeled-loss-type parametric products. The PCRIC payouts are usually made within 10 days, providing member countries with an immediate but limited cash injection following an eligible hazard. Policy triggers are based on modeled losses, rather than on-the-ground loss assessments. Risks covered include earthquake, tropical cyclone, and extreme rainfall. Insured members are the Cook Islands, the Marshall Islands, Samoa, Tonga, Vanuatu Other eligible members including Fiji, Kiribati, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Solomon Islands, Timor Leste, and Tuvalu.
NDC Partnership & NDC Support Facility	The NDC Partnership provides technical and financial support for countries to achieve their NDCs. The NDC Support Facility (NDC-SF) is a multi-donor trust fund established to contribute to the implementation of NDCs. It works with the NDC Partnership to mobilize financial and technical support to help countries meet their NDCs.	Analytics and knowledge sharing, capacity-building, and cross-sectoral coordination	
Global Climate Change Alliance (GCCA)	The GCCA is funded by the European Union and provides support for five priority areas including climate change and poverty reduction, adaptation, deforestation, and disaster risk reduction.	In the second phase (2014–20), the GCCA received a total of EUR 420 million.	LDCs and SIDS send an official expression of interest to the European Union (EU) delegation in their home country. The EU Delegation assesses eligibility based on the availability of funds and selection criteria for GCCA funding (including vulnerability to climate change, in particular the risks related to floods, droughts, storms, and sea level rise).

Appendix III

Selected Work of the World Bank in the Pacific Region

This legal study is part of the wider work of the World Bank in the Pacific Region. The umbrella framework guiding the World Bank Group (WBG) engagement in the Pacific is the Regional Partnership Framework for the Pacific (FY2017–21).[436] The Framework outlines the WBG strategic program for Kiribati, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Nauru, the Republic of Palau, the Independent State of Samoa, the Kingdom of Tonga, Tuvalu, and Vanuatu. The Framework focuses on the main pillars of action including the use of International Development Association (IDA) source allocations in financing larger projects,[437] building on the results of the systematic country diagnostics (SCDs) in the region as well as other recent analytical work in addressing particular risks that the Pacific Island Countries (PICs) are currently facing, and addressing the drivers of fragility in the Pacific[438] to achieve sustainable development.[439]

Building Resilience in Pacific Atoll Island Countries Study

In particular, this legal study forms a part of the World Bank's Building Resilience in Pacific Atoll Island Countries Study, which aims to strengthen the capacity of selected Pacific Atoll Island countries to cope with the long term (100 year+) adverse impacts of climate change and boost their resilience. Its goal is to contribute to the National Adaptation Planning Process currently in progress for the Republic of the Marshall Islands (RMI) and also inform adaptation options for Kiribati and Tuvalu through the Atoll Adaptation Dialogue Mechanism. The Study stresses that short- to medium-term adaptation options (including construction of seawalls, and nature-based coastal engineering options) will not suffice in addressing the escalating impacts of sea level rise and climate change. Consequently, it focuses on transformational long-term options such as land elevation and/or creation as well as relocation of populations and critical infrastructure, among other interventions.

The Study primarily consists of two phases. Phase I includes a series of Technical Notes aiming to identify and evaluate a full range of possible options for atoll islands, implementation barriers, and opportunities for enabling long-term adaptation resilience with specific focus on the RMI.[440] Phase II is built on the findings of Phase I in exploring the implications of alternative adaptation options while also considering investment needs and relevant costs associated with these options.

The Building Resilience in Pacific Atoll Island Countries Study is based on an initial assessment, which is ongoing under the Programmatic Advisory Services & Analytics (ASA) on Building Climate and Disaster Resilience in the Pacific (P152037). This ASA aims to boost the capacity of PICs under the Pacific Resilience Program (PREP) and strengthen their climate and disaster resilience by "improving early warning and preparedness, mainstreaming disaster and climate resilience in spatial planning and sector investments and improving disaster risk and climate financing mechanisms."[441] In addition to the activities under PREP, the ASA aims to support the Vanuatu Infrastructure Reconstruction and Improvement Project (P156505)[442] and provide general assistance to the PICs. The World Bank has already been involved in similar engagements with Samoa, Tonga, Vanuatu, Solomon Islands, Fiji, and Kiribati. Previously,

[436] World Bank, Regional Partnership Framework for the Pacific (FY2017-2021), available at: http://documents1.worldbank.org/curated/en/137341508303097110/pdf/120479-WP-P156647-PUBLIC-SydneyRPFFA.pdf

[437] Nauru and Palau are IBRD countries. Modalities for engagement with these countries are also contemplated under the Regional Partnership Framework.

[438] The issues highlighted in particular include those related to institutional capacity, growth and urbanization, climate change, natural disasters, and gender.

[439] Focus areas include (i) fully exploiting the available economic opportunities, (ii) enhancing access to employment opportunities, (iii) protecting incomes and livelihoods (including strengthening preparedness and resilience to natural disasters and climate change), and (iv) strengthening the enablers of growth and opportunities (macro-economic management, infrastructure and addressing knowledge gaps).

[440] Technical Notes include "Technical Note on Underpinning Long-Term Adaptation Options;" "Technical Note on Land Tenure and Management;," "Technical Note on Human Settlement Patters in Marshal Islands," and finally "Background Note on Knowledge Attitudes and Practices as they relate to flood risk management."

[441] Concept Note, Building Climate and Disaster Resilience in the Pacific (P152037).

[442] Vanuatu Infrastructure Reconstruction and Improvement Project (P156505) aims to reconstruct and improve school infrastructure impacted by Tropical Cyclone Pam (among other components).

the World Bank also supported the Government of Fiji in its climate vulnerability assessment.[443]

Pacific Possible

The Pacific Possible Report, launched in 2017, is a comprehensive document focusing on possible options for PICs by 2040 and identifies challenges that require urgent action. Seven key themes that Report explores include climate and disaster resilience, deep-sea mining, health and non-communicable diseases, financing for development, labor mobility, tourism, and fisheries.[444] The Report aims to inform policy making and provide recommendations for selected sectors. In the context of low-lying atoll countries, the Report identifies targeted measures such as special labor mobility schemes and climate change funding. The Report recommends careful consideration of adaptation action in accordance with the local contexts and highlights that there will likely be a compromise between "hard protection options" (including sea walls, building retrofitting, and desalination plants that are more expensive due to the cost of importing materials) and "softer options" (including early warning systems and the conservation of mangroves and wetlands). In that regard, trade-offs and actions with co-benefits in different sectors need to be identified.[445]

[443] Main areas for future action were identified as follows: (i) to ensure serviced land and housing in safe areas, (ii) to strengthen infrastructure to help to meet the needs of the Fiji economy and population, (iii) to provide support for agriculture and fisheries development that is smart for climate, the environment, and the economy, now and for the future, (iv) conservation policies that can protect assets and reduce adaptation costs, and (v) to build socioeconomic resilience, take care of the poor, and keep economic growth inclusive. Appendix I of the assessment lists relevant actions by sectors including water, energy, transportation, hazard management, housing and land use, health and education, environment, agriculture, fisheries, and social protection.

[444] Pacific Possible: Long-term economic opportunities and challenges for Pacific Island Countries, available at: http://documents.worldbank.org/curated/en/168951503668157320/Pacific-Possible-long-term-economic-opportunities-and-challenges-for-Pacific-Island-Countries

[445] Pacific Possible, at p. 90.

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