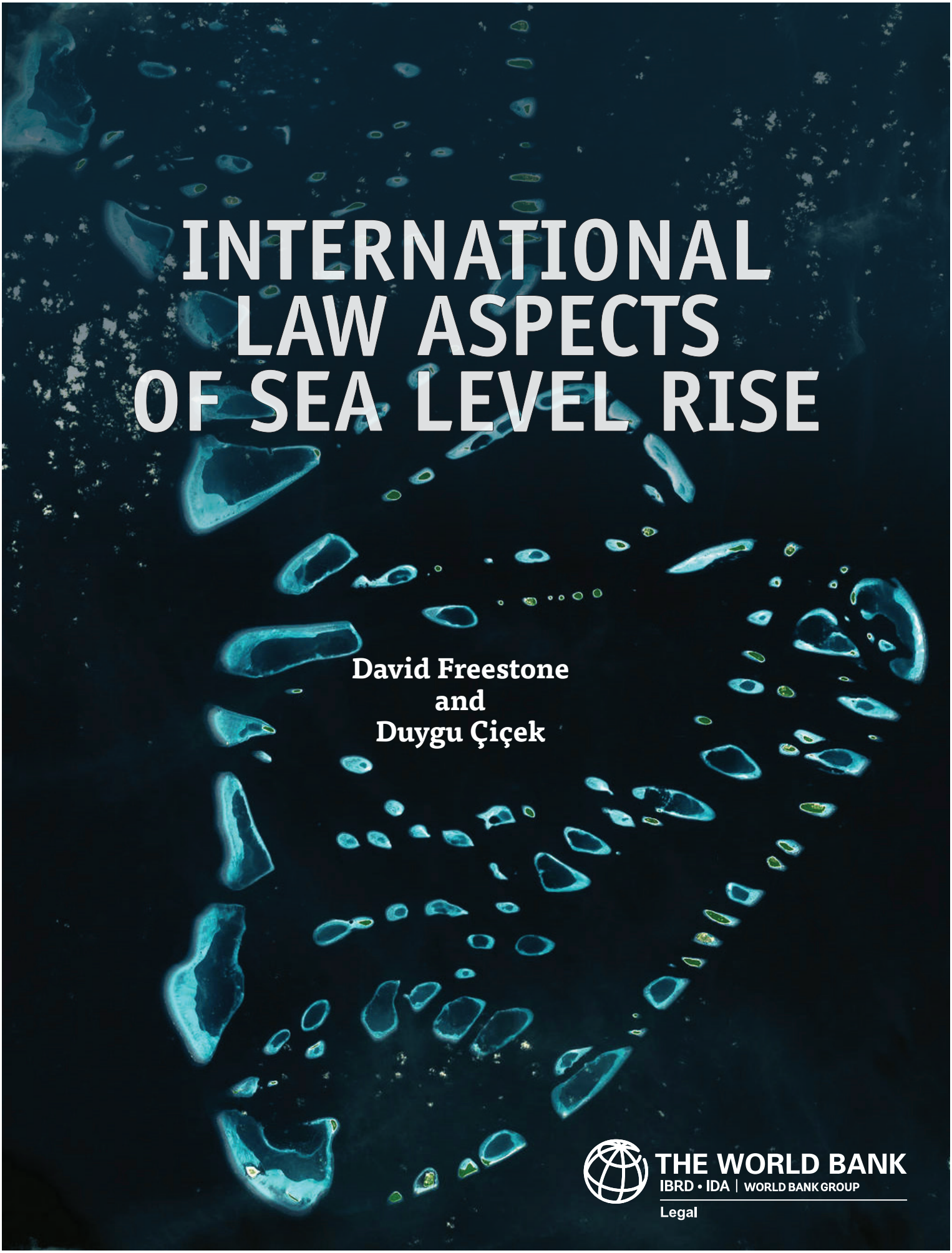

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Acronyms

AOSIS	Alliance of Small Island States
ARC	African Risk Capacity
ASA	Advisory Services and Analytics
AU	African Union
Cat DDOs	Catastrophe Deferred Drawdown Options
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CERC	Contingent Emergency Response Component
CESCR	Committee on Economic, Social and Cultural Rights
CIF	Climate Investment Funds
CLCS	Commission on the Limits of the Continental Shelf
CMA	Meeting of Parties to the Paris Agreement
COFA	Compact of Free Association
COP	Conference of the Parties
COSIS	Commission of Small Island States on Climate Change and International Law
CRW	Crisis Response Window
CS	continental shelf
CSF	Climate Support Facility
CTF	Clean Technology Fund
DOALOS	Division for Ocean Affairs and Law of the Sea (UN)
DPF	Development Policy Financing
DRR	disaster risk reduction
EEZ	exclusive economic zone
EIA	environmental impact assessment
ExCom	Executive Committee
FAO	Food and Agriculture Organization
GCCA	Global Climate Change Alliance
GCF	Green Climate Fund
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	greenhouse gas
GMSL	Global Mean Sea Levels
HRC	Human Rights Council
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICJ	International Court of Justice
IDA	International Development Association
IDMC	Internal Displacement Monitoring Centre
IDPs	internally displaced persons
ILA	International Law Association
ILC	International Law Commission
ILO	International Labor Organization
IMO	International Maritime Organization
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
IPF	Investment Project Financing

ISA	International Seabed Authority
ITLOS	International Tribunal for the Law of the Sea
ITMOs	internationally transferred mitigation outcomes
LDCF	Least Developed Countries Fund
LDCs	least developed countries
LOSC	Law of the Sea Convention
LTE	low tide elevation
m	meter
MDBs	multilateral development banks
MDTF	Multi-Donor Trust Fund
MRV	measurement, reporting, and verification
NAPA	National Adaptation Programmes of Action
NAPs	National Adaptation Plans
NDC	Nationally Determined Contribution
NDC-SF	NDC Support Facility
nm	nautical miles
NOAA	National Oceanic and Atmospheric Administration
OAS	Organization of American States
OAU	Organization of African Unity
OECD	Organization for Economic Cooperation and Development
OHCHR	Office of the High Commissioner for Human Rights
PA	Paris Agreement
PCA	Permanent Court of Arbitration
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PCRIC	Pacific Catastrophe Risk Insurance Company
PICTs	Pacific Island Countries and Territories
PIF	Pacific Island Forum
RFMOs	Regional Fisheries Management Organizations
SBI	Subsidiary Body for Implementation
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SCCF	Special Climate Change Fund
SDG	Sustainable Development Goal
SEADRIF	Southeast Asia Disaster Risk Insurance Facility
SIDS	Small Island Developing States
SPC	Secretariat of the Pacific Community
UNCED	UN Conference of Environment and Development
UNDP	United Nations Development Programme
UNDRR	UN Office for Disaster Risk Reduction
UNEP	UN Environment Programme
UNFCCC	UN Framework Convention on Climate Change
UNGA	UN General Assembly
UNHCR	UN High Commissioner for Refugees
UNSG	Secretary-General of the United Nations
USD	US Dollar
WECAFC	Western Central Atlantic Fishers Commission
WIM	Warsaw International Mechanism for Loss and Damage
WMO	World Meteorological Organization
WRI	World Resource Institute

Acknowledgment

Tararwa Island, Kiribati. Photo: John Hodjkinson

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Our thanks are also due to Angela Takats for editorial assistance and Miki Fernandez for the design.

Executive Summary

This legal study is based on "Legal Dimensions of Sea Level Rise: Pacific Perspectives" which was published on June 29, 2021. The original version provided an assessment of key legal frameworks and policy questions that are relevant in the context of sea level rise in the Pacific region. This work, on the other hand, while largely based on the analysis of the original version, provides an updated assessment of the impacts of climate change, especially sea level rise, on the maritime rights of all island and coastal States.[1] It is designed for a global audience.

The study aims to provide a wide view of the legal aspects of the impacts of sea level rise and climate change on Small Island Developing States (SIDS). 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 on 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 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. 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.

The study is divided into three parts. Part I looks briefly 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. 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 all coastal States—particularly island and low-lying States. 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 be reclassified as "rocks" with more limited maritime entitlements.

[1] It builds on the 2008 World Bank legal working paper on the Maritime Rights of Coastal States. See, Leva, C. D., and S. Morita. 2008. "Maritime Rights of Coastal States and Climate Change: Should States Adapt to Submerged Boundaries?", *World Bank Law and Development Working Paper Series*. 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.

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.

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.

Great Exuma Island, Bahamas. Photo: NASA

Part I

Expected Effects of Climate Change on Coastal States, Particularly Low-Lying States and Small Island Developing States (SIDS), with a Focus on Rising Sea Levels

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.[2] Its First Assessment Report (FAR) issued in 1990[3] 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).[4] The Working Group I contribution to the AR6, Climate Change 2021: The Physical Science Basis, was released in August 2021;[5] followed by the Working Group II contribution, Climate Change 2022: Impacts, Adaptation and Vulnerability, which was released in February 2022;[6] and the Working Group III contribution, Climate Change 2022: Mitigation of Climate Change, which was released in April 2022.[7] Finally, the Synthesis Report was released on 20 March 2023 to inform the 2023 Global Stocktake under the UNFCCC.[8]

Over the last 30 years, scientific knowledge has increased exponentially as has modeling expertise.

[2] The Intergovernmental Panel on Climate Change (IPCC), available at: https://www.ipcc.ch/
[3] 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/
[4] See, 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/
[5] IPCC. 2021. *Climate Change 2021: The Physical Science Basis*, Working Group I contribution to the AR6, 7 August 2021, available at https://www.ipcc.ch/report/ar6/wg1/
[6] IPCC. 2022. *Climate Change 2022: Impacts, Adaptation, and Vulnerability,* Working Group II contribution to the AR6, 28 February 2022, available at: https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/
[7] IPCC. 2022. *Climate Change 2022: Mitigation of Climate Change,* Working Group III contribution to the AR6, 4 April 2022, available at: https://www.ipcc.ch/report/sixth-assessment-report-working-group-3/
[8] https://www.ipcc.ch/ar6-syr/

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 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. This is highlighted by the fact that the Working Group I contribution to the AR6, Climate Change 2021: The Physical Science Basis, suggests that GMSL rise above the likely range – approaching 2 m by 2100 and 5 m by 2150 under a very high GHG emissions scenario – cannot be ruled out because of deep uncertainties concerning ice sheet processes.[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.

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 and mitigation and adaptation synergies were maximized while trade-offs were minimized.[17] Major negative impacts from that temperature rise would include 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

[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). See, IPCC. 2019. Summary for Policymakers, 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] in, Pörtner, H. -O., D. C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, and N. M. Weyer (eds). 2019. *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (SROCC SPM), IPCC.

[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] IPCC, Climate Change 2021: The Physical Science Basis, at B.5.3.

[15] See, Masson-Delmotte, V., P. Zhai, H. -O. Pörtner, D. Roberts, J. Skea, 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). 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), IPCC, 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.

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 also 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 and magnitude of storm surge, as well as 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 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]

[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].
[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].

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.

The contribution of Working Group II to the AR6, Climate Change 2022: Impacts, Adaptation, and Vulnerability, released in February 2022, acknowledged that as the magnitude of climate change increases, so does the likelihood of exceeding adaptation limits. The report defined "hard" adaptation limits as situations where "no adaptive actions are possible to avoid intolerable risks" while "soft" adaptation limits are situations where "options may exist but are currently not available to avoid intolerable risks through adaptive action." It makes the point that adaptation may not prevent all loss and damage, even with effective adaptation and before reaching soft and hard limits. These limits have particularly acute impacts in vulnerable communities that lack the resources needed to implement adaptation options.[29]

The February 2022 Report also pointed to the threats to groundwater availability and freshwater ecosystems in many watersheds, particularly in small islands, by the mid to long term, across all assessed scenarios.[30] It also recognized that climate change is already contributing to humanitarian crises in all regions – particularly in situations where climate hazards interact with pre-existing high vulnerabilities by, for example, increasing displacement – with SIDS disproportionately affected.[31]

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 use.

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 able to grow at rates of 10–100 mm per year,[32] reefs accrete at slower rates than coral grows.[33] The fastest recorded rate of reef growth from the fossil record is 7.89 mm per year,[34] and current predictions of the rate of sea level rise to 2100 may be outside that range.[35] The problem is exacerbated by the fact that the persistent warming of the oceans together with increased acidification is interfering with these natural processes.[36] 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.[37] Continued ocean warming

[29] AR6 February 2022 Report, at C.3.5.
[30] *Ibid.*, at B.4.2.
[31] *Ibid.*, at B.1.7.

[32] 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)
[33] Camoin, G. M., and L. Montaggioni, *et al*. 1997. "Holocene sea-level changes and reef development in South-Western Indian Ocean", *Coral Reefs,* Vol. 16(4), pp. 247-259.
[34] McManus, J. 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.
[35] 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
[36] 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 percent.
[37] The potentially serious effects of ocean warming for coral reefs are underscored by the increasing frequency and severity of coral reef bleaching events. See, Wong, P. P., *et al*., "Coastal systems and low-lying areas" in, Field, C. B., *et al*. 2014. *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*. Cambridge University

will bring higher ocean temperatures and increase storm severity.[38] 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 that depend on them, and questioned whether they will become increasingly unable to support human populations over the coming century.[39] 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[40] 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.[41] Collectively, these adjustments represent net lagoonward 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.[42] 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 Republic of the Marshall Islands.[43] They conclude that with rates of sea level rise that are likely under the IPCC "intermediate to high" sea level rise scenario, by

Press, pp. 361–409, 378. See also, Hughes, T. P., J. T. Kerry, and M. Alvarez-Noriega, *et al.* 2017. "Global Warming and Recurrent Mass Bleaching of Corals", *Nature* Vol. 543, pp. 373–377; Hughes, T. P., K. D. Anderson, and S. R. Connolly. 2018 "Spatial and Temporal Patterns of Mass Bleaching in the Anthropocene", *Science* Vol. 359, pp. 80–83; van Hooidonk, R., J. Maynard, and J. Tamelander, *et al*. 2016. "Local-Scale Projections of Coral Reef Futures and Implications of the Paris Agreement", *Scientific Reports* 6 (39666), pp. 1–8; Frölicher, T. L., E. M. Fischer, and N. Gruber. 2018. "Marine Heatwaves Under Global Warming", *Nature* 560, pp. 360–364; T. P. Hughes *et al.* 2018. "Global Warming Transforms Coral Reef Assemblages", *Nature* 556, pp. 492–496; *Harrison, H. B., M. Álvarez-Noriega,* A. H. *Baird, S. F. Heron, C. Macdonald, and T. P. Hughes. 2019. "Back-to-back coral bleaching events on isolated atolls in the Coral Sea", Coral Reefs*, Vol. 38 (4), pp. 713-719.

[38] See, Storlazzi, C. D., *et al*. 2018. "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

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

[40] See, Webb, A., and P. 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.

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

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

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

Gizo Market, Solomon Islands. Photo: Sam Lawrence Photography | shutterstock

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.[44] 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.[45]

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.[46]

There are also related threats to the natural resources on which coastal and island States' economies depend, that pose significant risks to people's 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.[47] As a result, Pacific Island Countries and Territories (PICTs) will have to make greater domestic use of pelagic species – particularly tuna. Indeed, it has been estimated that by 2035, 25 percent of all fish required for food security of Pacific Island people will be tuna.[48]

[44] 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, Beck, M. W., and I. J. Losada, *et al*. 2018. "The global flood protection savings provided by coral reefs", *Nature Communications,* No. 9 Article No. 2186.

[45] 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, Kench, P., "Understanding Small Island Dynamics: A Basis to Underpin Island Management" in, Terashima, H. 2009. *Proceedings of the International Symposium of Islands and Oceans, 22–23 January 2009*, Ocean Policy Research Foundation, pp. 24–28.

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

[47] See, Pacific Islands Oceanic Fisheries Management Fact Sheet (OFMP2) based on: "Climate Change Impacts, vulnerabilities and adaptation: Western and Central Pacific marine fisheries" in, Barange, M., 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

[48] 2021 version of the study looked at these impacts in more detail. See, Freestone, D., and D. Çiçek. 2021. "Legal Dimensions of Sea Level Rise: Pacific Perspectives", available at: https://openknowledge.worldbank.org/bitstream/handle/10986/35881/Legal-Dimensions-of-Sea-Level-Rise-Pacific-Perspectives.pdf. For an assessment concerning migration of fish stocks in the Central Arctic Ocean, see, Schatz, V. J., Proelss, A., and Liu, N. 2019. "The 2018 Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean: A Critical Analysis", The International Journal of Marine and Coastal Law No. 34, pp. 195–244.

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

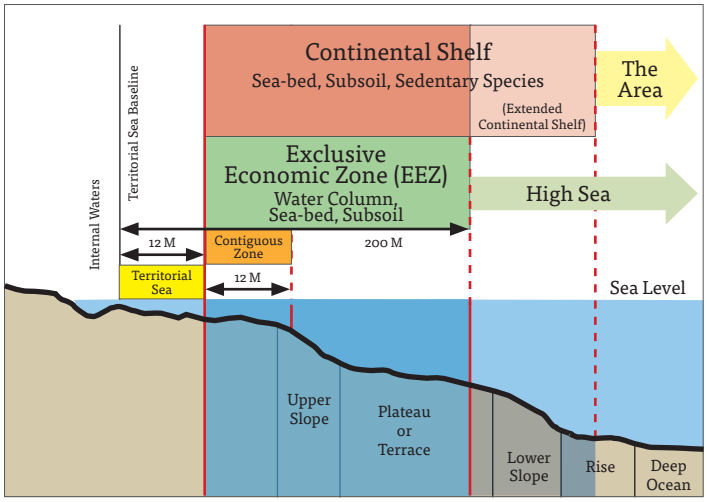
The 1982 UN Law of the Sea Convention (LOSC) has 320 Articles and nine Annexes; it was negotiated over nearly a decade (1973–82) and entered into force in 1994. It represents codification, as well as progressive development, of the law of the sea. Many of its innovative provisions are a carefully negotiated compromise between different States' interests.[49]

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.

The Coastal Baselines

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."[50] From this baseline can be measured the State's 12 nm territorial sea, the outer boundary of which is a line "every point of which is [12 miles] from the nearest point of the baseline…". The contiguous zone stretches a further 12 nm seaward. In addition, the coastal State

Figure 1. Coastal baseline and maritime zones stipulated under Law of the Sea Convention



Source: Arsana, A., and C. Schofield. 2014. *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.

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.[51] 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 resources of that shelf right to the outer edge of the continental margin.[52]

[49] The so-called "Package deal".

[50] LOSC, Art. 5. Although note that there are in LOSC Part II (Arts 2-16) more detailed provisions relating to the accommodation of other coastal features – such as bays – and to the use of straight baselines in specific circumstances. Discussed in more detail below and see Figure 2.

[51] LOSC, Part V, Arts. 55-75.

[52] LOSC, Part VI, Arts. 76-85.

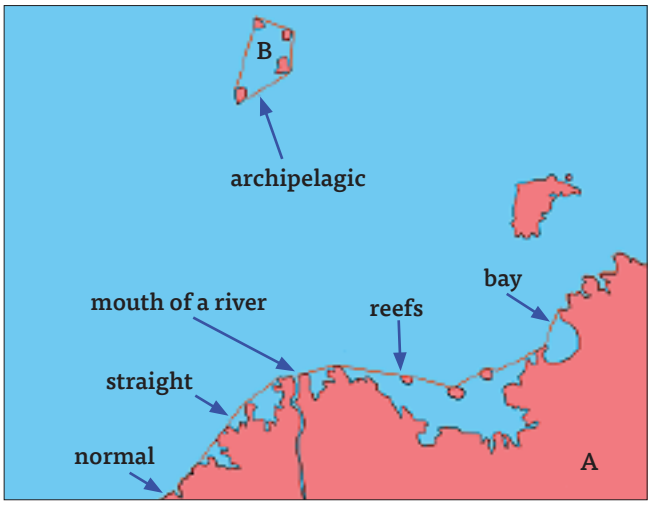
In the measurement of all these zones, the coastal baseline plays a crucial role, as it does with the delimitation of a State's maritime boundaries with its neighbors. In recognition of this, a coastal State that uses anything other than the "normal" low water line as its baseline must commission and 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).[53] 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.[54]

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.[55] For other boundaries, however, there is an obligation to reach agreement based on international law to reach an "equitable solution."[56]

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 12 nm from the mainland or an island – this may also be used as a basepoint.[57]

There are also specific rules regarding the drawing of baselines around ports,[58] across the mouths of rivers,[59] as well as detailed provisions regarding bays.[60] A coastal

Figure 2. Types of baselines



Source: Arsana, A., and C. Schofield. 2014. *TALOS Manual.*
Note: A and B represent different States.

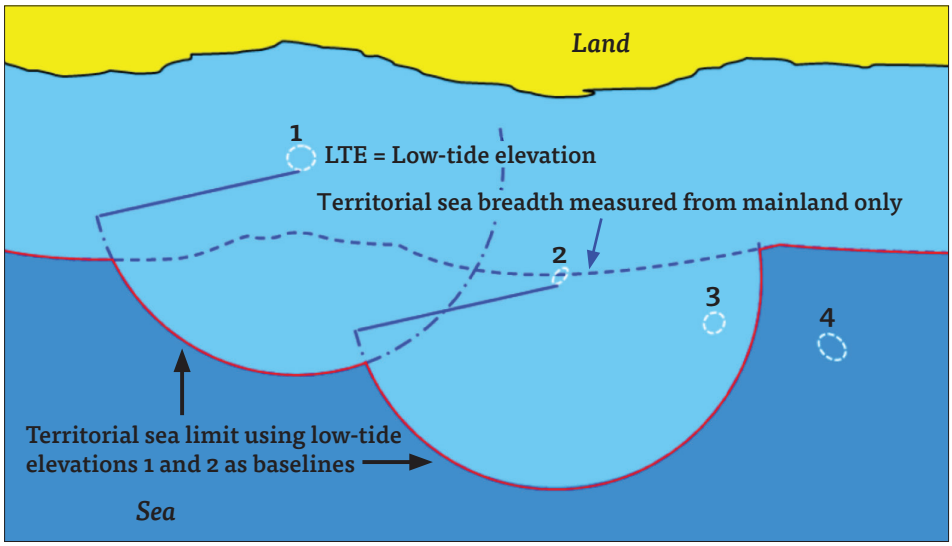
State's territorial sea may also be expanded beyond 12 nm to include "roadsteads" – areas normally used for the anchoring, loading, and unloading of ships.[61]

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 the 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."

[53] LOSC, Art. 16.
[54] For boundaries in the territorial sea, LOSC, Art. 16. Also, for the EEZ, Art. 75 and continental shelf, Art. 84.
[55] LOSC, Art. 15.
[56] For EEZ, LOSC Art. 74; continental shelf, Art. 83.
[57] LOSC, Art. 13.
[58] LOSC, Art. 11.
[59] LOSC, Art. 9.
[60] LOSC, Art. 10.
[61] LOSC, Art. 12.

Figure 3. Low tide elevations and the generation of maritime zones



Source: Arsana, A., and C. Schofield. 2014. TALOS Manual, 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.

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."[62]

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.[63] 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.[64] No single baseline segment joining basepoints may normally be longer than 100 nm,[65] except that 3 percent of the total number of baseline segments enclosing an archipelago may exceed that up to 125 nm.[66] 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.[67]

[62] LOSC, Art. 46.

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

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

[65] LOSC, Art. 47(2).

[66] 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 3 percent of baseline segments exceeding 100 nm in length restriction and thus conform to the LOSC requirements. See, United Nations. 2000. *Handbook on the Delimitation of Maritime Boundaries,* United Nations Division for Ocean Affairs and the Law of the Sea, p. 8.

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

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.[68]

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[69] and submit maps or coordinates of those delineation lines to the UNSG.[70]

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.[71] 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, a number of 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.

[68] LOSC, Art. 47(7).
[69] Concerning Territorial Sea, EEZ, and Continental Shelf.
[70] LOSC, Arts. 16, 74 and 83.
[71] LOSC, Arts. 75 and 84.

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) ICJ
c) An arbitral tribunal established under Annex VII
d) A special tribunal under Annex VIII (for certain types of disputes).

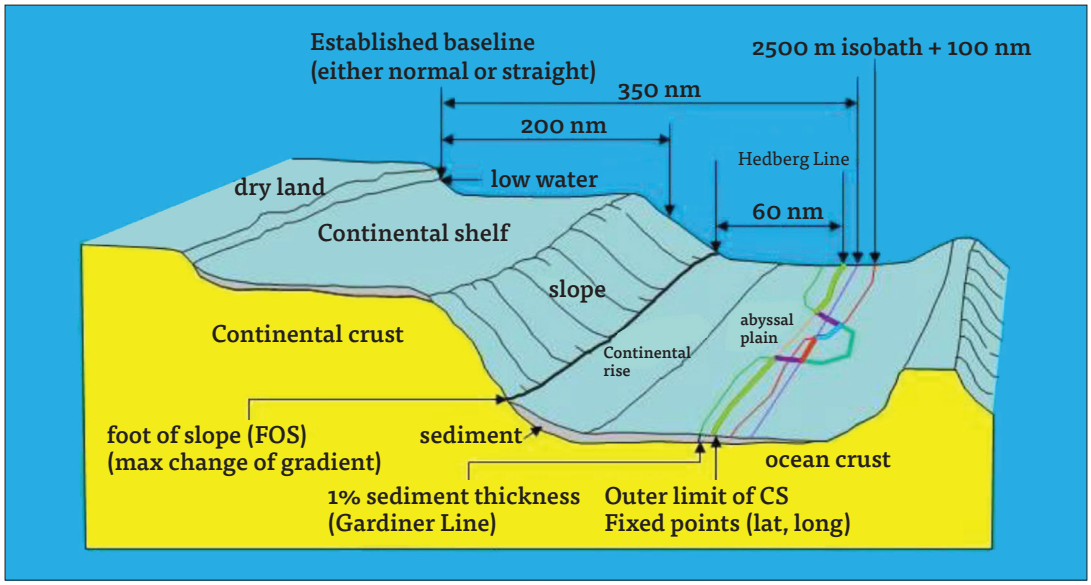
If a dispute subsequently arises and if both States have chosen a similar method of dispute settlement, then one State may bring proceedings using that procedure. If there is no commonality, the LOSC provides for the use of an arbitral tribunal under Annex VII, unless the parties agree to another procedure.[72] 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. [73] This was used for the first time regarding the maritime boundary dispute between Australia and Timor Leste under the auspices of the Permanent Court of Arbitration.[74]

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.

[72] LOSC, Art. 287(5).
[73] LOSC, Art. 298.
[74] 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 Conciliation Commission between Timor-Leste and Australia on the Timor Sea (TSCR), 9 May 2018, available at https://pcacases.com/web/view/132

Figure 4. Definition of the outer limits of the continental shelf



Source: Arsana, A., and C. Schofield. 2014. TALOS Manual, Figure 5.12.

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."[75] The Area and its mineral resources are the "common heritage of mankind"[76] on whose behalf the International Seabed Authority[77] regulates the exploration and exploitation of these resources.[78] 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.[79]

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.[80] 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."[81] This means that they are also binding on other States.

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

[75] LOSC, Art. 1(1).
[76] LOSC, Art. 136.
[77] LOSC, Art. 1(2).
[78] 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/
[79] LOSC, Art. 76(4).
[80] LOSC, Art. 76(8).
[81] LOSC, Art. 76(8).

(IMO)[82] and fisheries management bodies at global, regional, and sub-regional level.[83]

The global fisheries body, the Food and Agriculture Organization (FAO) of the UN, oversees a network of regional general fisheries (not including tuna) bodies. Some of these have management authority, known as Regional Fisheries Management Organizations (RFMOs), and some are purely advisory. Despite recent efforts to develop a comprehensive network of regional management regimes, there are still coverage gaps, such as the Southwest Atlantic or the North Atlantic south of 35°N.[84]

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

The UN Framework Convention on Climate Change (UNFCCC)[85] was signed in 1992 at the UN Conference of Environment and Development (UNCED),[86] and came into force in 1994. With currently 198 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".[87] 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).[88] The 1997 Kyoto Protocol[89] clarified the obligations of Annex I countries with more precision requiring them to reduce their GHG emissions by an average of 5.2 percent between 2008 and 2012.[90] Non-Annex I parties had no GHG reduction obligations, even though a number of emerging economies had already started to become major GHG emitters.[91]

The 2015 Paris Agreement

The 2015 Paris Agreement[92] 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, 195 of the 198 Parties to the UNFCCC have ratified the Paris Agreement. The Paris Agreement is a

[82] LOSC, Art. 197.
[83] LOSC, Art. 119(2).
[84] There is a current effort to upgrade the Western Central Atlantic Fishers Commission (WECAFC) from an advisory to a management body.
[85] United Nations Framework Convention on Climate Change (UNFCCC), 1771 U.N.T.S. 107, 165 (May 9, 1992).
[86] Together with the Convention on Biological Diversity and the Convention to Combat desertification, one of the so-called Rio Conventions.
[87] UNFCCC, Art. 2. IPCC AR5 lays out "Reasons for Concern (RFCs)", see, Pachauri, R. K., and L. A. Meyer (eds). 2014. Climate Change 2014: Synthesis Report, *Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, at pp. 72-73.
[88] UNFCCC, Art 4(7).
[89] Kyoto Protocol to the United Nations Framework Convention on Climate Change, U.N. Doc FCCC/CP/1997/7/Add.1 (Dec. 10, 1997).
[90] Specific country commitments are set out in Annex B of the Kyoto Protocol.
[91] 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 percent 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.
[92] 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).

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 determination 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 each successive NDC will represent a "... progression beyond the Party's then current [NDC] and reflect its highest possible ambition."[93]

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.[94] 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."[95]

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.[96] The Paris Agreement requires all Parties to "engage in adaptation planning processes and the implementation of actions" as appropriate.[97] Parties are encouraged to submit and periodically update their adaptation communication describing their priorities, needs, plans, and actions.[98] 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 integrated into the text of the Paris Agreement. The Warsaw International Mechanism for Loss and Damage (WIM) agreed in 2013 is now incorporated into Article 8, but the Parties' obligations as reflected in Article 8 are only of a cooperative and

[93] Paris Agreement (PA), Art 4(3).
[94] PA, Art 3 and Art 4(3)-(5).
[95] PA, Art. 4(6).
[96] 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 [...]".
[97] PA, Art. 7(9).
[98] PA, Art. 7(10).

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. At COP27, in a historic first, countries formally acknowledged that existing funding arrangements for loss and damage are insufficient and agreed to establish a fund and new funding arrangements.[99] Details of the fund and new funding arrangements will be decided and operationalized in upcoming climate negotiations.

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.[100] The enhanced transparency framework also covers climate finance, technology development, and capacity-building.[101]

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.[102]

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). COP26 further substantiated the cooperative approaches established in Article 6.[103]

Paris Rulebook and Following Developments

In 2018 at UNFCCC COP24, 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."[104] 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. COP24 left a number of important issues to be resolved, including Article 6,[105] reporting requirements for transparency and common timeframes for climate

[99] Decision -/CP.27 -/CMA.4, "Funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage".
[100] PA, Art. 13.
[101] Developed country Parties "shall" and other Parties that provide support "should" provide information on these aspects.
[102] See, in general, PA, Art. 9.

[103] UNFCCC, "COP26 Outcomes: Market mechanisms and non-market approaches (Article 6)", available at: https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact/cop26-outcomes-market-mechanisms-and-non-market-approaches-article-6
[104] 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
[105] 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).

pledges, and efforts to review and strengthen loss and damage mechanism. At the Glasgow COP26 summit, many outstanding issues were resolved, making the Rulebook fully operational.[106]

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,[107] and other entities including corporations, non-governmental organizations, and individuals.[108]

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.[109] 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.[110] Article 1 of that Convention provides that:

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 the customary international law regime relating to the creation of States,[111] 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

[106] The Article 6 negotiations at Glasgow reached decisions CMA 12a, CMA 12b, and CMA 12c. There are also Annexes on Guidance (6.2), Rules (6.4), and a Work Program (6.8). It is worth noting that an equivalent of 5 percent of the "share of proceeds" from carbon markets linked to Article 6.4 mechanism will go toward adaptation funding to help developing countries finance their efforts to adapt to the impacts of climate change.

[107] 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." *Reparation 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.

[108] 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.

[109] See, Crawford, J. 2006. *The Creation of States in International Law,* 2nd edn., Oxford University Press, pp. 37-45.

[110] 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, and Venezuela.

[111] Additional requirements have been considered at times. See, Brownlie, I. 2008. *Principles of Public International Law,* 7th edn., Oxford University Press, pp. 70-76.

a defined territory. Moreover, the concept of territory includes "islands, islets, rocks, and reefs."[112] 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[113] though there is no quantitative or qualitative test available. Nationality is also not required to satisfy the "permanent population" requirement.[114] 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."[115] Though, there have been various situations where statehood has been accepted as present even when an "effective government" was absent.[116] 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.[117]

Although the criteria for statehood inform when and how statehood may be created, international law does not provide any clear-cut answers to the issue of when it might cease to exist. International law addresses the various ways a State can become extinct including through merger, absorption, or dissolution and provides some treaty-based solutions in respect to succession.[118] 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. Indeed, the Montevideo Convention itself expressly provides in Article 6 that: "[r]ecognition is unconditional and irrevocable." Therefore, drawing analogies based on existing examples and anomalies is particularly difficult and the examples may even be ill-suited.[119] 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.[120]

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

[113] See, Lowe, V. 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).

[114] Crawford (2006) 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.

[115] See, Crawford (2006), p. 52.

[116] Crawford (2006) 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.

[117] See, Crawford (2006), p. 89 and Brownlie, p. 71.

[118] 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.

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

[120] See, McAdam, J. 2010. "'Disappearing states', statelessness and the boundaries of international law", *Climate Change and Displacement: Multidisciplinary Perspectives,* Hart; Rayfuse, R. 2009. "W(h)ither Tuvalu? International Law and Disappearing States", UNSW Law

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

As sea level rise threatens access to land, livelihoods, food security, and well-being for vulnerable communities – climate change may induce or exacerbate human mobility by interacting with other risk elements such as poverty, violence, and conflict.[121]

It needs to be highlighted at the outset that the term "climate refugee" is often considered ill-suited; indeed, its use has been denounced widely, even drawing criticism from the UN Refugee Agency.[122] "Refugee" has a specific meaning in international law and is defined under the 1951 Convention relating to the Status of Refugees (Refugee Convention) 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).[123] 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 (voluntary movement of persons), and planned relocation (physical process of moving persons or groups of persons to a new location whether voluntary or involuntary).[124] 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.[125]

Relevant Legal Frameworks in General

Climate change threatens the enjoyment of a wide range of substantive and procedural human rights, either directly or indirectly.[126] These include, in particular,

Research Paper No. 2009-9; Rayfuse, R. 2010. "International law and disappearing states: utilising maritime entitlements to overcome the statehood dilemma", UNSW Law Research Paper No. 2010-52; Stoutenburg, J. G. 2013. "When Do States Disappear? Thresholds of Effective Statehood and the Continued Recognition of "Deterritorialized" Island States" in, Gerrard, M., and G. Wannier (eds). 2016. *Threatened Island Nations: Legal Implications of Rising Seas and a Changing Climate; Camprubí, A. 2016. Statehood under water: Challenges of sea-level rise to the continuity of Pacific Island States,* Brill.

[121] See, McAdam, J., and S. Weerasinghe. 2020. "Climate change and human movement", *Climate Change, Justice and Human Rights*, Amnesty International Netherlands. See also, Rigaud, K. K., and A. de Sherbinin, *et al*. 2018. Groundswell: Preparing for Internal Climate Migration, World Bank; Clement, V., and K. K. Rigaud, *et al*. 2021. Groundswell Part 2: Acting on Internal Climate Migration, World Bank. The Groundswell Report (2018) 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. Groundswell Report Part 2 (2021) states that the combined results of the two Groundswell reports show that by 2050, as many as 216 million people could be internal climate migrants across the six World Bank regions including East Asia and the Pacific, North Africa, Eastern Europe and Central Asia, Sub-Saharan Africa, South Asia, and Latin America.

[122] 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 Kälin, W. 2010. Conceptualizing Climate-Induced Displacement, *Climate Change and Displacement: Multidisciplinary Perspectives,* Hart, pp. 81-103.

[123] 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).

[124] See, in general, Platform on Disaster Displacement, Key Definitions, available at: https://disasterdisplacement.org/the-platform/key-definitions. Note that other terms are also used in practice. For instance, paragraph 14(f) of the Cancun Agreement (1/CP.16 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention) agreed on the term "climate change induced displacement, migration and planned relocation" and paragraph 30(l) of the Sendai Framework uses "disaster-induced human mobility".

[125] See, Kälin, W. 2023. *Internal Displacement and the Law*, Oxford University Press, p. 42..

[126] 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, 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; and the Report of the Special Rapporteur on the promotion and protection of human rights in the context of climate change, "Promotion and protection of human rights in the context of climate change mitigation, loss and damage and participation" (26 July 2022), UN Doc A/77/226. For an insightful

the 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.[127] 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.[128] Though these impacts do not automatically mean that a State will be held legally responsible for violating relevant obligations under international human rights law,[129] 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.[130] The long standing recognition of climate change and its adverse impacts on the enjoyment of human rights has been institutionalized through the adoption of the UN Human Rights Council Resolution 48/14 in October 2021, which established a Special Rapporteur on the promotion and protection of human rights in the context of climate change.[131]

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.[132] 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.[133] In complementing

treatment of the issue, see also, McInerney-Lankford, S., M. Darrow, and L. Rajamani. 2011. *Human Rights and Climate Change: A Review of the International Legal Dimensions*, The World Bank Group. For further analysis on relevant aspects pertaining to slow onset events, see, OHCHR. 2018. "The Slow onset effects of climate change and human rights protection for cross-border migrants", UN Doc A/HRC/37/CRP.4. See also, McAdam, J., B. Burson, W. Kälin, and and S. Weerasinghe. 2016. "International Law and Sea-Level Rise: Forced Migration and Human Rights", 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.

[127] *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.

[128] 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.

[129] 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).

[130] 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 percent 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).

[131] UN HRC, Resolution adopted by the Human Rights Council on 8 October 2021, Mandate of the Special Rapporteur on the promotion and protection of human rights in the context of climate change (13 October 2021), UN Doc. A/HRC/RES/48/14.

[132] 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

[133] See, in particular, International Covenant on Civil and Political Rights (adopted 16 December 1966, entered into force 23 March 1976)

a State's duty to protect, the international community as a whole bears a duty to cooperate with countries affected by sea level rise.[134] Cooperation in the context of international human rights obligations has been explicitly mentioned under Article 2(1) of the International Covenant on Economic, Social and Cultural Rights (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.[135]

(i) Internal Displacement

The 1998 UN Guiding Principles on Internal Displacement restate and compile international law standards relevant to internally displaced persons (IDPs).[136] Although not binding in themselves, they are based on well-established standards[137] under international humanitarian law and human rights law extending the protection to all persons in a State's territory, irrespective of their nationality.[138] It is worth highlighting that other frameworks exist at the regional level, including the 2009 African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (Kampala Convention), which is a binding legal instrument and lays out legal rights and obligations of IDPs by expanding the scope of the UN Guiding Principles.[139]

(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.[140] Environmental harm in general or climate change is not part of the grounds listed by the Refugee Convention to give rise to refugee status.[141] That said, some other regional instruments do not necessarily limit refugee status to the grounds listed in the 1951 Refugee Convention. People who cross borders to seek protection may substantiate their claims based on events or circumstances "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

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).

[134] 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 is, and what responsibilities are entailed need further clarification. See, McAdam, J., and B. 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, Knox, J. H. 2009. "Linking Human Rights and Climate Change at the United Nations", *Harvard Environmental Law Review*, Vol. 33.

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

[136] 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.

[137] Note that in '2005 World Summit Outcome', UNGA Res 60/1 (16 September 2005) para 132 (and many subsequent resolutions), UN member states unanimously recognized the Guiding Principles as an "important international framework for the protection of internally displaced persons".

[138] 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.

[139] African Union, African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa ("Kampala Convention") (signed on 23 October 2009; entered into force on 6 December 2012). Of the total of 55 AU Member States, which represent all the countries on the African continent, 40 states signed the convention and 33 ratified it. For the latest ratification status, see: https://au.int/en/treaties/african-union-convention-protection-and-assistance-internally-displaced-persons-africa

[140] 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://disasterdisplacement.org/wp-content/uploads/2014/08/EN_Protection_Agenda_Volume_I_-low_res.pdf; and Goodwin-Gill, G. S., and J. McAdam. 2017. Climate Change, Disasters and Displacement, UNHCR, available at: http://www.unhcr.org/afr/596f25467.pdf

[141] For an insightful treatment of the issue, see, Scott, M. 2020. *Climate Change, Disasters, and the Refugee Convention,* Cambridge University Press.

in Africa and Conclusion III(3) of the 1984 Cartagena Declaration.[142]

In general, persons crossing borders in the context of sea level rise are not recognized as refugees unless elements of persecution are also present.[143] However, the principle of *non-refoulement* can be applicable beyond refugee law.[144] 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.[145]

(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[146] and in International Labor Organization conventions and recommendations.[147]

(iv) Planned Relocation

When disasters or long-term adverse impacts are unavoidable, then planned relocation[148] may be necessary in certain cases.[149] Relocation may entail drastic changes to lifestyle and livelihoods as well as risk of impoverishment, landlessness, food insecurity among various other risks,[150] so planned relocation needs to be carefully designed with meaningful consultation with affected communities. The IPCC AR6 February 2022 report

[142] 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. For an in-depth assessment on this issue, see, UNHCR, "Legal considerations regarding claims for international protection made in the context of the adverse effects of climate change and disasters" (1 October 2020). The note highlights that people displaced by the adverse effects of climate change and disasters can be refugees under regional refugee criteria.

[143] 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.

[144] 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."

[145] 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*. The case *Teitiota v. New Zealand* marks an important milestone on this front. In 2019, the UN Human Rights Committee accepted, in principle, that it is unlawful for States to send people to places where the impacts of climate change expose them to life-threatening risks or a risk of cruel, inhuman, or degrading treatment. See, Human Rights Comm., Teitiota v. New Zealand, UN Doc. CCPR/C/127/D/2728/2016 (Oct. 24, 2019). For a comprehensive normative assessment of current developments, see, McAdam, J. 2020. "Protecting People Displaced by the Impacts of Climate Change: The UN Human Rights Committee and the Principle of *Non-refoulement", American Journal of International Law*, Vol. 114(4), pp. 708-725.

[146] 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.

[147] 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.

[148] 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.

[149] See, generally, McAdam, J., and E. Ferris. 2015. "Planned Relocations in the Context of Climate Change: Unpacking the Legal and Conceptual Issues", *Cambridge Journal of International and Comparative Law*, Vol. 4. 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, Campbell, J. 2010. "Climate-Induced Community Relocation in the Pacific: The Meaning and Importance of Land" in *Climate Change and Displacement: Multidisciplinary Perspectives,* Hart, pp. 57-79; McAdam, J. 2014. "Historical Cross-Border Relocation in the Pacific: Lessons for Planned Relocations in the Context of Climate Change", *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.

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

did highlight that responses to sea level rise and land subsidence in low-lying coastal cities and settlements and small islands that include planned relocation will be more effective "if combined and/or sequenced, planned well ahead, aligned with sociocultural values and development priorities, and underpinned by inclusive community engagement processes."[151]

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,[152] and various other initiatives.[153] 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 to address planned relocation in the context of climate change (for example, standards governing meaningful consultation with displaced persons, consent, livelihood restoration, and compensation among others).[154]

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."[155] Additionally, in 2018, a Task Force on Displacement established pursuant to the Paris Agreement,[156] 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."[157] COP24 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 UNFCCC framework refers to human mobility in the context of climate change holistically, therefore providing a venue in the context of all movement patterns, 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[158] and strengthening disaster risk governance.[159] The Sendai Framework, even though non-binding, is intended to guide the efforts of stakeholders at all levels, including global, regional, national, and local. Therefore, the

[151] IPCC, AR6 February 2022 Report, at C.2.8.

[152] 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.

[153] See, 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); International Law Association, *Sydney Declaration of Principles for the Protection of Persons Displaced in the Context of Sea Level Rise* (2018), Article 6.

[154] See, 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, Kuusipalo, R. A., D. Cicek, and L. Atkins. 2020. "Legal and Policy Considerations Relating to Human Mobility in the Context of Climate Change and World Bank Operations", *World Bank Legal Climate Change Thematic Working Group Learning Note Series.*

[155] 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

[156] 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

[157] 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

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

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

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.[160]

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.[161] 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)

The 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."[162]

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.[163] 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.[164] In relation to the impacts of sea level rise on maritime zones, the Committee's primary recommendation was reflected in a Resolution of the 78th ILA Conference.[165] That Resolution recognized the emerging State practice in the interpretation of the provisions of the 1982 LOSC,[166] 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

[160] Walter, K. 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/

[161] 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.

[162] 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: https://www.ila-hq.org/en/committees. See, also, Vidas, D., D. Freestone, and J. McAdam. 2015. "International Law and Sea Level Rise: The New ILA Committee", *International Law Students' Association (ILSA) Journal of International and Comparative Law* Vol. 21, pp. 397–408. The authors were the Chair and co-Rapporteurs of the Committee, respectively.

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

[164] *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

[165] ILA Resolution 5/2018.

[166] 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).

law, these baselines and limits should not be required to be readjusted should sea level change affect the geographical reality of the coastline.[167] 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.[168]

In relation to displacement in the face of sea level rise, a second plenary Resolution of the ILA Conference[169] 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."[170] The Sydney Declaration consists of 12 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[171] and applicable to all forms of "human mobility"[172] while other specific principles are applicable in the context of evacuation, planned relocation, migration, internal displacement, and cross-border displacement of affected persons.[173]

In November 2018, the Committee was given a mandate for its second phase (2019–22)[174] which was further extended in May 2022 for another two-year term. 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.[175] 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.[176] The ILA committee released its interim report at the 80th Biannual ILA Conference in Lisbon in June 2022.[177] The interim report looked at various issues including sea level rise and archipelagic states, the development of state practice concerning the limits of maritime zones and maritime boundaries in the context of climate change-related sea level rise, consolidation of state practice, and the approach concerning treaty interpretation by AOSIS and PIF Members. The interim report highlights the remarkable evolution of thinking on state practice relating to maintaining maritime zones, which is discussed more in detail in Part III below.[178] Regarding statehood and the rights of affected populations, the interim report has sought to illustrate some of the critical challenges those possible scenarios and strategies could raise and laid out the issues that will be addressed in further detail in the continuation of the Committee's work. The Committee is planning to present its final report at the 81st ILA Biennial Conference in Greece in 2024.

The International Law Commission (ILC)

The 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

[167] ILA Resolution 5/2018.
[168] *Ibid*.
[169] ILA Resolution 6/2018.
[170] *Ibid*.
[171] 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.
[172] 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).
[173] See, Principles 8-12 for further details.
[174] ILA, Minutes of the Meeting of the Executive Council (London, 17 November 2018), at 3, and Annex 5.
[175] An organizing meeting for the second phase of its work (up to 2022) was held in Madrid in December 2019. See, Vidas, D. 2019. "Madrid Meeting of the Committee on International Law and Sea Level Rise, December 2019", FIDE Foundation, available at: https://www.ila-hq.org/en/committees
[176] See, Freestone, D., and C. Schofield. 2021. "Sea Level Rise and Archipelagic States: A Preliminary Risk Assessment", *Ocean Yearbook* Vol. 35.
[177] ILA. 2022. *Interim Report of the Committee on International Law and Sea Level Rise*, available at https://www.ila-hq.org/index.php/committees. The report was presented at the 80th ILA Biennial Conference, in Lisbon, Portugal, 19–24 June 2022.
[178] See also, Vidas D., and D. Freestone. 2022, below n [212].

Drone view of the lagoon and motu of Fakarava North. Photo: Baptiste Le Bouil

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.[179] The proposal received support from nearly 120 UN Member States during the debate at the Sixth (Legal) Committee of the UN General Assembly,[180] and was adopted in a 2018 General Assembly resolution.[181] In turn, the ILC decided in May 2019 to include the topic in its active work program and to initially address it in an "open-ended Study Group."[182] Following its syllabus prepared in 2018,[183] the ILC Study Group has structured the organization 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.[184]

[179] ILC. 2018. *Report of the Work of the Seventieth Session*, 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.

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

[181] 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/RES/74/186) of 18 December 2019.

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

[183] 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.

[184] 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

The discussions held in the Sixth Committee of the UN General Assembly from 2019 onwards 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[185] 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.[186] 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.[187] The First Issues Paper focused on legal effects of sea level rise on the baselines and outer limits of the maritime spaces measured from the baselines, on maritime delimitations, on the exercise of sovereign rights and jurisdiction of the coastal State and its nationals, and on the rights of third States and their nationals in maritime spaces in which boundaries or baselines have been established. The Second Issues Paper was also released at the 73rd session of the ILC in 2022.[188] It focused on considerations related to statehood and the protection of persons affected by sea level rise. In 2023, an additional paper to the 2020 First Issues Paper was issued for the 74th ILC Session.[189] It dealt with the meaning of "legal stability" in relation to sea level rise, with a focus on baselines and maritime zones and a wide range of other issues relating to baselines and maritime entitlements and boundaries.[190]

current quinquennium (2017-2021) or more likely during the next (2021-2016), see, Teles, P. G. 2020. "Sea-Level Rise in Relation to International Law", pp. 155–156.

[185] See, 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).

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

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

[188] ILC, 'Sea-Level Rise in relation to International Law: Second Issues Paper by Patrícia Galvão Teles and Juan José Ruda Santolaria, Co-Chairs of the Study Group on Sea-Level Rise in relation to International Law (18 April–3 June and 4 July–5 August 2022)' (19 April 2022) UN Doc A/CN.4/752.

[189] A/CN.4/761 + Add.1.

[190] Including immutability and intangibility of boundaries; fundamental changes of circumstances (*rebus sic stantibus*); effects of the potential situation whereby, as a result of sea level rise and a landward shift of the coastline, overlapping areas of the exclusive economic zones of opposite coastal States, delimited by bilateral agreement, no longer overlap; effects of the situation whereby an agreed land boundary terminus ends up being located out at sea because of sea level rise; principle that "the land dominates the sea"; historic waters, title and rights; equity; permanent sovereignty over natural resources; possible loss or gain of benefits by third States in the case of fixed baselines; nautical charts and their relationship to baselines, maritime boundaries and the safety of navigation; and relevance of other sources of law.

Part III

Key Legal and Policy Questions Faced by Coastal States, Particularly Low-Lying States and SIDS, 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.[191] 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;[192] 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.[193] 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.[194]

[191] 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.
[192] See, Part II(1) of this study for further details.
[193] LOSC, Arts. 16(2), 47(9), 75(2), and 84(2).
[194] LOSC, Arts. 21(3) and 42(3).

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
b) 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). 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 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.[195] 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.[196]

However, since the ILC Study Group started its work on "sea level rise in relation to international law" the issue of whether coastal States are required to adjust their baselines and maritime zone entitlements in the light of physical changes brought about by sea level rise has been discussed on a number of occasions in the Sixth (Legal) Committee of the UN General Assembly. The predominant view expressed there by States has been that, in the interests of legal certainty and stability, coastal States so affected are entitled to maintain their existing entitlements. Commentators have suggested this is a remarkably rapid evolution in State practice that might be on the verge of crystallizing into a new generally accepted interpretation of the Convention.[197]

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.[198]

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[195] 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 https://pca-cpa.org/en/cases/9/

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

[197] See Vidas, D., and D. Freestone. 2022. "Legal Certainty and Stability in the Face of Sea Level Rise: The Development of State Practice and International Law Scholarship on Maritime Limits and Boundaries", *International Journal of Marine and Coastal Law,* 673-725 doi:10.1163/15718085-bja10106; and The Impacts of Sea Level Rise and the Law of the Sea Convention: Facilitating Legal Certainty and Stability of Maritime Zones and Boundaries" (2022) 99 *International Law Studies: UNCLOS 40th Anniversary Forum* 944-964.

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

The LOSC defines an island as "a naturally formed area of land, surrounded by water, which is above water at high tide."[199] 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.[200] There is no requirement that they be of a particular size or of any height above sea level.[201]

Even low tide elevations (LTEs) which are less than the breadth of the territorial sea from the baseline, may be used as a baseline.[202] For islands on atolls or having a fringing reef, the baseline may be measured from the seaward low water line of the reef.[203] 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,"[204] 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.[205]

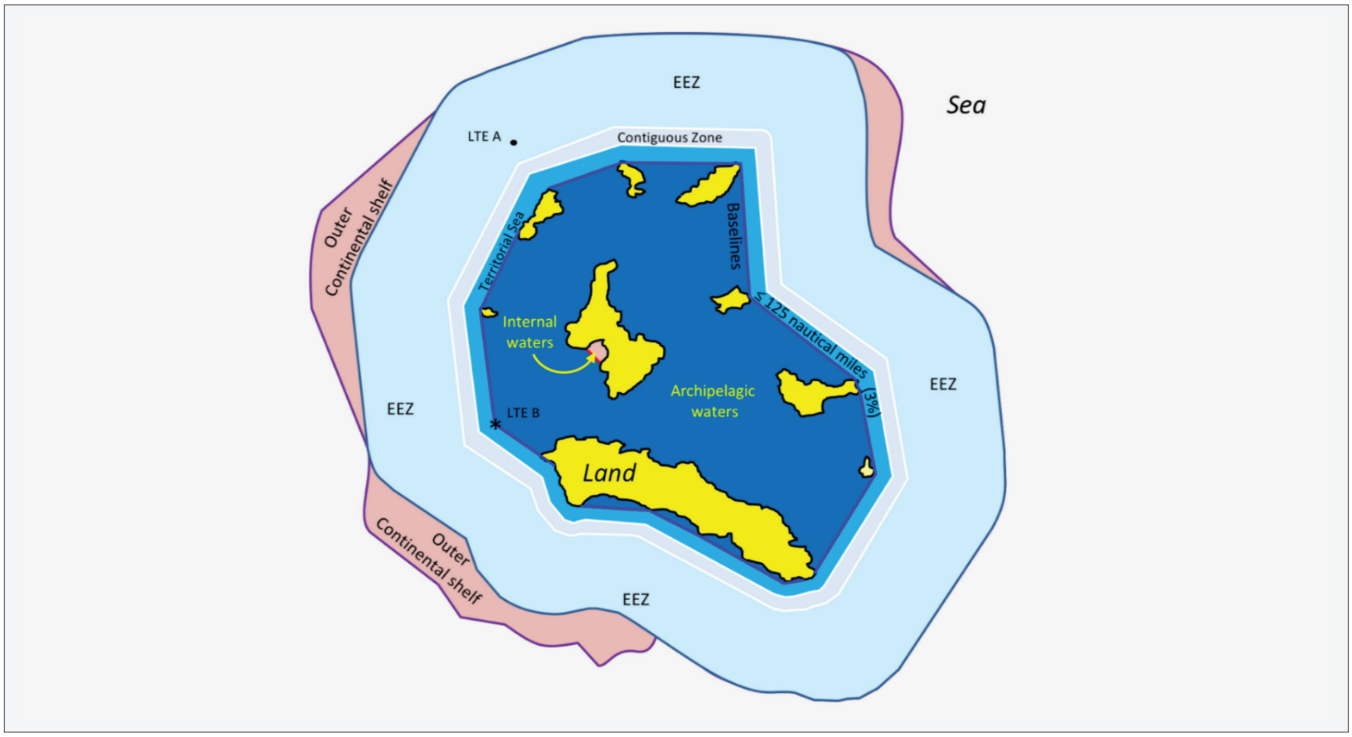
So, it should be clear from the above rules that the LOSC pays considerable attention to the difference between islands, in a strict sense, and insular features which cannot sustain human habitation or economic life which it terms "rocks" (whatever their physical composition). It also makes a strong 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 of 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.[206] As the LOSC allows the use of LTEs up to 12 nm 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 a *de facto* 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.

[199] LOSC, Art. 121(1).
[200] LOSC, Art. 121(3).
[201] 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.
[202] LOSC, Art. 13(1).
[203] As shown on a map "officially recognized by the coastal State." See, LOSC, Art. 6.
[204] LOSC, Art. 7.
[205] Or where such baselines have "received general international recognition" See, LOSC, Art. 7(4).
[206] 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 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).

Figure 5. Maritime zones of archipelagic States



Source: Arsana, A., and C. Schofield. 2014. TALOS Manual, Figure 4.2.

Archipelagic Baselines

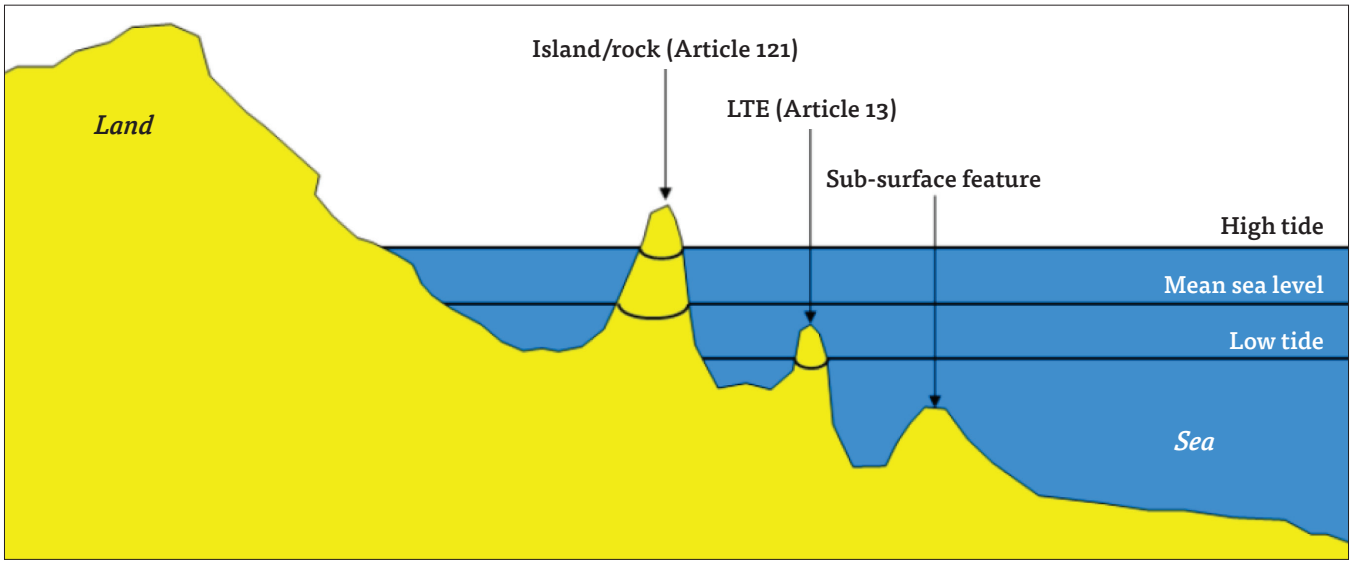
The detailed provisions set out in Part IV of the LOSC relating to archipelagic status are set out above.[207] Generally, these provide that States comprised entirely of islands, or groups of islands, may draw "archipelagic baselines" around the "outermost points of the outermost islands and drying reefs of the archipelago."[208] However, they also prescribe the length of baseline sectors[209] 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.[210]

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 islands, 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

[207] Part II(1).
[208] LOSC, Art. 47(1).
[209] None may be longer than 100 nm- except that 3 percent may extend to 125 nm. See, LOSC, Art. 47(2).
[210] LOSC, Art. 47(1).

Figure 6. Islands and low tide elevations



Source: Arsana, A., and C. Schofield. 2014. *TALOS Manual*, 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.

maximum lengths of baselines and ratio of land to water and thus its ability to maintain its archipelagic status.[211]

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.[212] 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.

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.[213] Article 121 LOSC defines an island as "a naturally formed area of land, surrounded by water, which is above water at high tide."[214] 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.[215] There is no strict

[211] The LOSC has no express provisions relating to loss of rights and status as a result of physical changes.
[212] See, Freestone, D., and C. Schofield (2021).
[213] LOSC, Art. 121(2).
[214] LOSC, Art. 121(1).
[215] LOSC, Art. 121(3).

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 South China Sea Arbitration,[216] 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.[217] It is important to note that China did not participate in those proceedings and has refused to accept the outcome of the resulting Award,[218] 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,"[219] otherwise "absurd results" would occur.[220] 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.[221]

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."[222] Furthermore, the Tribunal ruled that the economic activity must not be purely exploitative; the feature must sustain an activity "of its own."[223]

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.[224] 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.[225] 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.[226]

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,[227] nevertheless an LTE may also have an artificial island superimposed on top of it.[228] However, it is a breach of international law, the

[216] *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].
[217] This following discussion draws heavily on Freestone, D., and C. Schofield (2021).
[218] 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
[219] *South China Sea Arbitration*, at para. 540.
[220] *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.
[221] See, Freestone, D. 1990. "Maritime Boundary Delimitation in the Eastern Caribbean" in, *International Boundaries and Boundary Conflict Resolution*. Proceedings of the 1989 Conference, International Boundaries Research Unit, Durham University, pp. 195-210, at 197-8.
[222] *South China Sea Arbitration*, at para. 497.
[223] *Ibid.*, at para. 543. So extractive activities such a guano mining would not count as having an economic life of their own.
[224] *Ibid.*, at para. 542.
[225] *Ibid.*, at para. 508.
[226] *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 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.
[227] *Ibid.*, at para. 508.
[228] *Ibid.*, at para. 1037.

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.[229]

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."[230] 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."[231] 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."[232] 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."[233] The Tribunal also found that periodic rather than permanent habitation by nomadic people "could also constitute habitation"[234] as would use by populations that are sustaining themselves through a "network" or "constellation" of related maritime features.[235] 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[236] – 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 saltwater 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 landform. The ILA Sea Level Rise Committee thought that existing maritime entitlements should be maintained – but this is still very much an open issue.[237]

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.[238] As

[229] *Ibid.*, at paras. 966 and 989–991. See also, Arts. 205–206, LOSC.
[230] *Ibid.*, at para. 547.
[231] *Ibid.*, at para. 544.
[232] *Ibid.*
[233] *Ibid.*, at para. 542.
[234] *Ibid.*
[235] *Ibid.*, at para. 544.
[236] 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.

[237] ILA Sea Level Rise Committee 2018 Report, pp. 30-32.
[238] From this baseline can be measured the State's 12 nm territorial sea

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."[239] 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.[240] 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.[241]

The LOSC also states that "No State may validly purport to subject any part of the high seas to its sovereignty."[242] 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,[243] 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.[244] 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.[245] 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.[246] Here again, the position of the baseline does have a role for some of the calculations.[247] 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.[248] The CLCS, which is made up of 21 experts in the fields of geology, geophysics, or hydrography,[249] 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

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 12 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.

[239] LOSC, Art. 57.

[240] LOSC, Art. 86.

[241] 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, Freestone, D. 2009. "Modern Principles of High Seas Governance: The Legal Underpinnings", *Environmental Policy and Law*, Vol. 39(1), pp. 44-49.

[242] LOSC, Art. 88.

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

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

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

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

[247] 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.

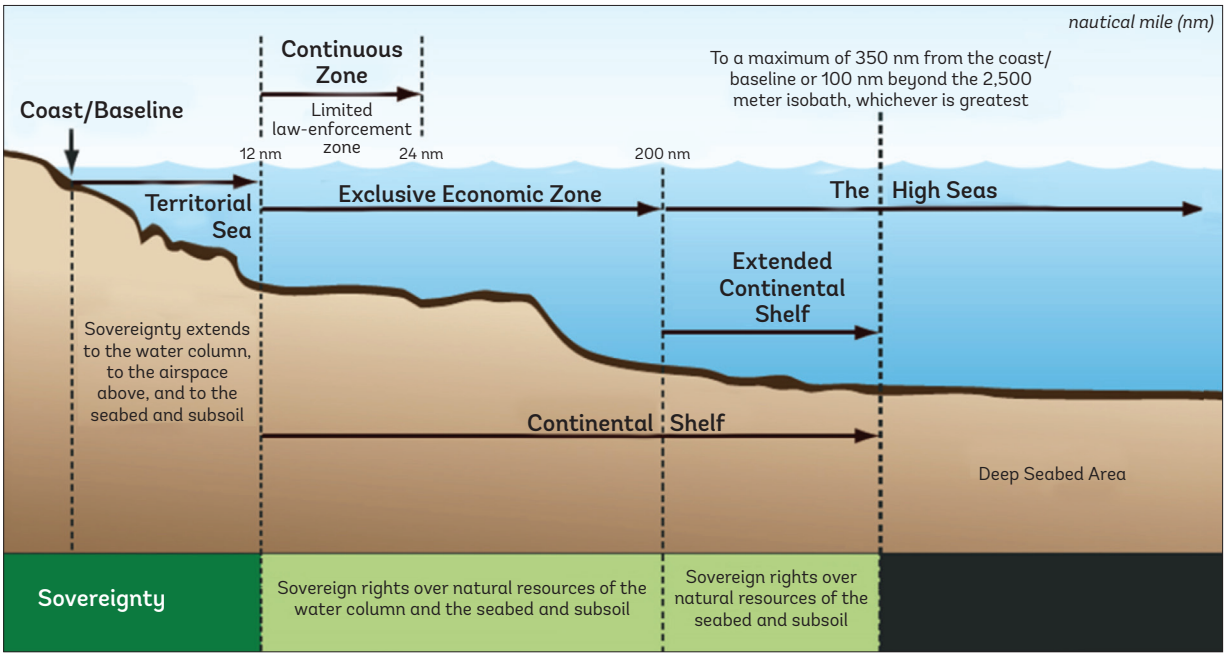
[248] LOSC, Art. 76(8).

[249] LOSC, Annex II Art 2.

Figure 7. Impacts on maritime zone of receding baselines

Source: Arsana, A., and C. Schofield. 2014. *TALOS Manual.*
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.

Figure 8. 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.

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."[250] 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 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

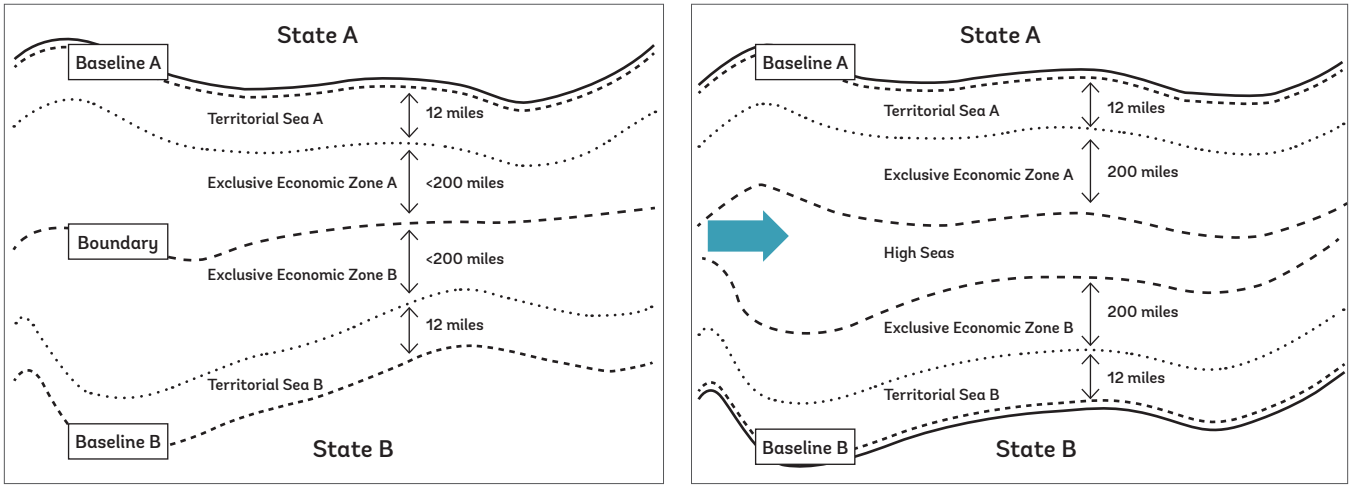
Coastal baselines are also used as the basis for the calculation or negotiation of maritime boundaries with adjacent and opposite states. Adjacent boundaries are not as common in the Pacific as elsewhere in the world,[251] but the preliminary calculation of a maritime boundary between adjacent states, 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."[252] 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.[253] 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."[254]

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 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.[255] 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.

[250] LOSC, Art. 136 and see the whole regime of Part XII LOSC.
[251] 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.
[252] LOSC, Art. 15.
[253] *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.
[254] See, LOSC, Art. 74 (for EEZ), and Art. 83 (for continental shelf).
[255] 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.

Figure 9. (i) Two States (State A and State B) with an opposite boundary dividing exclusive economic zones and (ii) Coastlines retreat: New High Seas area is created (from left to right)



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

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.[256] 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 recognize 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*

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

the world. This applies equally to maritime boundaries agreed between States and to those established through international adjudication.[257]

It is important to note that this was not a part of the Tribunal's actual decision – simply its incidental remarks (or *obiter dicta*)[258] – 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, although there is no clear answer to this question, the debates at the UN Sixth Committee discussed above indicated that States universally took the view that, in the interests of stability and certainty, such boundaries once delimited by treaty or judicial decision were not challengeable.[259]

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.[260]

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 State seeking to argue such a case 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.[261]

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."[262] 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." [263]

(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,[264] but on which there has been a great deal of scholarly

[257] *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.
[258] See note 231 above.
[259] See, Vidas, D., and D. Freestone, above n 212.
[260] This is discussed at some length by the ILA Sea level Rise Committee in its 2018 Report, pp. 19-25.
[261] 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").
[262] 1969 Vienna Convention, Art. 62(1).
[263] 1969 Vienna Convention, Art. 62(1)(a) and (b).
[264] Although there are remarks from the ICJ in 1978 and a tribunal in 2014.

writing.[265] A response to this question depends on an interpretation 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."[266]

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,[267] 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),[268] 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.[269] 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.*[270]

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.[271] This view is supported by the ILC Study Group in its 2020 First Issues Paper,[272] and by the views expressed by States in debates within the UN Sixth Committee.[273]

[265] 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), [1978] I.C.J. Reports 3, para 85 (19 December 1978); Soons, A. H. A. 1990. 'The Effects of a Rising Sea Level on Maritime Limits and Boundaries", *Netherlands International Law Review,* Vol. 37, pp. 207–232, at 228; Freestone, D., and J. Pethick., "Sea Level Rise and Maritime Boundaries: International Implications of Impacts and Responses" in, Blake, G. (ed). 1994. *International Boundaries: Fresh Perspectives*, Vol. 5, Routledge, pp. 73–90, at 78; Schofield, C., "The Trouble with Islands: The Definition and Role of lslands and Rocks in Maritime Boundary Delimitation" in, Hong, S. Y., and J. M. Van Dyke, pp. 19-22; and, after a detailed examination of the *travaux preparatoires,* Lisztwan, J. 2012. "Stability of Maritime Boundary Agreements", *Yale Journal of International Law,* Vol. 37, p. 186. Those who argue that the issue may still be an open issue include Caron, D. D., "Climate Change, Sea Level Rise and the Coming Uncertainty in Oceanic Boundaries: A Proposal to Avoid Conflict", in, Hong, S. Y., and J. M. Van Dyke (eds). 2009. *Maritime Boundary Disputes, Settlement Processes, and the Law of the Sea,* Brill/Martinus Nijhoff, (while not supporting the position), Lusthaus, J. 2010. "Shifting Sands: Sea Level Rise, Maritime Boundaries and Inter-state Conflict", *Politics* Vol. 30, pp. 115–118; and Arnadottir, S. 2016. "Termination of Maritime Boundaries Due to a Fundamental Change of Circumstances", *Utrecht Journal of International and European Law* Vol. 32, p. 94 (which includes a discussion of arguments presented by Lisztwan); Kaye, S. 2017. "The Law of the Sea Convention and Sea Level Rise after the *South China Sea* Arbitration", *International Law Studies*, Vol. 93, p. 439.

[266] 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'.

[267] See literature above at note 257.

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

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

[270] 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).

[271] 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.

[272] 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).

[273] See, Vidas, D., and D. Freestone, above n 212.

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; LTEs may be inundated, low-lying islands may disappear or become "rocks" for the purposes of the LOSC,[274] 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.[275] Although a totally artificial island does not generate any maritime zones around it,[276] 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.[277]

At one end of the scale, it will be recalled that simply placing a lighthouse or other artificial structure that

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

[275] *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.

[276] 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 meters around them." Art. 60, LOSC.

[277] For an extreme example, Japan is reported to have spent over US$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, Jenkins, N. 2016. "Japan is spending $107 million to rebuild a tiny Pacific Island," *Time*, available online: https://time.com/4205570/okinotorishima-japan-maritime-claims/; and, Ryall, J. 2016. "Japan spends millions building structures on uninhabited rocks 1,740 km from Tokyo to mark its territory," *South China Morning Post*, available online: https://www.scmp.com/news/asia/east-asia/article/1908706/japan-spends-millions-building-structures-uninhabited-rocks-1740

is permanently above sea level on an LTE will allow that LTE to be used as a basepoint for a straight baseline,[278] or for an archipelagic baseline.[279] This does not have to be a sophisticated building; just a framework or a single pole with solar powered light would be sufficient.

Figure 10. Low tide elevation with navigational aid installation

Source: CaribbeanEnv, April 23, 2013.

The provisions relating to ports also indicate that the outermost permanent harbor works, which are a part of a harbor system, can also be regarded as part of the coastline that can be extended; this would include breakwaters and groynes linked to the coast, but not offshore artificial structures and islands.[280]

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,[281] and to rebuild or elevate existing islands to allow them to retain their natural entitlements, again in an environmentally sustainable way.[282]

An example is provided by Pulau Nipa (or Nipah), that is one of many small islands in the Singapore Strait.[283] It had been reduced by sand mining to one hectare but was restored in 2004 to about 60 hectares, well above sea level.[284] It has remained as a part of Indonesia's archipelagic baselines system,[285] and also serves as a key basepoint for the construction of the western extension of the Indonesia–Singapore territorial sea boundary.[286]

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.[287] The LOSC does establish a regime for the construction of artificial islands, installations, and structures in the EEZ,[288] or on the continental shelf,[289] 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.[290]

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 –

[278] LOSC, Art. 7(4).
[279] LOSC, Art. 47(4).
[280] LOSC, Art. 11.
[281] 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).
[282] See, *South China Sea Award*, at para 511.
[283] For details and a map, see, Freestone, D., and C. Schofield (2021).
[284] *Ibid.*, p. 40.
[285] Providing basepoints TR.190 and TR.190A.
[286] See, Schofield, C., T. L. McDorman, and A. 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, Lathrop, C., (ed). 2016. *The International Maritime Boundaries of the World*, Vol. VII, Leiden/Boston: American Society for International Law (ASIL)/Martinus Nijhoff, 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).
[287] 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.
[288] LOSC, Art. 60.
[289] LOSC, Art. 80.
[290] Although a 50 m "safety zone" may be placed around them, LOSC, Art. 60.

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.[291] It is reported to cover 400 hectares, rising to a height of 3 meters above current sea level – featuring a hospital, schools, government buildings, and housing for 40,000 people – and to have cost "hundreds of millions of dollars."[292] 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.[293] The Maldives are also a pioneer in the development of floating homes within the lagoon of one of its existing atolls.[294] Artificial islands in the EEZ and on the continental shelf do not generate more than a safety zone of 50 m maximum,[295] but Hulhumalé is already within the internal waters of the Maldives.

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.

Figure 11. Major land reclamation in Singapore

Source: © Koon Holdings Limited.

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,[296] which urges PICTs "in their national interest", to deposit with the UN coordinates and charts delineating

[291] 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". See, Dauenhauer, N. J. 2017. "On the front line of climate change as Maldives fights rising seas", *New Scientist*.

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

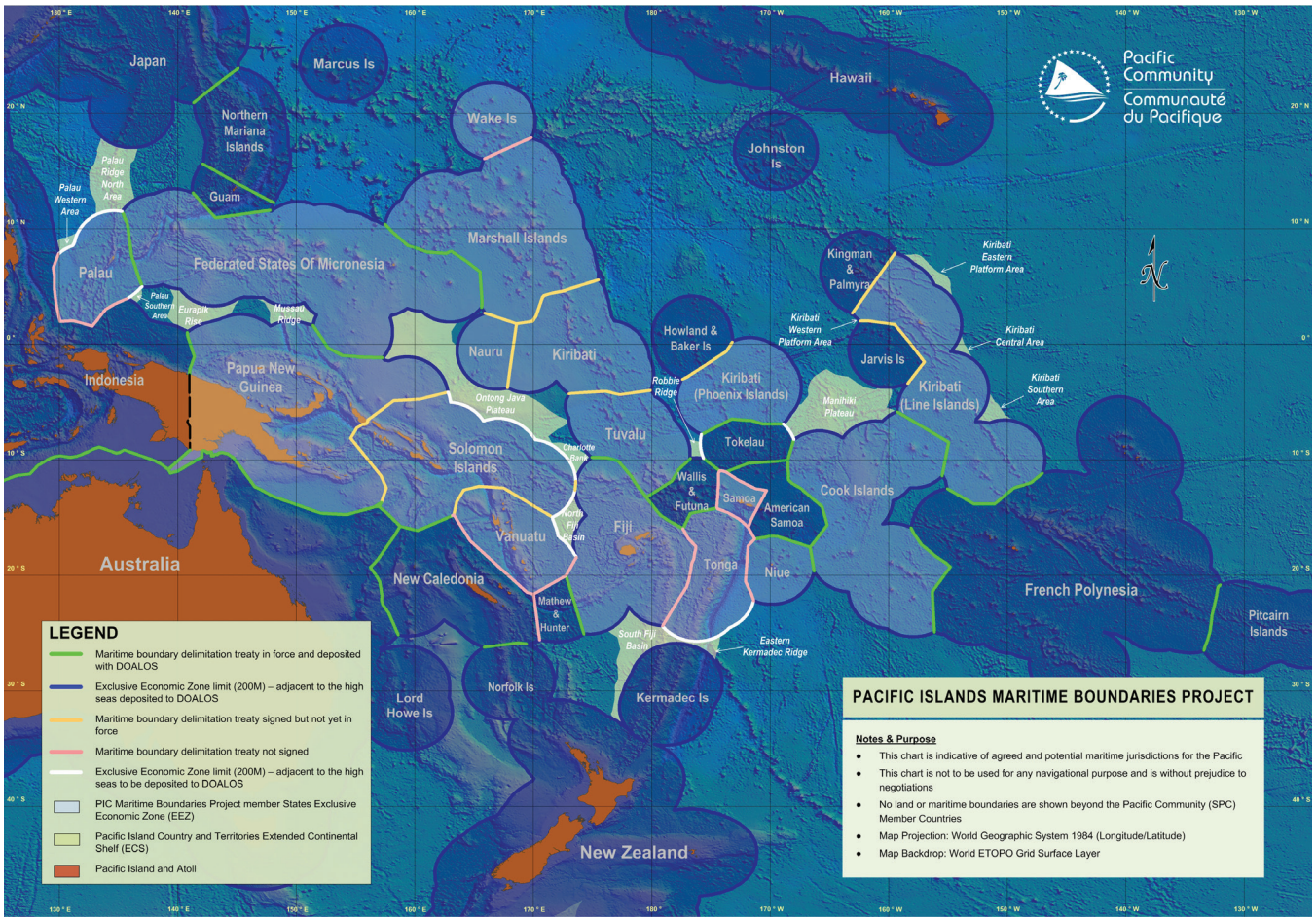
[293] The Maldives were also reported in 2012 to have commissioned a Dutch engineer to design floating islands as "life-boats" for the population in the case of extreme events. See, Black, D. 2012. "Floating islands to the rescue in the Maldives", *The Star*, available online: https://www.thestar.com/news/world/2012/08/23/floating_islands_to_the_rescue_in_the_maldives.html; and, "Artificial Islands Concept for the Maldives", available online: http://futuristicnews.com/artificial-islands-concept-for-the-maldives/

[294] See Maldives Floating City, available online: https://maldivesfloatingcity.com/. Discussed also in, Schofield, C., D. Freestone, and D. Çiçek. (forthcoming) "Reflections on Coastal State Response Options in an Era of Sea Level Rise: Practical Challenges and Legal Consequences".

[295] LOSC, Art. 60.

[296] See, Pratt, C., and H. Govan. 2010. *Our Sea of Islands, Our Livelihoods, Our Oceania. Framework for A Pacific Oceanscape: a catalyst for implementation of ocean policy,* Pacific Islands Forum Secretariat, 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 Frost, R., P, Hibberd, *et al*. 2016. "Redrawing the map of the Pacific", *Marine Policy*, available online: https://www.sciencedirect.com/journal/marine-policy/articles-in-press.

Figure 12. The status of Pacific regional maritime boundaries



Source: SPC, Oceans and Maritime Programme, Geoscience, Energy & Maritime Division (March 2023).

their maritime zones, with as much detail as possible.[297] 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."[298] The program has had considerable success. Of the 73 potential maritime boundaries in the region, only 13 remain to be finalized.[299]

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.[300]

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

[297] See, the *Framework*, in Pratt, C., and H. Govan (2010), p. 57.

[298] 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, C., and H. Govan (2010), p. 58.

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

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

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 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.[301] These included the development of customary international law,[302] a protocol to the UNFCCC,[303] utilization of the amendment provisions of the LOSC,[304] a decision of the Meeting of the State Parties to the LOSC (SPLOS),[305] 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.[306]

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.[307] 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*.[308] 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

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

[302] See, Soons, A. 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, Caron, D. D. 1990. "When law makes climate change worse: rethinking the law of baselines in light of a rising sea level", *Ecology Law Quarterly,* 621; Freestone, D., "International Law and Sea Level Rise" in, Churchill, R., and D. Freestone (eds). 1991. *International Law and Global Climate Change*, pp. 109-125, at 115.

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

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

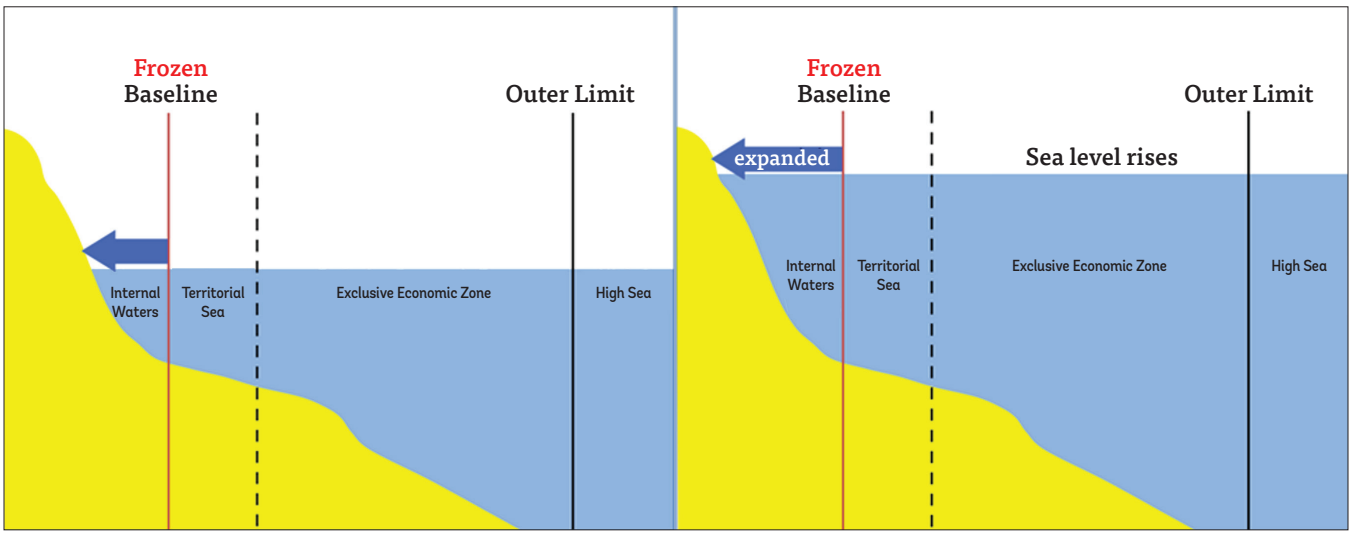
[305] Note that Art. 319(2)(e) LOSC appears to allocate only administrative roles to this meeting, e.g. under LOSC Annex II, Art. 293 and Annex VI, Arts. 4(4), 18 and 19, discussed in Freestone, D., and A. O. Elferink, pp. 207–209.

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

[307] See, Soons (1990).

[308] 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).

Figure 13. Maritime boundary between opposite States (A and B) (i) Two States with an equidistant boundary dividing their EEZs and (ii) as a result of sea level rise both coastal baselines retreat – so outer limits of their EEZs also retreat and a new High Seas area (with arrow) is created



Source: Arsana, A., and C. 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.

and, consequently, territory from sea level rise.[309] The Pacific 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*.[310]

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.[311] 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.[312] 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.

The Member States and Territories of the Pacific Island Forum (PIF) and those of the Alliance of Small

[309] For discussion of Regional State Practice, see, Freestone, D., and C. Schofield. 2019. "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) *Ocean Yearbook* Vol. 33, pp. 58-89.

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

[311] 1969 Vienna Convention, Art. 31(3)(b).

[312] *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).

Island States (AOSIS) include among their members many of the States most vulnerable to, or "specially affected" by, the impacts of sea level rise. The position they take publicly on these issues is therefore of major significance in this process. In August 2021, the PIF leaders issued a Declaration on Preserving Maritime Zones in the Face of Climate Change-Related Sea Level Rise[313] and in September 2021, the Heads of State and Government of AOSIS issued a similar Declaration.[314] The significance of these separate but largely similar political declarations is that they provide further clarity on the position of the PIF and AOSIS member states regarding how relevant LOSC provisions relating to the limits of maritime zones and the rights and entitlements should be interpreted.

The PIF Declaration (mirrored by the AOSIS Declaration) proclaims that:

> *[…] the Convention imposes no affirmative obligation to keep baselines and outer limits of maritime zones under review nor to update charts or lists of geographical coordinates once deposited with the Secretary-General of the United Nations.*
>
> *[…] maritime zones, as established and notified to the Secretary-General of the United Nations in accordance with the Convention, and the rights and entitlements that flow from them, shall continue to apply, without reduction, notwithstanding any physical changes connected to climate change-related sea-level rise.*

In addition to a number of important joint political statements by the leaders of PICs,[315] there has also been a major effort underway for more than a decade – 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.[316]

The project has also assisted with one submission to the CLCS, although 16 more are in preparation.[317] 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.[318] 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

[313] Pacific Island Forum, *Declaration on Preserving Maritime Zones in the Face of Climate Change-Related Sea-Level Rise* (6 August 2021), available at: https://www.forumsec.org/2021/08/11/declaration-on-preserving-maritime-zones-in-the-face-of-climate-change-related-sea-level-rise/. See also, Freestone, D., and C. Schofield. 2021. "Pacific Islands Countries Declare Permanent Baselines, Limits and Maritime Boundaries", International Journal of Marine and Coastal Law 685-696.

[314] Alliance of Small Island States (AOSIS), *The Alliance of Small Island States Leaders' Declaration* (22 September 2021), available at: https://www.aosis.org/launch-of-the-alliance-of-small-island-states-leaders-declaration/ See also, Vidas, D., and D. Freestone. 2022. "Legal Certainty and Stability in the Face of Sea Level Rise: Trends in the Development of State Practice and International Law Scholarship on Maritime Limits and Boundaries", The International Journal of Marine and Coastal Law 37, at pp. 673–725.

[315] See, 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.

[316] See, Frost, R., *et al.* 2016, pp. 302–303 and 306–309. Note also, Freestone, D., and C. Schofield. 2019. "Securing Ocean Spaces for the Future? The Initiative of the Pacific SIDS to Develop Regional Practice Concerning Baselines and Maritime Zone Limits", 33 *Ocean Yearbook* 58-89.

[317] *Ibid.*

[318] Act No. 13 of 2016. Source at: https://www.spc.int/updates/blog/2020/09/the-status-of-pacific-regional-maritime-boundaries-as-of-july-2020. Discussed in detail by Freestone, D., and C. Schofield. 2016. 'Republic of the Marshall Islands: 2016 Maritime Zones Declaration Act: drawing lines in the sea', *International Journal of Marine and Coastal Law,* Vol. 31, 720–746.

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.[319] Similar legislation, designating new archipelagic waters and designating the outer limits of the national EEZs, has also been passed by Kiribati[320] and Tuvalu.[321]

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. It also runs the risk of crystalizing opposition to such a new general rule. In actual fact, as discussed above, the 2021 PIF Declaration and a later Declaration on 22 September by the Heads of State or Government of members of the Alliance of Small Island States (AOSIS),[322] together with the work of the ILC Study Group, have precipitated extensive debates within the UN Sixth Committee. Consensus seems to have emerged that this interpretation of the baseline/maritime entitlements issue is now widely accepted by State Practice and may represent *opinio juris*.[323]

Another option is to approach an international court or tribunal (e.g., the ICJ or the ITLOS) for an Advisory Opinion on one or more of the many legal issues which have never previously been considered by a court or tribunal. Advisory Opinions are, as the name "opinion" suggests, an authoritative statement of the court's views on important legal questions – but they are not binding. They have in the past made significant contributions to the progressive development of international law. They are especially persuasive in respect of obligations *erga omnes,* where, because of the interests of the international community as a whole, contentious proceedings may be less feasible.[324]

Under Article 96(a) of the Charter of the United Nations:

> *The General Assembly or the Security Council may request the International Court of Justice to give an advisory opinion on any legal question.*[325]

Under the UN General Assembly Rules of Procedure, decisions on "important questions" – that are enumerated in Article 83 – are taken by a two-thirds majority of the members present and voting.[326] All other decisions "shall be made by a majority of the members present

[319] This and the following section draw on Freestone, D., and C. Schofield (2016).

[320] Baselines around the Archipelagos of Kiribati Regulations 2014, https://www.un.org/depts/los/LEGISLATIONANDTREATIES/PDFFILES/KIR_2014_archipel_baselines_regulations.pdf. Also, Exclusive Economic Zone Outer Limit Regulations 2014 (2014) (Kiribati), https://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.

[321] 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

[322] The Declaration is published on the AOSIS webpage at: https://www.aosis.org/launch-of%20-the-alliance-of-small-island-states-leaders-declaration/; The Alliance of Small Island States (AOSIS), which was established in 1990 and has a membership of 39 – mostly small island developing States but also some low-lying coastal States – which are spread across several different maritime regions in the Atlantic, Indian and Pacific Oceans, as well as in the Caribbean region and the South China Sea. From the Pacific Ocean, AOSIS includes 14 of in total 18 PIF Members (i.e., all except Australia, New Zealand, French Polynesia, and New Caledonia). Other Member States of AOSIS are in the Atlantic Ocean: three African States, namely, Cape Verde, Guinea-Bissau, and San Tomé and Principe; in the Indian Ocean: Comoros, Maldives, Mauritius and Seychelles; in the Caribbean region: Antigua and Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, and Trinidad and Tobago; and in the South China Sea: Singapore.

[323] See, Vidas, D., and D. Freestone. 2021. op. cit., and by same authors "The Impacts of Sea Level Rise and the Law of the Sea Convention: Facilitating Legal Certainty and Stability of Maritime Zones and Boundaries" (2022) 99 *International Law Studies: UNCLOS 40th Anniversary Forum* 944-964, which includes the text of the US statement on this issue.

[324] See, Freestone, D., R. Barnes, and P. Akhavan. 2022. "Agreement for the Establishment of the Commission of Small Island States on Climate Change and International Law", 37(1) *International Journal of Marine and Coastal Law* 166-178.

[325] Available at https://www.un.org/en/about-us/un-charter/chapter-14

[326] Available at: https://www.un.org/en/ga/about/ropga/plenary.shtml

and voting."[327] As the making a request to the ICJ for an advisory opinion is not included in the list of "important questions", such a request requires a simple majority.[328]

Advisory Opinions from ITLOS are envisaged by Article 138 of its Rules of Procedure which provide that:

1. *The Tribunal may give an advisory opinion on a legal question if an international agreement related to the purposes of the Convention specifically provides for the submission to the Tribunal of a request for such an opinion*

2. *A request for an advisory opinion shall be transmitted to the Tribunal by whatever body is authorized by or in accordance with the agreement to make the request to the Tribunal.*[329]

Over the last decade or so, a number of PICs have indicated an interest in seeking an ICJ Advisory Opinion through the UN General Assembly on legal issues related to climate change – principally the responsibility of the major GHG emitting States.[330] Vanuatu has emerged as the main proponent of such a move. On March 29, 2023, the UNGA adopted a resolution, by consensus, requesting an advisory opinion from the ICJ on the obligations of States with respect to climate change.[331]

A parallel and complementary initiative is also underway in relation to ITLOS. On 31 November 2021 at the UNFCCC COP26 in Glasgow, the Governments of Antigua and Barbuda and of Tuvalu signed an Agreement for the Establishment of the Commission of Small Island States on Climate Change and International Law (COSIS Agreement).[332]

Under Article 1 of the COSIS Agreement, the mandate of that Commission is:

> *To promote and contribute to the definition, implementation, and progressive development of rules and principles of international law concerning climate change, including, but not limited to, the obligations of States relating to the protection and preservation of the marine environment and their responsibility for injuries arising from internationally wrongful acts in respect of the breach of such obligations.*

As per Article 2 of the COSIS Agreement, COSIS is specifically authorized to request advisory opinions from the ITLOS on "any legal question within the scope of the 1982 United Nations Convention on the Law of the Sea, consistent with Article 21 of the ITLOS Statute and Article 138 of its Rules".[333]

On 12 December 2022, COSIS (which now has nine member states)[334] made an application to the ITLOS for an Advisory Opinion on the obligations of the Parties to UNCLOS in relation to marine pollution that might be caused by the emissions of greenhouse gases. [335]

[327] Art 85 UNC.
[328] See, Freestone, D., R. Barnes, and P. Akhavan (2022).
[329] Available at https://www.itlos.org/fileadmin/itlos/documents/basic_texts/ITLOS_8_25.03.21.pdf
[330] See, Palau in 2011, available at: https://news.un.org/en/story/2011/09/388202
[331] UNGA, Request for an advisory opinion of the International Court of Justice on the obligations of States in respect of climate change (1 March 2023), UN Doc. No. A/77/L.58.
[332] Text at Freestone, D., R. Barnes, and P. Akhavan (2022) registered with the UN on 31 October 2022, available at: https://treaties.un.org/Pages/showDetails.aspx?objid=0800000280 5c2ace
[333] For more information, see, Freestone, D., R. Barnes, and P. Akhavan. 2022. Agreement for the Establishment of the Commission of Small Island States on Climate Change and International Law (COSIS), *The International Journal of Marine and Coastal Law*, 37(1), 166-178.
[334] Antigua and Barbuda, Bahamas, Niue, Palau, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Tuvalu, and Vanuatu.
[335] The COSIS request was as follows: What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea (the "UNCLOS"), including under Part XJI:
[(a)] to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change, including through ocean warm ing and sea level rise, and ocean acidification, which are caused by anthropogenic greenhouse gas emissions into the atmosphere?
[(b)] to protect and preserve the marine environment in relation to climate change impacts, including ocean warming and sea level rise, and ocean acidification? See, Request for an Advisory Opinion submitted by the Commission of Small Island States on Climate Change and International Law, available at: https://www.itlos.org/en/main/cases/list-of-cases/request-for-an-advisory-opinion-submitted-by-the-commission-of-small-island-states-on-climate-change-and-international-law-request-for-advisory-opinion-submitted-to-the-tribunal/

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. It is expected that 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.[336] 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 with a broad brush some of the approaches which commentators have suggested.[337]

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."[338] 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 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

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

[337] Rayfuse, R. 2009. "W(h)ither Tuvalu International Law and Disappearing States." UNSW Law Research Paper No. 2009-9; Stoutenburg, J. G., "When Do States Disappear? Thresholds of Effective Statehood and the Continued Recognition of 'Deterritorialized' Island States" in, Gerrard, M., and G. Wannier (eds). 2013. *Threatened Island Nations: Legal Implications of Rising Seas and a Changing Climate*, pp. 76-77; Blanchard, C. 2015. "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", *Canadian Yearbook of International Law*, Vol. 53 pp. 66-118.

[338] See, Crawford, J. (2006) pp. 32-33. "Jurisdiction" on the other hand, refers to "particular aspects of the substance, especially rights (or claims), liberties, and powers", see, Brownlie, I. (2008) p. 106.

to a mainland area. The details of this relocation will probably be different in each case, but commentators have suggested a few alternatives including the relocating State leasing or buying land areas in another State.[339] This is why analogies have been drawn with situations where a government has moved into exile.[340]

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 delegations – 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 on 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 have also been questions in the past as to the continued ownership of the islands and maritime areas from which it has relocated. However, if baselines and maritime entitlements do not need to be adjusted in the face of physical changes brought about by sea level rise – as discussed above – then continued ownership of maritime entitlements may no longer be in dispute.

Each of these questions will need to be addressed on an individual basis, but there does appear to be a strong presumption in favor of State continuity and against the extinction of States under international law[341] 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 – for example, 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 consular services are generally handled by Switzerland in countries where Liechtenstein has no embassy.

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 achieve 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

[339] See, Allen, E. 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, Burkett, M. 2011. "The Nation Ex-Situ: On Climate Change, Deterritorialized Nationhood, and the Post-Climate Era", *Climate Law,* Vol. 2, pp. 245-374.

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

[341] Crawford, J. (2006) 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 pp. 667-699.

organizations, even though such membership is not always exclusively reserved for States.[342] Particular conditions for membership vary, and 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). The UN Charter does not have a provision on ending membership of States that might lose some of the indicia of statehood.

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 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.[343] 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."[344] There is considerable State practice developing in the Pacific region and beyond discussed above,[345] 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 continue 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.[346] 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,"[347] 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."[348] 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.

[342] Some international organizations do admit non-State entities as members.
[343] LOSC, Art. 121(3).
[344] Rayfuse, R. 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, Schofield, C., and D. Freestone, "Options to Protect Coastlines and Secure Maritime Jurisdictional Claims in the Face of Global Sea Level Rise" in, Gerrard, M. B., and G. E. Wannier, p. 162.
[345] See, in particular, Sections 1, 3, and 4 of Part III above.
[346] See options discussed in 2018 ILA Report.
[347] Or *rebus sic stantibus*. 1969 Vienna Convention, Art. 62.
[348] Montevideo Convention, Art. 1.

Protection of Persons

International human rights law provides some key principles that contribute to legal certainty and stability in this context. In a possible scenario where the government and population (either partially or entirely) have to be relocated, then protection of the population becomes a particularly complex issue. Although persons affected by the impacts of climate change and sea level rise will still remain as right holders at all times, the task of allocating duties among possible different duty bearers (e.g., State of origin and host State) may become a more complex issue to determine, especially when mixed human mobility (or immobility) dynamics are taken into account. Under different scenarios of relocation, where, for instance, affected States are able to secure substantial parts of their territory versus when they lose most or all of their habitable territory, this allocation of duties between the affected State and the host State would look different.[349]

In general terms, a State has the primary duty to ensure the protection of persons under its jurisdiction or control. Exercising such jurisdiction or control over a person is a key aspect when determining which State would be the duty bearer in a given scenario. 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 on a non-discriminatory basis, although some limitations may apply based on non-citizenship status and some additional protections may also be provided to migrants and refugees, e.g., due to the application of the *non-refoulement* principle. That said, 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 the economic, social, and cultural rights. In those situations, the duty to cooperate, which is firmly established within the international human rights law regime, could play a significant role for the protection of persons in the context of sea level rise.[350]

[349] The ILA Committee on International Law and Sea Level Rise is currently working on this issue. For a more detailed assessment of these scenarios and the tools to safeguard the rights of affected populations, see its forthcoming ILA report (2024).
[350] *Ibid*. See also, Part II (4) of this Report.

State Responsibility

Under international law, State responsibility generally refers to legal responsibility for the violation of an international obligation and associated consequences.[351] 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 be avoided.[352] For instance, can sea level rise be accepted as *force majeure*?[353] 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,[354] if only because of the risk of rendering significant numbers of people stateless, either legally (*de jure*) or practically (*de facto*).[355] Moreover, governments can still maintain

[351] 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).
[352] 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.
[353] 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.*"
[354] McAdam (2010) at p. 117.
[355] 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, Foster, M., and H. Lambert. 2016. "Statelessness as a Human Rights Issue: A Concept Whose Time Has Come", *International Journal of Refugee Law,* Vol. 28(4), pp. 564-584;

some functional capacity and exercise sovereign rights through options such as a 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,[356] so long as they maintain some symbolic territory and population and, most importantly, a functional government, so that status quo could be maintained.

In this context, it is also worth highlighting Articles 3 and 5 of the Montevideo Convention which read as follows:

Article 3:

> *The political existence of the state is independent of recognition by the other states. Even before recognition the state has the right to defend its integrity and independence, to provide for its conservation and prosperity, and consequently to organize itself as it sees fit, to legislate upon its interests, administer its services, and to define the jurisdiction and competence of its courts. The exercise of these rights has no other limitation than the exercise of the rights of other states according to international law.*

Article 5:

> *The fundamental rights of states are not susceptible of being affected in any manner whatsoever.*

More recently, the Second Issues Paper produced by the co-chairs of the sea level rise study group of the ILC makes a compelling argument based on its reading of Articles 3-5 of the Montevideo Convention: [357]

> *It is valid to hold that once a State exists as such, in that it meets the conditions set out in article 1 of the Convention on the Rights and Duties of States, it has full capacity to exercise its rights, in accordance with international law and with respect for the rights of other members of the international community. Those rights, which may not be impaired, undoubtedly include the right of the State to provide for its preservation; that is, to use the various means at its disposal – including international cooperation – to ensure its continued existence.*[358]

As discussed above, there appears to be a strong presumption against the extinction of statehood, for so long as at least some of the crucial elements of statehood are maintained. However, its effectiveness might still be questioned in situations where the loss of territory and the exile of the population and government become permanent. It will be increasingly important to examine this closer as the practice and thinking on the issue evolves, including its impacts on nationality and prevention of statelessness.[359]

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.

As laid out in Part II(4), the regime addressing human mobility in the context of climate change is highly fragmented.[360] Various proposals have been

Dobrić, M. 2019. "Rising Statelessness Due to Disappearing Island States: Does the Current Status of International Law Offer Sufficient Protection?", *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.

[356] 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).

[357] ILC, 'Sea-Level Rise in relation to International Law: Second Issues Paper by Patrícia Galvão Teles and Juan José Ruda Santolaria, Co-Chairs of the Study Group on Sea-Level Rise in relation to International Law (18 April–3 June and 4 July–5 August 2022)'(19 April 2022) UN Doc A/CN.4/752.

[358] *Ibid.*, para 158.

[359] See, Lixinski, L., J. McAdam, and P. Tupou. 2022. 'Ocean Cultures, the Anthropocene and International Law: Cultural Heritage and Mobility Law as Imaginative Gateways', Melbourne Journal of International Law 1–22. See also, Foster, M., N. Hard, H. Lambert, and J. McAdam. 2022. The Future of Nationality in the Pacific: Preventing Statelessness and Nationality Loss in the context of Climate Change.

[360] Indeed, it has been argued that it is the confusion surrounding the

presented by scholars including the possibility of a new convention to specifically address this issue.[361] However, a new international treaty would need considerable political capital to conclude, bring into force, and implement.[362] 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.[363] 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.[364] 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."[365] 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, remains crucial in accessing adaptation financing and therefore ensuring effective implementation of adaptation measures.

The concept of "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."[366] States' existing obligations to respect, protect, and fulfil human rights would need to inform legal and policy interventions at the national level.[367] 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

fragmented regime rather than gaps in the legal regime itself that leads to the current *de facto* protection gaps. See, in particular, Mayer, B. 2016. *The Concept of Climate Migration: Advocacy and its Prospects*, Edward Elgar Publishing.

[361] See, Biermann, F., and I. Boas. 2010. "Preparing for a Warmer World: Towards a Global Governance System to Protect Climate Refugees", *Global Environmental Politics*, Vol 10 (1), pp. 60-88; Docherty, B. and T.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, Solomon, M. K., and K. Warner, "Protection of Persons Displaced as a Result of Climate Change: Existing Tools and Emerging Frameworks" in, Gerrard, M. B., and G. E. Wannier (eds). 2013. *Threatened Island Nations: Legal Implications of Rising Seas and a Changing Climate*, Cambridge Press. Although others are unconvinced: McAdam, J. 2011. "Swimming against the Tide: Why a Climate Change Displacement Treaty is not the Answer", *International Journal of Refugee Law*, Vol 23(1), pp. 2-27. More recently, Ian Fry, the Special Rapporteur on the promotion and protection of human rights in the context of climate change, in his latest report to the Human Rights Council, proposed an additional protocol to the 1951 Refugee Convention. See, "Providing legal options to protect the human rights of persons displaced across international borders due to climate change - Report of the Special Rapporteur on the promotion and protection of human rights in the context of climate change" (18 April 2023), UN Doc A/HRC/53/34.

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

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

[364] 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).

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

[366] McAdam, J., and Saul, B. 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, Cubie, D., "In-Situ Adaptation: Non-Migration as A Coping Strategy for Vulnerable Persons" in, Manou, D., A. Baldwin (eds) *et al.* 2017. *Climate Change, Migration and Human Rights: Law and Policy Perspectives,* Routledge.

[367] 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.

functions."[368] 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.[369]

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.[370]

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 document complements the Sendai Framework by providing further guidance on how human mobility can be integrated in disaster risk management schemes.[371]

Box 1. Disaster risk management: Developments in the Pacific region

There have been various developments in the Pacific region that are worth particularly highlighting.[372] The regional Framework for Resilient Development in the Pacific: An Integrated Approach to Address Climate Change and Disaster Risk Management 2017–2030 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.[373] The Vanuatu Climate Change and Disaster Risk Reduction Policy 2016–2030, for instance, highlights the need for targeted support for IDPs[374] and calls for development of a national policy addressing internal displacement and resettlement.[375] This policy led to the 2018 Vanuatu National Policy on Climate Change and Disaster-Induced Displacement stressing durable solutions for Vanuatu's IDPs.[376]

[368] Sendai Framework for Disaster Risk Reduction 2015–2030 (adopted 3 June 2015), UNGA Res A/RES/69/283 69/283.
[369] Cubie, at p. 104.
[370] See, Sendai Framework for Disaster Risk Reduction 2015–2030, in particular, paras 27, 28, 30, 33, and 36.
[371] 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
[372] Burson, B., R. Bedford, and C. Bedford. 2021. "In the Same Canoe: Building the Case for a Regional Harmonisation of Approaches to Humanitarian Entry and Stay in 'Our Sea of Islands'", available at: https://disasterdisplacement.org/wp-content/uploads/2021/09/PDD-In_the_Same_Canoe-2021-screen_compressed.pdf
[373] 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
[374] 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
[375] *Ibid*., Section 7.6.6.
[376] 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 See also, Ministry of Economy, Republic of Fiji, Displacement Guidelines in the context of climate change and disasters (2019), available at: https://www.pacificclimatechange.net/sites/default/files/documents/Displacement%20Guidelines.%20In%20the%20context%20of%20climate%20change%20and%20disasters..pdf

Integrating adaptation strategies into sustainable development policies and programs could be another important tool to help people to stay. Although Agenda 2030 for Sustainable Development[377] 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.[378]

Migration as a Means of Adaptation

When *in situ* adaptation is no longer an option, affected communities may opt to seek livelihood opportunities elsewhere within their countries or abroad. As such, migration as adaptation can be an effective tool to avoid later potential displacement.[379] 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.[380] However, these standards would need to be complemented with immigration frameworks addressing primarily the issues of admission, residence permits, and access to the labor market.[381]

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 Australia.[382] The way existing clusters are structured as well as levels of opportunities available for each cluster are disparate.[383] In the same vein, in the Africa region, various instruments have traditionally facilitated cross-border migration at the regional and sub-regional levels, including free movement agreements, even though most of these instruments were not initially designed to address the climate-mobility nexus. In practice, rights granted under these frameworks may also be subject to certain limitations and discretion of host States.[384]

Existing migration frameworks present significant potential entry points but may generally not be comprehensive enough to address wide-scale migration and specific challenges brought by sea level rise and climate change.[385] Existing laws and policies

[377] 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.

[378] 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).

[379] McAdam, J., and B. Burson, *et al*. (2016), p. 39.

[380] 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.

[381] For existing practices and gaps, see generally Nansen Initiative Protection Agenda.

[382] *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.

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

[384] For a detailed analysis, see, Wood, T. 2019. "The Role of Free Movement of Persons Agreements in Addressing Disaster Displacement – A Study of Africa". See, also, Platform on Disaster Displacement, "Stakeholder Workshop Report: The Role of Free Movement of Persons Agreements in Addressing Disaster Displacement in Africa with Focus on ECOWAS, IGAD and SADC Regions" (November 2019).

[385] See, McAdam, J., and B. Burson, *et al*. (2016), p. 41 and Solomon, M. K., and K. Warner (2013), p. 277. For a more detailed treatment of the issue in the Pacific region, see also, Bedford, R., and C. Bedford, "International Migration and Climate Change: A Post-Copenhagen Perspective on Options for Kiribati and Tuvalu" in Burson, (ed). 2010.

will probably need to be reviewed in the light of key legal frameworks as outlined above,[386] with a view to addressing challenges brought by sea level rise and climate change specific to each region and providing flexibility for migrants in obtaining worker status and accessing residency options.

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.[387] Forced evacuations and arbitrary displacement are generally prohibited under international law.[388] 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.[389] 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.[390]

The UNHCR and other key actors recommend that governments consider planning at the legal, policy, and institutional level to address planned relocations as part of their long-term climate change adaptation plans.[391] 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 that relevant human rights principles are taken into account, 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.[392]

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[393] outline principles related to

Climate Change and Migration: South Pacific Perspectives, Institute of Policy Studies.

[386] In Part II(4).

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

[388] 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.

[389] See, 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 Burson, B., W. Kälin, J. McAdam, and S. Weerasinghe. 2018. "The Duty to Move People Out of Harm's Way in the Context of Climate Change and Disasters", *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.

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

[391] *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.

[392] *Ibid.*

[393] *Planned Relocation Guidelines: A framework to undertake climate change related relocation* (2018), available at: https://www.preventionweb.net/publication/fiji-planned-relocation-guidelines-framework-undertake-climate-change-related. 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).

Box 2. *cont.*

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 collaboration between relevant stakeholders.

Following this policy development, Prime Minister Honorable 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,[394] to which New Zealand has already donated US$2 million.[395]

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.[396] 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.[397] The implementation, however, can be strengthened at a 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.[398] In 2019, the High-Level Panel on Internal Displacement was established by the UN Secretary-General to identify concrete recommendations on how to better prevent, respond and, achieve solutions to the global internal displacement crisis. The Panel submitted its report in 2021,[399] followed by the Secretary-General's Action Agenda on Internal Displacement, which sets out 31 commitments by the UN system to better resolve, prevent, and address internal displacement crises.[400]

Box 3. The Kampala Convention on Internally Displaced Persons (IDPs)

The African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa ("Kampala Convention")[401] provides a legally binding framework for the

[394] 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

[395] In February 2020, New Zealand made a pioneering international donation to Fiji's Climate Relocation and Displaced Peoples Trust Fund for Communities and Infrastructure in the amount of US$2 million, part of a broader US$150 million package of climate change assistance to Fiji. See, Goering, L. 2020. "New Zealand makes first donation to Fiji climate relocation fund", Reuters, available at: https://www.reuters.com/article/us-climate-change-fiji-newzealand-trfn/new-zealand-makes-first-donation-to-fiji-climate-relocation-fund-idUSKCN20L04K

[396] Internal Displacement Monitoring Centre (IDMC), Global Report on Internal Displacement 2021, available at: https://www.internal-displacement.org/global-report/grid2021/. See, also, World Bank Groundswell Report (2018) and Groundswell Report Part 2 (2021). The combined results of the two Groundswell reports show that by 2050, across the six World Bank regions including East Asia and the Pacific, North Africa, Eastern Europe and Central Asia, Sub-Saharan Africa, South Asia and Latin America, as many as 216 million people could migrate internally.

[397] See, in general, Kälin, W., and N. Schrepfer (2012). See also, McAdam, J., and B. Burson, *et al*. (2016), at p. 29.

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

[399] See, the Report of the UN Secretary-General's High-Level Panel on Internal Displacement, "Shining a Light on Internal Displacement: A Vision for the Future" (2021), available at: https://internaldisplacement-panel.org/wp-content/uploads/2021/09/HLP-report-WEB.pdf

[400] See, https://www.un.org/internal-displacement-panel/

[401] As of June 2020, 40 countries have signed and 31 have ratified the Convention. For the list of countries which have signed and ratified the Kampala Convention, see: https://au.int/en/treaties/african-union-convention-protection-and-assistance-internally-displaced-persons-africa

Box 3. *cont.*

protection of IDPs in Africa and constitutes – to date – the only legally binding continentally applicable instrument on internal displacement. Under Article 5(4), Parties are obliged to "take measures to protect and assist persons who have been internally displaced due to natural or human-made disasters, including climate change." It prohibits discrimination of any kind and requires States to respect the rights of IDPs provided under regional and international human rights treaties to which the State is a party, also recognizing specific circumstances and needs of marginalized and vulnerable groups.[402]

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.[403]

In general, refugee law could apply for people crossing borders due to climate change impacts as long as elements of persecution are also present to meet the "refugee" definition of the 1951 Convention relating to the Status of Refugees.[404] The applicability of the international refugee law framework is particularly important as refugees are entitled to a specific protection regime under the 1951 Convention.[405] As discussed above, it is worth highlighting the fact that some other regional instruments do not necessarily limit refugee status to the grounds listed in the 1951 Convention.[406]

Recent research highlighted that State practices do not widely recognize multiple factors that may give rise to human movements, therefore, protection offered under refugee law frameworks remains limited in the context of climate-related reasons.[407] Accordingly, it has been acknowledged, including by the UNHCR, that the refugee criteria of the 1951 Convention or the broader refugee criteria of regional refugee law frameworks could apply in the context of "nexus dynamics", *i.e.*, when conflict and/or violence *and* disaster and/or the adverse effects of climate change are present and as such, categorically limiting the applicability of refugee law in this context may not be appropriate.[408]

Moreover, 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.[409]

[402] Kampala Convention, Art. 3(1)(d) and Art. 9(2).

[403] 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).

[404] Refugee Convention, Art. 1A (2).

[405] Including not to be returned to a place where they may be subject to a risk of persecution or other serious harm (principle of *non-refoulement*).

[406] For instance, 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.

[407] Weerasinghe, S. 2018. "In Harm's Way: International Protection in the Context of Nexus Dynamics Between Conflict or Violence and Disaster or Climate Change", *UNHCR Legal and Protection Policy Research Series,* PPLA/2018/05.

[408] *Ibid.* See also, UNHCR, "Legal considerations regarding claims for international protection made in the context of the adverse effects of climate change and disasters" (1 October 2020).

[409] 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.

Finally, agreements on free movement of persons might also address some of these gaps pertaining to cross-border displacement frameworks. Although such agreements generally serve economic purposes, they can be used in climate-mobility nexus and may provide access to the territory of the host State, status and rights during stay, and opportunities for lasting solutions.[410] In 2020, the Intergovernmental Authority on Development (IGAD) endorsed the IGAD Free Movement Protocol, which also includes specific provisions for access to territory of the host country, conditions of stay, and protection of people moving due to climate impacts.[411]

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.[412] 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."[413]

In May 2022, the UN Secretary-General appointed a Special Adviser on Solutions to Internal Displacement as a key component of the Action Agenda on Internal Displacement mentioned earlier. The Special Adviser will have the mandate to ensure robust follow-up to the Action Agenda and strengthen durable solutions for IDPs.[414]

As highlighted earlier, the Nansen Initiative and its successor, the Platform on Disaster Displacement, constitute important fora working towards enhanced protection and bridging the normative gap concerning cross-border displacement in the context of disasters and climate change. Under this initiative, several regional consultations have been conducted in the Pacific, the Horn of Africa, South Asia, and the Americas resulting in a compilation of a broad set of effective practices and priority areas for further action.[415]

Additionally, both the Global Compact for Migration and the Global Compact on Refugees reflect political commitments towards global governance of migration[416] and 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.[417] 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.[418]

[410] Kälin, W. 2022. "Locating International Law on Human Mobility in the Context of Climate Change", American Society of International Law, Proceedings of the 116th Annual Meeting, Cambridge University Press, pp. 160-162.
[411] See, Intergovernmental Authority on Development (IGAD), available at: https://igad.int/protocol-on-free-movement-of-persons-endorsed-at-ministerial-meeting/
[412] UNFCCC Cancun Framework, at para 14(f).
[413] 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
[414] See, UN Press Release, "Secretary-General Appoints Robert Andrew Piper of Australia Special Adviser on Solutions to Internal Displacement" (4 May 2022), available at: https://press.un.org/en/2022/sga2116.doc.htm
[415] See, in general, Platform on Disaster Displacement, available at: https://disasterdisplacement.org/
[416] For a comprehensive analysis, see, Kälin, W. 2018. "The Global Compact on Migration: A Ray of Hope for Disaster-Displaced Persons", *International Journal of Refugee Law*, Vol. 30(4).
[417] United Nations Global Compact for Safe, Orderly and Regular Migration: Intergovernmentally Negotiated and Agreed Outcome (July 13, 2018), Objective 2, para 18(i).
[418] Global Compact on Migration, Objective 5, para 21(h).

Judicial proceedings can also play an important role in the clarification and progressive development of international law in this area and serve as key tools for future action.[419] A recent development is an initiative led by Vanuatu in accordance with Article 96 of the Charter of the United Nations, to request the ICJ, pursuant to Article 65 of the Statute of the Court, to render an advisory opinion on the obligations of States under international law to protect the rights of present and future generations against the adverse effects of climate change.[420] An advisory opinion on this issue may have significant implications for the protection of persons in the context of climate change and sea level rise in general, but also on issues concerning human mobility.

There are similar initiatives initiated at the regional level. On January 9, 2023, Chile and Colombia co-signed a request to the Inter-American Court of Human Rights for an advisory opinion with the purpose of "clarify[ing] the scope of the States' obligations ... to respond to the climate emergency within the framework of international human rights law".[421] The request intends to guide countries in the region regarding the development of policies and programs at the local, national, and international level in this context including with regard to displacement.[422]

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 I below.

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.[423]

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.[424] 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

[419] See, Árnadóttir, S. 2021. "Judicial Proceedings to Clarify International Law on Climate Change", available at: https://www.cambridgeblog.org/2021/12/judicial-proceedings-to-clarify-international-law-on-climate-change/. See also, Wewerinke-Singh, M. 2022. "Climate Change in an Unequal World: Do International Courts and Tribunals Matter?", available at: https://cil.nus.edu.sg/blogs/climate-change-in-an-unequal-world-do-international-courts-and-tribunals-matter/

[420] See Section 4 above on this.

[421] The Republic of Colombia and the Republic of Chile, "Request for an Advisory Opinion on Climate Emergency and Rights to the Inter-American Court of Human Rights" (January 9, 2023), available at: http://climatecasechart.com/wp-content/uploads/sites/16/non-us-case-documents/2023/20230109_18528_petition.pdf

[422] For a more detailed assessment on the initiative concerning the Inter-American Court of Human Rights, see, Auz, J., and T. Viveros-Uehara. 2023. "Another Advisory Opinion on the Climate Emergency? The Added Value of the Inter-American Court of Human Rights", EJIL: Talk, available at: https://www.ejiltalk.org/another-advisory-opinion-on-the-climate-emergency-the-added-value-of-the-inter-american-court-of-human-rights/

[423] 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.

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

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.[425]

NAPs, 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.[426] 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.

Box 4. Nationally Determined Contributions (NDCs) with ocean-related commitments

Research concerning nature-based solutions in NDCs highlight that of the 128 NDCs submitted by coastal States, 107 included adaptation components.[427] 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[428] highlights 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[429] highlights actions in respect to the maritime and coastal sectors involving mangroves, coastal vegetation, and seagrass beds. It also identifies primary obstacles in implementing climate action including lack of technical capacity, reliable data for informing adaptation decision-making, and resources. Note that coastal ecosystem management does not only provide adaptation benefits but can also generate significant amounts of (sequestered) GHG emission reductions (so-called 'blue carbon') which could be sold on carbon markets and thereby generate additional carbon finance.

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

[426] Gallo *et al.* demonstrate the increasing emphasis on marine issues (70 percent 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, Gallo, N. D., D. G. Victor, and L. A. Levin. 2017. "Ocean Commitments under the Paris Agreement", *Nature Climate Change*, Vol. 7. See also, Herr, D., and E. Landis. 2016. "Coastal blue carbon ecosystems: Opportunities for Nationally Determined Contributions", available online at: https://www.nature.org/content/dam/tnc/nature/en/documents/BC_NDCs_FINAL.pdf

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

[428] 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

[429] 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

The first assessment report by the UNFCCC Standing Committee on Finance (SCF) on the determination of the needs of developing country Parties related to implementing the UNFCCC and the Paris Agreement, which was released in 2021 and presented at COP26, collated developing countries' needs identified through a number of formal mandated submissions, including national communications (NCs), NDCs, or NAPs. [430] The SCF report highlighted lack of available data, tools and capacity to assessing adaptation needs as a key issue.[431]

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."[432] In this context, Decision 1/CP.21, para.53, to the Paris Agreement (2015) states that, prior to 2025, "a new collective quantified goal from a floor of US$ 100 billion per year" shall be set.[433] Regarding the balance between climate mitigation and adaptation finance, the Paris Agreement further states:

> *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.*[434]

An important aspect of this task is to ensure accountability and transparency in the process. The 2021 Glasgow Climate Pact (COP26) urges developed country Parties to "fully deliver on the USD 100 billion goal urgently and through to 2025" and highlights the role of transparency in the implementation of these pledges.[435] The assessment of developed countries' first biennial submission of climate finance reporting under Article 9.5 of the Paris Agreement recognizes that improvements should be made in next communications with a view to enhance the quality and granularity of the information provided "including projected levels, channels and instruments, particularly on climate finance for the least developed countries and small island developing States, and on relevant methodologies and assumptions."[436] On long-term finance, the COP27 decision requested the SCF to prepare biennial reports on progress towards the US$100 billion goal for consideration at COP29, COP31, and COP33.[437]

It is worth recalling that Article 7 of the Paris Agreement refers to the global goal of "enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate response in the context of the temperature goal". The Global Stocktake will review the overall progress in achieving this goal. At COP26, the Glasgow–Sharm el-Sheikh work program on the global goal on adaptation was launched to measure progress towards this end.[438] Although this represents a significant step forward in operationalizing the global goal on adaptation outlined in the Paris Agreement, it would be important to ensure that it does not potentially create a complex reporting process that may overly burden countries with limited financial resources, particularly SIDS and LDCs where capacities are already constrained. Thus,

[430] UNFCCC Standing Committee on Finance, *First report on the determination of the needs of developing country Parties related to implementing the Convention and the Paris Agreement* (2021) (The SCF Report), available at: https://unfccc.int/sites/default/files/resource/54307_2%20-%20UNFCCC%20First%20NDR%20technical%20report%20-%20web%20%28004%29.pdf

[431] *Ibid.*, at p. 8.

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

[433] In 2020, developed countries fell short on the US$100 billion climate finance commitment by only providing or mobilizing US$83.3 billion climate finance – most of which was spent on mitigation activities. See OECD Report on 'Climate Finance Provided and Mobilized by Developed Countries in 2016-2020' (September 2022). The OECD expects the US$100 billion goal to be met by 2023.

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

[435] COP26, Decision -/CMA.3, "Glasgow Climate Pact", para 46.

[436] COP26, Decision -/CMA.3, "Compilation and synthesis of, and summary report on the in-session workshop on, biennial communications of information related to Article 9, paragraph 5, of the Paris Agreement, para 14.

[437] Draft Decision -/CP.27 on "Matters Relating to Finance" Doc No. FCCC/CP/2022/L.6.

[438] Glasgow–Sharm el-Sheikh work programme on the global goal on adaptation (14 November 2021) Decision -/CMA.3.

it will remain key for this process to allocate increased resources for financially constrained countries to plan, implement, and evaluate adaptation.[439]

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), both administered by the GEF, were entrusted as operating entities under the dedicated so-called Financial Mechanism of the UNFCCC and are also mandated to serve the Paris Agreement.[440] The Paris Agreement calls on the institutions serving the Paris Agreement, including the operating entities of the Financial Mechanism 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).[441]

The GEF [442] was established by the World Bank in 1991, to support the financing of "global environmental goods."[443] The three original "Implementing Agencies" of the GEF 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 (chemicals and waste were later added as focal areas).[444] 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.[445] 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.[446] The GEF-8 replenishment (2022–26) aims to scale up this support with new pledges totaling US$5.25 billion, increasing the GEF's funding by nearly 30 percent compared to GEF-7.[447]

The SCCF was established in 2001 at COP7 in Marrakech to finance projects relating to, in particular, adaptation, technology transfer, and capacity building.[448] The SCCF has a capitalization of more than US$363 million which has been providing support for about 88 projects at the global level.[449]

The LDCF, also established at COP7, is designed specifically for LDCs. The LDCF assists LDCs in preparing and implementing their National Adaptation Programmes of Action (NAPAs) targeting primarily water, agriculture, disaster risk management, and infrastructure sectors among others.[450] Moving forward, funding support for NAP processes through the SCCF is also contemplated.[451] At COP27, eight

[439] Climate Analytics, "What next for the Global Goal on Adaptation?" (December 2021), available at: https://climateanalytics.org/publications/2021/what-next-for-the-global-goal-on-adaptation/

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

[441] PA, Art. 9.9.

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

[443] The Instrument for the Establishment of the Restructured GEF, available at: https://www.thegef.org/documents/instrument-establishment-restructured-gef For history, see, Freestone, D. 2007. "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*. Martinus Nijhoff, pp. 1077-1107.

[444] 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.

[445] For instance, 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.

[446] GEF Replenishment Cycles, available at: https://www.thegef.org/who-we-are/funding

[447] *Ibid.*

[448] 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.

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

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

[451] SCCF, available at: https://www.thegef.org/topics/special-climate-

donor governments pledged new funding for the LDCF and SCCF for a total of $105.6 million.[452]

The Adaptation Fund[453] was established by the 1997 Kyoto Protocol (Article 12) but operationalized at COP13 in December 2007 in Bali, Indonesia. At COP24, Parties decided that the Adaptation Fund "shall" serve the Paris Agreement effective 1 January 2019.[454] The World Bank serves as trustee of the Adaptation Fund on an interim basis. The Adaptation Fund supports adaptation projects by bridging the adaptation funding gap and aims to bolster countries' adaptive capacities through a Direct Access modality, which is designed to enable "National Implementing Entities"[455] to directly access adaptation funding and have ownership on adaptation action.[456] Although designed to be funded by a so-called "Share of Proceeds" from Clean Development Mechanism transactions under the Kyoto Protocol[457] it is also a donor fund and in 2019, the Adaptation Fund reached close to US$90 million in new pledges. At COP26, the Adaptation Fund raised US$356 million in new pledges including first-time contributions from the United States and Canada (at the national level).[458] At COP27, contributors announced nearly US$243 million in new pledges and contributions.[459]

The agreement reached at COP26 (2021) on the rules and procedures of the cooperative approaches under Article 6 of the Paris Agreement (including market mechanisms and non-market approaches) has implications for adaptation finance. As a "Share of Proceeds", 5 percent of the emission reductions (Art.6.4 ERs) transacted under the Sustainable Development Mechanism (SDM), established under Article 6.4 of the Paris Agreement, are required to be forwarded to the Adaptation Fund to be monetized and to support concrete adaptation projects in developing countries around the world.[460] During COP26, a push was made to also implement a similar "Share of Proceeds" requirement for adaptation finance under Article 6.2 of the Paris Agreement for "internationally transferred mitigation outcomes" (ITMOs) transacted under Article 6.2 of the Paris Agreement. However, instead of becoming a requirement, the COP26 (2021) decision on Article 6.2 only "strongly encourages" countries that participate in cooperative approaches to commit to contribute resources for adaptation "to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation."[461]

The GCF[462] was launched in 2010 during COP16, 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 international climate finance infrastructure. The World Bank serves as the interim trustee and as an Accredited Entity of the GCF. As part of its first replenishment period (2020–2023; GCF-1), the GCF mobilized US$10 billion. The GCF Board meeting in July 2022 officially

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[452] See, GEF, "Countries pledge added support to GEF funds for urgent climate adaptation" (15 November 2022), available at: https://www.thegef.org/newsroom/press-releases/countries-pledge-added-support-gef-funds-urgent-climate-adaptation. See also, GEF, "Joint statement on donors' pledge of $105.6 million and confirmation of support to the Least Developed Countries Fund and Special Climate Change Fund" (15 November 2022), available at: https://www.thegef.org/newsroom/news/joint-statement-donors-pledge-105-6-million-and-confirmation-support-least-developed

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

[454] 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.

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

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

[457] 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.

[458] Adaptation Fund, "Adaptation Fund Raises Record US$ 356 Million in New Pledges at COP26 for its Concrete Actions to Most Vulnerable" (November 2021), available at: https://www.adaptation-fund.org/adaptation-fund-raises-record-us-356-million-in-new-pledges-at-cop26-for-its-concrete-actions-to-most-vulnerable/

[459] Adaptation Fund, "Adaptation Fund Receives Nearly US$ 243 Million Mobilized in 2022 for the Most Climate-Vulnerable at COP27 in Egypt" (December 2022), available at: https://www.adaptation-fund.org/wp-content/uploads/2022/11/Press-Release_Updated122202_Adaptation-Fund-Receives-Nearly-US-243-Million-Mobilized-in-2022-for-the-Most-Climate-Vulnerable-at-COP27-in-Egypt.pdf

[460] UNFCCC, "COP26 Outcomes: Finance for Climate Adaptation", available at: https://unfccc.int/process-and-meetings/the-paris-agreement/the-glasgow-climate-pact/cop26-outcomes-finance-for-climate-adaptation#eq-4

[461] COP26, Decision -/CMA.3, "Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement", para 37.

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

launched the replenishment cycle for the second replenishment period (2024–2027; GCF-2) [463] that will lead to a GCF pledging conference in September 2023 and be critical for GCF's continued role and status in the international climate finance architecture.

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 which aims to support developing countries and regions that are highly vulnerable to climate change by strengthening their adaptive capacities and resilience against the impacts of climate change on their communities, ecosystems, and infrastructures.[464]

However, much more financial support is needed to meet global demand for adaptation action. There are varying estimates in respect to adaptation costs and investment needs. In 2018, the annual global cost of adaptation has been estimated by a World Bank study 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.[465] The 2021 UNEP Adaptation Gap Report also finds that there is an urgent need to step up climate adaptation finance as the estimated adaptation costs in developing countries are five to ten times greater than current public adaptation finance flows, and the adaptation finance gap is widening.[466]

[463] GCF, Resource Mobilization, available at: https://www.greenclimate.fund/about/resource-mobilisation/gcf-2
[464] Climate Investment Funds (CIF), Pilot Programme for Climate Resilience, available at: https://www.cif.org/topics/climate-resilience
[465] See, in general, Hallegatte, S. *et al*. 2018. "The Economics of (and Obstacles to) Aligning Development and Climate Change Adaptation: A World Bank Group Contribution to the Global Commission on Adaptation", available online at www.gca.org
[466] UNEP, Adaptation Gap Report 2021 (1 November 2021), available at: https://www.unep.org/resources/adaptation-gap-report-2021

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 at the UNFCCC level leading to the COP19 (2013) establishing the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts (WIM) and the Executive Committee (ExCom) of the WIM. The WIM has led to significant change in the discourse concerning loss and damage within the UNFCCC process. At COP21 (2015), developing country Parties succeeded in having a separate Article 8 on loss and damage included in the Paris Agreement. But, at the same time, developed countries made sure to document in Decision 1/CP.1, para. 51, to the Paris Agreement that Article 8 "does not involve or provide a basis for any liability or compensation".

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.

As of today, there is no official definition under the UNFCCC of the term "Loss and Damage". However, the term is commonly understood to refer to the consequences of and harm caused by the impacts of climate change that go beyond what people can adapt to, including sea level rise.

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[467] 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."[468]

Science confirms that actual loss and damage is already occurring.[469] Some estimates have been provided on the economic cost of loss and damage in developing countries from selected regions with total residual damages for these regions ranging from US$116–435 billion in 2020 and rising to US$290–580 billion in 2030.[470]

A multi-year Glasgow Dialogue was established at COP26 (2021) to discuss the arrangements for the funding of activities to avert, minimize, and address loss and damage associated with the adverse impacts of climate change.[471] COP27 (2022) then closed with a breakthrough agreement to provide "new funding arrangements for assisting developing countries that are particularly vulnerable to the adverse effects of climate change in responding to loss and damage".[472] These funding arrangements are likely to lead to the establishment of a new fund providing loss and damage support, as well as assisting in mobilizing "new and additional resources" and, as such, "complement and include sources, funds, processes and initiatives under and outside the Convention and the Paris Agreement."[473] The wording of the Decision does not necessarily require the new fund to become an additional operating entity of the Financial Mechanism of the UNFCCC and the Paris Agreement. That said, the structure and operational modalities of these new funding arrangements for loss and damage are yet to be clarified in the upcoming COP(s).

Other Selected Modalities

The World Bank offers a range of financing options in response to natural disasters and emergencies. These include Catastrophe Deferred Drawdown Option (Cat DDOs), Contingent Emergency Response Components (CERCs), Investment Project Financing (IPF), and Development Policy Financing (DPF) Operations that are prepared in response to natural disasters, including under the International Development Association (IDA)[474] Crisis Response Window (CRW), and disaster risk intermediation services and products.[475] Similarly to IDA18 and IDA19, IDA's 20th replenishment also includes a special theme on climate change with additional commitments.[476]

In addition to these various financing instruments, World Bank products and services that can provide support for States in addressing the impacts of sea level rise may also include Advisory Services and Analytics (ASA). These are non-lending activities that can support the design or implementation of relevant

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

[468] 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.

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

[470] See, Markandya, A., and M. González-Eguino, "Integrated Assessment for Identifying Climate Finance Needs for Loss and Damage: A Critical Review" in Mechler, R. (eds) *et al*. 2019. Loss and Damage from Climate Change: Concepts, Methods and Policy Options, Springer, at p. 349.

[471] Glasgow Climate Pact, para 73.

[472] COP 27, Decision 2/CP.27, par 2.

[473] COP 27, Decision 2/CP.21, para.2.

[474] Established in 1960, the International Development Association (IDA) is the part of the World Bank Group that helps the world's poorest countries by providing zero to low-interest credits and grants. See, https://ida.worldbank.org/en/what-is-ida

[475] For a detailed treatment of these as 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).

[476] IDA20 Special Theme: Climate Change (June 2021), available at: http://documents.worldbank.org/curated/en/374421625066951199/IDA20-Special-Theme-Climate-Change

policies to adapt to the impacts of sea level rise, strengthen relevant institutions, and build capacity.[477]

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. The GFDRR is a global partnership providing support to developing countries in reducing their vulnerability to climate change and disaster risks through funding and technical assistance.[478] GFDRR builds its support on the priority areas identified by the Sendai Framework for Disaster Risk Reduction 2015–30.[479]

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 Caribbean Catastrophe Risk Insurance Facility (CCRIF) was formed in 2007 as the first multi-country risk pooling scheme in the world to provide funding for Caribbean governments to alleviate the financial impact of hurricanes and earthquakes.[480] In the same vein, the Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) and the Pacific Catastrophe Risk Insurance Company (PCRIC) were established as a regional insurance scheme to support member countries with post disaster funding.[481]

Likewise, the African Risk Capacity (ARC) was established in 2013 to better plan, prepare, and respond to extreme weather events and natural disasters in Africa.[482] A recent example of disaster risk pooling has been the Southeast Asia Disaster Risk Insurance Facility (SEADRIF) that was formed as a regional platform to build financial resilience against climate shocks and disasters in Southeast Asia.[483]

Finally, the NDC Partnership, housed in the World Resource Institute (WRI) and the UNFCCC Secretariat, is a global initiative made up of more than 200 members, including more than 115 (developed and developing) countries and more than 80 institutions, including the World Bank Group, to create and deliver on ambitious climate action that helps to achieve the Paris Agreement and SDGs. In particular, it aims to provide technical and financial support for countries to achieve their NDCs. It was launched during COP22 in 2016. The NDC Support Facility (NDC-SF) is a multi-donor trust fund established and managed by the World Bank (under the umbrella of the World Bank-administered Climate Support Facility [CSF]) to contribute to the implementation of NDCs and align green economic recovery efforts with countries national climate goals and long-term, low-carbon, climate-resilient strategies. It works with the NDC Partnership to mobilize financial and technical support to help countries meet their NDCs.[484] Adaptation and resilience are important components of future 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 commitment. Inclusion of finance gaps in NDCs is voluntary but can be an effective tool to communicate finance gap needs.

[477] 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).

[478] 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/partnerships

[479] 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.

[480] The Caribbean Catastrophe Risk Insurance Facility (CCRIF), see: https://www.ccrif.org/about-us

[481] 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.

[482] The African Risk Capacity (ARC), see: https://www.africanriskcapacity.org/

[483] The Southeast Asia Disaster Risk Insurance Facility (SEADRIF), see: https://seadrif.org/

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

Maldives. Photo: Visual Art Agency

Appendix I: 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.[485] *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. The GEF-8 replenishment (2022–26) aims to scale up this support with new pledges totaling US$5.25 billion.	Country eligibility for GEF funding can be satisfied through (i) ratification of the international 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 GEF-8 Programming Directions Documents [7 January 2022]). The public must be involved in project design and implementation (See Policy on Public Involvement in GEF-Financed Projects).

[485] 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$363 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[486] 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.	At COP27, contributors announced nearly US$243 million in new pledges and contributions.[487]	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.
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.	As part of its first replenishment (GCF-1), the GCF mobilized US$10 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.

[486] 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.
[487] Adaptation Fund, "Adaptation Fund Receives Nearly US$243 Million Mobilized in 2022 for the Most Climate-Vulnerable at COP27 in Egypt" (December 2022), available at: https://www.adaptation-fund.org/wp-content/uploads/2022/11/Press-Release_Updated122202_Adaptation-Fund-Receives-Nearly-US-243-Million-Mobilized-in-2022-for-the-Most-Climate-Vulnerable-at-COP27-in-Egypt.pdf

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
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. The 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 developing project and program proposals, at 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, 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.[488]	Available funding depends on the relevant products, services, and support modalities.	Eligibility criteria depend on the relevant products, services, and support modalities.
Regional catastrophe disaster risk pools (Pacific)	The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) aims to provide 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 (MDTF), administered by the World Bank. Sources of premia include direct premium subsidies from the Government of Japan, grants, national budgets, and 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, and Vanuatu. Other eligible members include Fiji, Kiribati, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Solomon Islands, Timor Leste, and Tuvalu.

[488] 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 (Caribbean)	The Caribbean Catastrophe Risk Insurance Facility (CCRIF) was formed in 2007 as the first multi-country risk pooling scheme in the world to provide funding for Caribbean governments to alleviate the financial impact of hurricanes and earthquakes.	Initial capitalization through contributions to a MDTF by various donors and membership fees paid by participating governments. The MDTF currently channels funds from various donors, including Canada, USA, EU, and Germany. Additional financing has been provided by the Caribbean Development Bank, with resources provided by Mexico, Ireland, the EU, and The World Bank.	CCRIF offers earthquake, tropical cyclone, and excess rainfall policies to Caribbean and Central American governments. CCRIF introduced coverage for the fisheries sector for Saint Lucia and Grenada (July 2019) and coverage for electric utilities (October 2020). Currently 19 Caribbean governments are members (Anguilla, Antigua & Barbuda, Bahamas, Barbados, Belize, Bermuda, British Virgin Islands, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, Montserrat, St. Kitts & Nevis, Saint Lucia, Sint Maarten, St. Vincent & the Grenadines, Trinidad & Tobago, and Turks & Caicos Islands); 3 Central American governments (Guatemala, Nicaragua, and Panama); and 2 electric utility companies (ANGLEC and LUCELEC).
Regional catastrophe disaster risk pools (Africa)	The African Risk Capacity (ARC) Group is a Specialized Agency of the African Union established to help African governments improve their capacities to better plan, prepare, and respond to extreme weather events and natural disasters.	Initial capitalization through participating countries' premiums as well as one-time partner contributions	ARC provides an "index-based insurance mechanism for infrequent, severe drought events." In order to participate in ARC, countries must undertake several processes (see here). Members receive a payout when the rainfall deviation is sufficiently severe (when the estimated response costs cross a certain pre-defined threshold). When that happens, qualifying members receive a payout within 2–4 weeks of the end of the rainfall season, to allow them to begin early intervention programs. It currently offers a maximum coverage of US$30 million per country per season for drought events that occur with a frequency of 1 in 5 years or less. ARC currently has 35 Member States from the African Union (see here).

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
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 EU 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 €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).

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