Climate Justice for Small Island Developing States*

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Abstract

The small island developing states (SIDS) are threatened by inundation from rising sea levels due to anthropogenic climate change. The Intergovernmental Panel on climate change fifth assessment report states that the human influence on the climate system is evident and the recent anthropogenic emissions of greenhouse gases are the highest in history. This has wide- spread impact on 'human and natural system'. In this context of greenhouse gas emissions and its consequences, how does the question of climate justice or injustice arise?

Climate justice is the awareness that human actions are also responsible for the social inequalities; human rights violations, and environmental degradations and being responsible for alleviating those inequalities.

The fact is that climate change affects people and states disproportionately. Small size, population density, limited resources, concentration of infrastructure and settlement at the coast, geographical isolation and limited financial and institutional capacities make SIDS among the most vulnerable to climate change impacts. These states have contributed very little to the greenhouse gas emissions but they suffer disproportionately.

Their total combined annual carbon dioxide accounts for less than 1% of global of emissions. These factors entitle them for compensation for the loss and damage suffered as a result of climate change. The article discusses whether climate justice will be obtained for SIDS through the Warsaw International Mechanism for Loss and Damage (WIM) adopted under the 1992 United Nation Framework Convention on Climate Change. The argument is: WIM risk management strategies is inadequate for the slow onset events like sea level rise faced by SIDS and, hence fails to deliver climate justice for SIDS.

Keywords: climate change, greenhouse gases, climate system, human actions, warsaw international mechanism.

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1. Introduction

The 1992 United Nations Framework Convention on Climate Change[1], (UNFCCC) the first global treaty addressing anthropogenic climate change, focused on principles to reduce greenhouse gas emissions and established the annual Conference of the Parties (COP) for coordinating and directing the global response to climate change. The UNFCCC noted that the 'largest share of historical and current global emissions has originated in developed countries'[2] and these developed countries should take the lead as per common but differentiated liability to meet the specific needs and concerns of small island countries[3] arising from the 'adverse effects of climate change and/or the impact of the implementation of response measures'[4]. However, despite the repeated pleas of small island developing states[5] (SIDS) under the Alliance of Small Island States (AOSIS)[6] their compensation and rehabilitation needs are being ignored by developed states.

The Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC) states that:

Warming of the climate system is unequivocal, and since the 1950s, many

(1) United Nations Framework Convention on Climate Change (New York, 9 May 1992) 1771 UNTS 107, 31 ILM 849 (1992), entered into force 21 March 1994 [hereinafter UNFCCC].

(2) UNFCCC, ibid, preambular para 3.

(3) UNFCCC, ibid, art 3(2), art 4(4)and art 4(5).

(4) UNFCCC, ibid, art 4(8).

(5) Small Island Developing States (SIDS) were recognized as a distinct group of developing countries facing specific social, economic and environmental vulnerabilities at the United Nations Conference on Environment and Development in 1992. Many SIDS lie only metres above sea level, making them particularly vulnerable to the impacts of climate change in both the shorter (eg storm surge during large tropical cyclones) and longer (eg sea level rise) terms. For more about SIDS, see the UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 'About the Small Island Developing States' <http://unohrlls.org/about-sids/> accessed 5 May 2017.

(6) The Alliance is a 'coalition of small islands and low-lying coastal countries that share similar deve - opment challenges and concerns about the environment, especially their vulnerability to the adverse effects of global climate change. AOSIS member countries include: Antigua and Barbuda, Bahamas, Barbados, Belize, Cape Verde, Comoros, Cook Islands, Cuba, Dominica, Dominican Republic, Fiji, Federated States of Micronesia, Grenada, Guinea-Bissau, Guyana, Haiti, Jamaica, Kiribati, Maldives, Marshall Islands, Mauritius, Nauru, Niue, Palau, Papua New Guinea, Samoa, Singapore, Seychelles, Sao Tome and Principe, Solomon Islands, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, Timor-Leste, Tonga, Trinidad and Tobago, Tuvalu, and Vanuatu. Observers include American Samoa, Netherlands Antilles, Guam, U.S. Virgin Islands, and Puerto Rico': see Members, Alliance of Small Island States <http://aosis.org/members.> accessed 10 June 2017. Thirty-seven are active members of the UN, constituting approximately 28 percent of developing countries, and 20 per cent of the UN's total membership

of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amount of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased...[7].

The impact of climate change is largely felt by small island states, which contributed the very least to the problem. The developed countries ought to take responsibility for the problems created by their historic and current greenhouse gas emissions and compensate the SIDS for the loss and damage they are suffering, and presumably will continue to suffer. Mitigation and adaptation are no longer effective solutions for SIDS. As noted by the IPCC, the '[h]igh ratio of coastal area to landmass make[s] adaptation a significant financial and resource challenge for islands'[8]. For low-lying small island states the consequence of sea level rise, salinization and land loss is relocation and displacement. The unique set of challenges faced by the SIDS has not yet been specifically addressed by the UNFCCC nor has the question of financial support for relocation and resettlement been tackled.

Some scholars define loss and damage as the impacts of climate change that are not avoided through mitigation and adaptation efforts[9]. From local viewpoint loss and damage are the impacts of climate change that households and communities are not able to adapt to[10]. Different perspectives have evolved as to how to view loss and damage. A typology of loss and damage classifies

(7) IPCC, Climate Change 2013 The Physical Science Basis - Summary for Policymakers, Technical Summary and Frequently Asked Questions 4 <https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SummaryVolume_FINAL.pdf> accessed 29 June 2017 [hereinafter IPCC Climate Change 2013 - Summary for Policymakers].

(8) IPCC, Climate Change 2014 Impacts, Adaption, and Vulnerability 24 < https://www.ipcc.ch/pdf/a - sessment-report/ar5/wg2/WGIIAR5-IntegrationBrochure_FINAL.pdf> accessed 29 June 2017 [hereinafter IPCC 2014].

(9) Erin Roberts and Mark Pelling, ‹Climate change-related loss and damage: translating the global policy agenda for national policy processes› (2018) 10 Climate and Development 4;E. Roberts and S. Huq, ‹ Coming full circle: The history of loss and damage under the UNFCCC. ‹ (2015) 8 International Journal of African Renaissance Studies of Global Warming 141R. Verheyen, ‹Tackling loss and damage› (2012) Bonn: Germanwatch

(10) K. Warner and others, Evidence from the frontlines of climate change: Loss and damage to co - munities despite coping and adaptation, Policy Report No. 9. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS). http://unu.edu/publications/policy-briefs/evidencefrom-the-frontlines-of-climate-change-loss-and-damage-tocommunities-despite-coping-and-adaptation.html, 2012);K. Warner, K. van der Geest and S. (a). Kreft, Pushed to the limit: Evidence of climate change-related loss and damage when people face constraints and limits to adaptation, Policy Report No. 11. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS). Retrieved from: http://i.unu.edu/media/unu.edu/news/40704/ LossDamage_Vol21.pdf, 2013)

four perspectives of loss and damage namely, Adaptation and Mitigation perspective, Risk Management perspective, Limits to Adaptation perspective and Existential perspective[11]. It reflects consistent viewpoints about the meaning and measures needed for addressing loss and damage. According to Adaptation and Mitigation perspective, some stakeholders perceive loss and damage as part of UNFCCC's adaptation and mitigation measures[12]. From Risk Management perspective, this policy space of loss and damage is an opportunity to work towards a holistic approach of bringing together and building on existing efforts under DDR, climate change, adaptation and humanitarian work, to a comprehensive risk management. The third category focuses on vulnerability. According to this perspective loss and damage is the residual beyond adaptation. The existential perspective highlights the importance of addressing the inevitable harm suffered by vulnerable countries due to climate change. The perspective addresses the issue of justice, responsibility, irreversible loss and non-economic losses[13]. Each perspective calls for a different approach or intervention[14].

This article evaluates the current legal framework of the loss and damage mechanism in protecting the interests of SIDS. Warsaw International Mechanism on Loss and Damage[15] (WIM), is now established as a third pillar of work under the UNFCCC[16] alongside mitigation and adaptation, with the inclusion of a standalone article (art 8) in the Paris Agreement[17]. However, the question: "where will finance for loss and damage come from?" is not been

(11) Emily Boyd and others, 'A typology of loss and damage perspectives' (2017) Nature Climate Change.

(12) Ibid.

(13) Ibid.

(14) Ibid; The Adaptation and Mitigation perspective doesn't call for new measures or mechanism. It su - gests that loss and damage should be dealt within existing mechanism. Risk Management perspective emphasizes on new risk management tools. While Limits to Adaptation perspective focus on development interventions and social protection mechanism, Existential perspective concentrate on compensation, litigation and resettlement measures.

(15) UNFCCC Conference of the Parties, 'Report of the Conference of the Parties on its nineteenth se - sion, held in Warsaw from 11 to 23 November 2013 Addendum Part two: Action taken by the Conference of the Parties at its nineteenth session' 31 January 2014, FCCC/CP/2013/10/Add1 Decision 2/CP 19 <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf> accessed 6 May 2017.

(16) UNFCCC (n 1).

(17) UNFCCC, 'Adoption of the Paris Agreement' (adopted 12 December 2015 at the twenty-first session of the Conference of the Parties to the UNFCCC held in Paris from 30 November to 13 December 2015) entered into force 4 November 2016 FCCC/CP/2015/L9/Rev1, art 8 <http://www.un.org/ga/search/view_doc.asp?symbol=FCCC/CP/2015/L.9/Rev.1> accessed 23 April 2017 [hereinafter Paris Agreement].

yet answered. The developed countries while, limiting discussion of liability and compensation, is framing loss and damage as a matter of insurance and climate risk management. The article argues that the insurance mechanism is inadequate for meeting SIDS' challenges related to slow onset events such as sea level rise. Slow onset events poses existential and irreversible loss for SIDS, as their territories become uninhabitable forcing their populations to relocate and resettle to other countries. The economic and non-economic loss needs to be compensated. Without adequate international support, the risk management strategies under WIM will remain empty policy prescriptions for SIDS.

This article begins with an in-depth analysis of the 'loss and damage' concept including the definition (section three) and history (section four), followed by loss and damage section five, which considers the importance of addressing loss and damage, and section six, which discusses insurance as a tool to address loss and damage. Some examples of risk insurance facilities from the Caribbean, the Pacific and Africa are used in section six to demonstrate how insurance could be utilised in the context of loss and damage caused by climate change. That analysis is followed by a conclusion with a summary of the findings. In essence, this article will evaluate the impact and potential of insurance systems as a risk reduction and risk management tool under the WIM. It will be argued that risk management approaches like insurance and information-sharing are not sufficient for slow onset events like sea level rise, which is the main threat faced by SIDS. If loss and damage mechanisms continue to focus only on insurance and information sharing it will remain a giant exercise in deflection.

2. The concept of 'loss and damage'

'Loss and damage' under the WIM is understood as the adverse effects of climate change and climate variability that the people are not able to cope with or adapt to even after undertaking possible mitigation and adaptation measures. Loss covers[18] the 'negative impacts that cannot be repaired or

(18) Denis Opiyo Opondo, Loss and Damage from Flooding in Budalangi District, Western Kenya Loss and Damage in Vulnerable Countries Initiative, case study report (United Nations University Institute for Environment and Human Security 2013) <http://loss-and-damage.net/download/7275.pdf > accessed 23 April 2017, 10, citing K Warner and others, 'Evidence from the Frontlines of Climate Change: Loss and damage to Communities despite coping and adaptation', Loss and damage in Vulnerable Countries Initiative Policy Report, Report No9 (United Nations University Institute for Environment and Human Security 2012) 20.

restored'[19], whereas damage covers those 'negative impacts that can be repaired or restored'[20]. The loss and damage results from a range of weather events and climate processes, which includes both extreme events and slow onset events; the effect and magnitude of such events unfold over an extended period[21].

To be clear, 'loss' characterizes negative impacts that cannot be repaired or restored (for example, glacial melt or desertification causing loss of freshwater geologic sources or total destruction of coastal infrastructure due to sea level rise) all of which may subsequently result in the loss of culture or heritage.

In fact, the term 'loss and damage' comprises two words that though used together stand for two different kinds of negative impacts experienced by humans as after-effects of the impacts of climate change. 'Loss' represents non-retrievable assets with sentimental value that cannot be measured in economic terms. A loss can be psychological, such as loss of identity of a person, redundancy of a lifelong practised skill, loss of a culturally significant object, loss of one's culture and sense of belonging, of inherited land or a burial place which cannot be substituted or measured financially. To truly benefit the SIDS-which are home to some of the most vulnerable populations including indigenous peoples-the 'loss and damage' concept has to evolve to encompass the loss and damage that uniquely occurs with climate change, namely, the loss of sovereignty, nationality and the rights inherent to them.

2.1. Working definition of loss and damage

To understand the concept of loss and damage and understand how vulnerable communities experience loss and damage, studies were conducted in Bangladesh, Bhutan, Burkina Faso, Ethiopia, Gambia, Kenya, Micronesia, Mozambique and Nepal. For this purpose, a working definition aimed at supporting the discussion and helping in further conceptual framing of loss

(19) Sönke Kreft and others, 'Framing the Loss and Damage Debate: A Thought Starter by the Loss and Damage in Vulnerable Countries Initiative' in Oliver C Ruppel, Christian Roschmann and Katharina Ruppel-Schlichting (eds), Climate Change: International Law and Global Governance Volume II: Policy, Diplomacy and Governance in a Changing Environment (Nomos Verlagsgesellschaft, 2013) 832 <https://www.nomos-elibrary.de/10.5771/9783845242774_827.ris> accessed 23 April 2017 [hereinafter Kreft 'Framing the Loss and Damage Debate'].

(20) ibid.

(21) UNFCCC, 'A Literature Review on the Topics in the Context of Thematic Area 2 of the Work Pr - gramme on Loss and Damage: A Range of Approaches to Address Loss and Damage Associated with the Adverse Effects of Climate Change' (15 November 2012) FCCC/SBI/2012/INF14, pt I para 1 <http://unfccc.int/resource/docs/2012/sbi/eng/inf14.pdf > accessed 23 April 2017.

and damage was developed by the research team. The research explains that a broad working definition acknowledges that, loss and damage occur on a continuum(22):

Loss and Damage includes the full range of climate change related impacts from (changes in) extreme events to slow onset processes and combinations thereof. For example, the "process" of glacial melting can lead to a harmful 'event' - glacier lake outburst floods (GLOFs) … Loss and Damage encompasses both incurred loss and damage, as well as future loss and damage.

Multiple temporal and spatial scales: Loss and damage encapsulates historic and present … manifestation of climate impacts as well as those that will occur in the future. Potential future loss and damage by definition relies on assumptions regarding parameters such as emissions, vulnerability, and exposure variables of the impacted human system. Today loss and damage arising from climate change impacts is mostly a local problem with changes in extreme and slow onset impacts. Future loss and damage is potentially of inconceivable magnitude - especially considering non-economic values, and the interconnectivity leading to cascading, transnational effects.

It was also observed in that report that 'the concept of *tipping points* in climate, natural and societal systems – a moment [where] profound and potentially irreversible system changes occurs – is an important factor in weighing potential loss and damage'(23).

Regarding loss and damage involving *human and natural systems,* the Loss and Damage in Vulnerable Countries Initiative observes the following:

Loss and damage refers to impacts of climate change on *human systems* which are often channelled through the negative impacts of climate change on *natural* systems (for example, sea level rise and glacial melt result from climate change stimuli and these shifts in natural systems in turn result in loss and damage to human systems such as loss of habitable land or fresh water(24).

Characteristics of human systems (like development, policy and poverty) affect the dependency of human systems on natural systems. This connectedness

(22) Germanwatch, Framing The Loss And Damage Debate: A Conversation Starter By The Loss And Damage In Vulnerable Countries Initiative (Loss and Damage in Vulnerable Countries Initiative, Germanwatch, 2012) 3 < https://germanwatch.org/en/download/6673.pdf > accessed 29 June 2017 [hereinafter Germanwatch, 'Framing the Loss and Damage Debate'].

(23) Germanwatch, 'Framing the Loss and Damage Debate', ibid, 3 (emphasis added).

(24) ibid (emphasis added).

does not alter the fact that climate change impacts determine the loss and damage, which happens through the 'path' of natural system shifts and their effects on human systems[25]. Finally, the authors also note that in terms of negative impacts, 'loss and damage is an undesirable phenomenon of climate change impacts, and does not include the results from managing climate change itself – which is discussed under the policy forum of response measures'[26]. The Loss and Damage in Vulnerable Countries Initiative offers insights into some important aspects of the 'loss and damage' concept when it is applied to climate change. The report's authors hoped their findings would facilitate discussion of definitional issues.

2.2. Scholarly definitions of loss and damage

Development scholars have offered their own perspectives on the meaning of 'loss and damage' in the context of climate change and its effects on small, vulnerable states. For instance, Warner and Geest have argued that:

The people in vulnerable countries incur loss and damage when no adaptation measures are adopted, when existing measures are not sufficient to avoid loss and damage, when measures have costs that are not recovered, and when coping measures have negative or erosive effects in the long term[27].

Warner and Geest go on to observe that '[l]oss and damage can undermine food and livelihood security, social cohesion, culture and identity'[28]. Clearly, the understanding of 'loss and damage' when applied to climate change is a complex and evolving issue. What is unfortunate is that even though the 'Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts' was established at the climate conference of 2013, it failed to clearly distinguish the issue of loss and damage from that of adaptation to climate change and it does not foresee a dedicated funding source separated from those devoted to adaptation assistance[29].

(25) ibid.

(26) ibid.

(27) K Warner and K van der Geest 'Loss and Damage from Climate Change: Local-Level Evidence from Nine Vulnerable Countries' (2013) Int J Global Warming 5(4) 367, 381.

(28) ibid.

(29) The International Mechanism was established under the Cancun Adaptation Framework and merely 'requests developed country Parties to provide developing country Parties with finance, technology and capacity building'. Decision 2/CP19, Warsaw international mechanism for loss and damage associated with climate change impacts' in Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013, FCCC/CP/2013/10/Add1 of 31 January 2014.

3. The History of Loss and Damage

3.1. Loss and damage - a result of small island states' pleas for climate justice

Small island states are strong advocates of loss and damage mechanisms but have experienced difficulty gaining traction for their proposals in the context of opposition from developed countries. Burkett notes that '[f]rom the earliest days of international negotiation-indeed prior to the drafting of the Framework Convention-the [SIDS] anticipated the need to address the full panoply of climate challenges'(30). Since 1991, the Alliance of Small Island States (AOSIS) has actively advocated financial assistance to meet the loss and damage accruing after mitigation and adaptation. Burkett observes that 'AOSIS's early calls for assistance identified the need to consider an expanded spectrum of necessary responses to climate change, anticipating heightened vulnerabilities over time'(31).

The demand for loss and damage for climate change was first put forward by Vanuatu on behalf of AOSIS in the Intergovernmental Negotiating committee for a Framework Convention on Climate Change(32) (INC) in 1991 but this was rejected by the developed states. AOSIS, along with its call for effective adaptation assistance, has advocated for the establishment of an 'International Climate Fund which would fund developing states' adaptation expenses'(33).

This has been accompanied by 'the call for an International Insurance Pool covering residual damage inflicted by climate change-induced sea level rise, i.e. damage which could not be prevented through mitigation or adaptation measures'(34). The resistance by industrialized states led to the proposal not

(30) Maxine Burkett, 'Rehabilitation: A Proposal for a Climate Compensation Mechanism for Small Island States' (2015) 13 Santa Clara Journal of International Law 81, 83 <http://digitalcommons.law.scu.edu/scujil/vol13/iss1/5> accessed 15 May 2017.

(31) ibid, 91.

(32) The Committee established on 11 December 1990, under the 45th session of the UN General Asse - bly held five sessions between February 1991 and May 1992 with participation of over 150 states, which sought to draft an effective framework convention on climate change that could be supported by a broad majority of States.

(33) See the Submission by Vanuatu on behalf of AOSIS, 'Elements for a Framework Convention on Climate Change', in 'Set of informal papers provided by delegations, related to the preparation of a framework convention on climate change' (18 June 1991) UN DOC.A/AC.237/Misc.1/Add.3, 30 [hereinafter 'Submission by Vanuatu on behalf of AOSIS'].

(34) Stoutenburg, Disappearing Island States in International Law (Brill 2015) 56; see also the Submission by Vanuatu on behalf of AOSIS, ibid.

being included in the UNFCCC. In 2009, Tuvalu submitted a proposal for a compensation mechanism but developed countries again refused to engage[35]. As noted by Vanhala and Hestbaek, later that year, at COP 15 in Copenhagen, AOSIS 'tabled a proposal for a loss and damage mechanism in the adaptation text that was intended to be less controversial' but this was also removed before final negotiations, mainly due to prompting by the US and the EU[36].

3.2. UNFCCC Articles reflecting Vanuatu's Proposal

Article 4(4) of the UNFCCC states that Annex II[37] parties 'shall also assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects.' The draft proposal of Vanuatu, suggested 'the financial burden of loss and damage suffered by the most vulnerable small island and low-lying developing countries as a result of sea level rise shall be distributed in an equitable manner amongst the industrialized developed countries by means of an Insurance Pool'[38]. In Article 4(4) 'particularly vulnerable' countries are not explained nor is any particular source of funding provided for assisting these vulnerable countries; there is merely a general direction to Annex II countries to help the vulnerable countries. However, paragraph 19 of the UNFCCC preamble recognizes:

[T]hat low-lying and other small island countries, countries with low lying coastal, arid and semi-arid areas or areas liable to floods, drought and desertification, and developing countries with fragile mountainous ecosystems are particularly vulnerable to the adverse effects of climate change.

By reading Article 4(4) and the preamble together it can be inferred that the

(35) Lisa Vanhala and Cecile Hestbaek 'Framing Loss and Damage in the UNFCCC Negotiations: The Struggle over Meaning and the Warsaw International Mechanism' (forthcoming in 'Global Environmental Politics) 10 <http://discovery.ucl.ac.uk/1478385/1/Vanhala%20and%20Hestbaek%20%282016%29%20Framing%20Loss%20and%20Damage%20Final.pdf> accessed 1 July 2017.

(36) ibid.

(37) Australia, Austria, Belgium, Canada, Denmark, European Economic Community, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland, United States of America. These are the Annex II parties as stated in UNFCCC 1992.

(38) Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, Wor - ing Group II, Fourth Session, Geneva, 9-20 December 1991, A/AC237/WGII/CRP8 'Negotiation of a Framework Convention on Climate Change, Vanuatu draft annex relating to Article 23 (Insurance) for inclusion in the revised single text on elements relating to mechanisms' (A/AC237/WGII/Misc13) submitted by the Co-Chairmen of Working Group II, art 3(1) <http://unfccc.int/resource/docs/a/wg2crp08.pdf> accessed 30 June 2017.

vulnerable countries mentioned include low-lying and other small island countries. AOSIS also 'tabled a proposal for an insurance mechanism to compensate the most vulnerable small island and low-lying coastal developing countries from loss and damage resulting from sea level rise'[39]. 'AOSIS specified this demand at INC 4 with a proposal for the creation of an 'International Insurance Pool'[40]. The Insurance Pool was to be funded by assessed mandatory contributions from Annex I Parties and 'used to compensate the most vulnerable small island and low-lying coastal developing countries for loss and damage resulting from sea level rise'[41].

The fund would have compensated small island and low-lying developing states for loss and damage resulting from sea level rise by providing insurance funds.[42] Moreover, this model insurance scheme mechanism, had it been established and proved successful, could have been extended to states suffering from drought and desertification. The AOSIS proposal was based on an administrative authority with the power to deal with the claims made against the resources of the pool with which claimant states would have had to negotiate the value of their insured assets[43]. Claims against the insurance pool would have arisen if a certain predetermined global mean sea-level rise or relative mean sea-level[44] rise in the insured area was reached[45].

(39) Lavanya Rajamani, 'Addressing Loss and Damage from Climate Change Impacts'(2015) 30 Ec - nomic &Political Weekly 17.

(40) Joanne Linnerooth-Bayer, Roda Verheyen, 'UNFCCC Background Paper: Insurance-Related Actions and Risk Assessment in the context of the UNFCCC' (2003) <http://www.start.org/Program/advanced_ institute3_web/p3_documents_folder/Linnerooth_etal_insurance.pdf> accessed 23 May 2017.

(41) Submission by Vanuatu on behalf of AOSIS (n 28); see also JW Ashe, R Lierop and A Cherian, 'The Role of the Alliance of Small Island States (AOSIS) in the Negotiation of the United Nations Frame- work Convention on Climate Change (UNFCCC)' (1999) 23(3) Natural Resources Forum 209.

(42) Stoutenburg, Disappearing Island States (n 29).

(43) ibid.

(44) 'Mean sea level' refers to the surface level of the ocean at a particular point (averaged over a period of time). Mean sea level is the data often used when analyzing sea level at a local, sub-national or national level: Serge Planton (ed), 'Annex III: Glossary', in IPCC, 2013 Climate Change 2013: The Physical Science Basis – Contribution of Working Group 1 to the Fifth Assessment Report of the In- tergovernmental Panel on Climate Change [Thomas F Stocker and others eds) (Cambridge University Press 2013) 1441, 1467. 'Relative sea level' refers to the height of the ocean surface with respect to the land on which a measuring device is located: 1461. 'Global mean sea level' refers to average sea level at the global scale: global mean sea level is commonly determined by averaging mean sea level across the Ocean: see John A Church and others, 'Sea Level Change' in Thomas F Stocker Climate Change 2013: The Physical Science Basis ibid, 1182.

(45) See Roda Verheyen, Climate Change Damage and International Law: Prevention Duties and State R - sponsibility (Leiden 2005) 50 ff. Commercially insured property and assets would have been excluded from the proposed insurance scheme.

It is important to note that in the operative part of the UNFCCC, Art 4(8) requires all parties to the convention to give full consideration to the necessary actions, including those related to funding, insurance, and the transfer of technology, to meet the specific needs and concerns of developing country parties, with small island countries and countries with low-lying coastal areas heading a list of nine types of countries to which particular attention is to be given(46). However, this rather general reference to insurance contained in Art 4(8) is the only provision in the Framework Convention alluding to Vanuatu's proposal for an international insurance scheme(47).

3.3. The AOSIS' continuous efforts through the annual Conference of the Parties

Under the UNFCCC, the Conference of Parties in its various decisions and reports of the technical bodies of the Convention and Kyoto Protocol continued to consider the original AOSIS insurance concept(48). In the Ad Hoc Working Group on the Kyoto Protocol, AOSIS pursued the insurance mechanism and argued for a collective loss sharing mechanism and international solidarity fund to address high impact extreme events(49). 'This concept was picked up by the Note of the Co-Facilitators on the Dialogue Process and found expression in the Bali Action Plan'(50).

(46) UNFCCC (n 1) art 4(8).

(47) Daniel Bodansky, 'The United Nations Framework Convention on Climate Change: A Commentary' (1993) 18(2) Yale J Int›l L 453, 528 <http://digitalcommons.law.yale.edu/yjil/vol18/iss2/2> accessed on 23 May 2017.

(48) See UNFCCC Conference of the Parties, Kyoto, Japan, Dec 1-11, 1997, Action Taken by the Confe - ence of the Parties, Decision 3/CP3, 32, FCCC/CP/1997/7/Add.1 (11 Dec 1997) <http://unfccc.int/resource/docs/cop3/07a01.pdf> accessed 30 June 2017. See also the UNFCCC Conference of the Parties, Buenos Aires, Arg, Nov 2-14, 1998 'Action Taken by the Conference of the Parties', Decision 5/CP4, at 17, FCCC/CP/1998/16/Add1 (25 Jan 1999) <http://unfccc.int/resource/docs/cop4/16a01.pdf> accessed 30 June 2017. See also UNFCCC Conference of the Parties, Bonn, Germany, Oct 25 Nov 5 1999, 'Action Taken by the Conference of the Parties', Decision 12/CP5 at 32 FCCC/CP/1999/6/Add1 (2 Feb 2000) <http://unfccc.int/resource/docs/cop5/06a01.pdf> accessed 30 June 2017. See also Conference of UNFCCC, New Delhi, India, Oct 23 Nov 1 2002, 'Report of the Subsidiary Body for Implementation', FCC/SBI/2002/17 <http://unfccc.int/resource/docs/2002/sbi/17.pdf> accessed 30 June 2017.

(49) See also M J Mace, 'The Bali Road Map: Can it Deliver an Equitable Post-2012 Climate Agreement for Small Island States?' (2008) 17 Rev Eur Community & Int'l Envtl law 183, 189.

(50) Ilona Millar, Catherine Gascoigne and Elizabeth Caldwell, 'Making Good the Loss : An Assessment of the Loss and Damage Mechanism under the UNFCCC Process' in Michael B Gerrard and Gregory E Wannier (eds), Threatened Island Nations (Cambridge 2014) [hereinafter Millar, Gascoigne and Caldwell].

The year 2007 was significant in terms of the heightened global recognition for the impact of climate change. It was the year that the IPCC and Al Gore were awarded the Nobel Peace Prize and 'loss and damage' appeared for the first time in a UNFCCC document. The IPCC's Fourth Assessment Report made it clear that mitigation efforts were insufficient to avoid impacts of climate change. The Report noted that 'critical thresholds beyond which some systems may not be able to adapt to changing climate conditions without radically altering their functional state and system integrity'(51) reflected the importance and limitations of adaptation and led to the inclusion of loss and damage in the Bali Action Plan under the COP 13. In its call for enhanced adaptation actions, the Bali Action Plan included 'disaster reduction strategies and means to address loss and damage associated with climate change impacts in developing countries that are particularly adverse to impacts of climate change'(52). A literal interpretation of the Bali Action Plan shows that it sought to (a) understand disaster risk reduction ways, (b) seek 'means' (finance) to fund the loss and damage suffered due to climate change impacts, (c) in developing countries that are particularly adverse to the impacts of climate change. To further develop the plan, at COP-14 in Poznan in 2008, AOSIS submitted a proposal for a multi-window mechanism to address loss and damage from the adverse impacts of climate change, which had three interdependent components(53):

1. An insurance component – to help the most vulnerable developing countries to manage financial risk that arises from frequent and severe extreme weather events.
2. A risk management component – to assist in risk assessment and to facilitate an insurance component and a rehabilitation component.
3. A rehabilitation/compensatory component – to address negative impacts of climate change like sea level rise and ocean acidification that results in loss and damage (e.g land loss, coral bleaching, impacts on potable water availability, reduction in fisheries, desertification)

(51) IPCC, 2007 Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC (ML Parry and others (eds)), pt 17.4.2.1 Physical and ecological limits, 733 <https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4_wg2_full_report.pdf > accessed 15 May 2017.

(52) Millar, Gascoigne and Caldwell (n 45).

(53) Association of Small Island States (AOSIS), Proposal to the AWG-LCA: Multi-Window Mechanism to Address Loss and Damage from Climate Change Impacts, at 2 <http://unfccc.int/files/kyoto_protocol/application/pdf/aosisinsurance061208.pdf > accessed on 15 May 2017.

According to the AOSIS proposal, the insurance component was intended to address severe extreme weather events and the rehabilitation/compensatory component was intended to counter progressive negative impacts such as sea level rise. This proposal demonstrates AOSIS's acknowledgment that the insurance component alone will be insufficient to address slow onset events like sea level rise. The proposal also viewed the loss and damage mechanism as part of adaptation assistance. The guiding principle of the loss and damage mechanism in the AOSIS proposal was based on principles of state responsibility which provide that 'where there is a breach of international obligation there is a duty to cease and to make reparation'(54). The proposal also acknowledged the Polluter Pays Principle, the Common but Differentiated Responsibility Principle, the Precautionary Principle, the Principle of Equity as well as intergenerational equity and international solidarity funds as the guiding principles. This area of liability has to be further explored to assign responsibility to the states for their actions that accelerate climate change.

In the Copenhagen (COP 15) conference accord there was no mention of a loss and damage mechanism but the AWG-LCA(55) was mandated to continue its work program during 2010. The adoption of the Cancun Adaptation Framework (CAF) at COP 16(56) was a milestone achievement with regards to loss and damage(57). The framework expressly recognised 'the need to strengthen international cooperation and expertise to understand and reduce loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events'(58).

To strengthen international cooperation a work program was established, andParties were invited to make submissions on how to address loss and

(54) The proposal alleges a breach of Principle 21 of the Stockholm declaration and principle 2 of the Rio declaration. States have a responsibility to ensure that activities under their jurisdiction or control do not cause damage to the environment of other states or areas beyond the national jurisdiction.

(55) The Ad Hoc Working Group on Long Term Cooperative Action (AWG-LCA) under the Convention was established as a subsidiary body under the UNFCCC by decision 1/CP13 (the Bali Action Plan) for long term cooperative action to reach an agreed outcome to be presented to the COP for action.

(56) Decision 1/CP.16 (COP 16) 'The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention' in FCCC/CP/2010/7/Add.1 <https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf> accessed 30 June 2017.

(57) UNFCCC, 'Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010' FCCC/CP/2010/7/Add.1, part II para 25 <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4> accessed 30 June 2017.

(58) ibid, part II para 25. The slow onset events referred to in part II para 25 of the CAP include sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification as per the footnote in the original text.

damage as well as the following topics:

1. Possible development of a climate risk insurance facility to address impacts associated with severe weather events.
2. Options for risk management and reduction; risk sharing and transfer mechanisms such as insurance, including options for micro insurance, and resilience building, including through economic diversification.
3. Approaches for addressing rehabilitation measures associated with slow-onset events

The framework also called for 'measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at the national, regional and international levels'(59). The framework indicated broad agreement that not all risk can be prevented or reduced, and a risk management strategy essentially has to include risk sharing and risk transfer measures. The Parties were open to an insurance mechanism and looking into climate change-induced displacement, migration and planned relocation. With slow onset events this will be one of the major consequences' SIDS will have to face along with losing their sovereignty in case of inundation. However, the question of compensation for unavoidable loss was absent in the framework or indeed any subsequent framework(60).

In the following year (COP17, Durban 2011) the Parties endorsed the areas identified by the Subsidiary Body for Implementation (SBI) for the work program. The three focus areas were:

(a) Assessing the risk of loss and damage associated with the adverse effects of climate change and the current knowledge on the same.

(b) A range of approaches to address loss and damage associated with the adverse effects of climate change, including impacts related to extreme weather events and slow onset events, taking into consideration experience at all levels.

(c) The role of the Convention in enhancing the implementation of approaches to address loss and damage associated with the adverse effects of climate change.(61)

(59) UNFCCC, Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), FCCC/AWGLCA/2010/14, 13 August 2010.

(60) Millar Gascoigne and Caldwell (n 45) 454.

(61) UNFCCC, 'Report of the Subsidiary Body for Implementation on its thirty-fourth session, held in Bonn from 6 to 17 June 2011', FCCC/SBI/2011/7 (12 August 2011) para 109 <http://unfccc.int/resource/docs/2011/sbi/eng/07.pdf> accessed 15 May 2017.

In Durban the focus thus was to assess and develop approaches to address the risk of loss and damage along with identifying the role of the Convention in addressing loss and damage. It was in the Doha Gateway (COP 18, Doha 2012) that Parties agreed to establish an institutional arrangement under the UNFCCC to address loss and damage due to climate change. Although these developments did not address liability or responsibility, they were nonetheless a positive step towards discussing what should be done about impacts that cannot be avoided through mitigation and adaptation.

In 2013 (COP 19 Warsaw) the Warsaw International Mechanism (WIM) for loss and damage was established to 'facilitate support of action to address loss and damage both in terms of extreme weather and slow-onset events in vulnerable developing countries'(62). The WIM was placed under the Cancun Adaptation Framework even though there was demand from developing states to acknowledge loss and damage as being different from adaptation because it is not possible to adapt to the impact of locked-in greenhouse gas emissions(63). Some developed states held the position that the concepts of loss and damage cannot be separated from adaptation while others did not want an independent mechanism that would subject the developed states to liability for climate related impacts. Thus, as a compromise the WIM was adopted under Cancun Adaptation Framework with agreement for its review at the 22nd Conference of the Parties in 2016. The WIM is tasked with three primary functions:

1. 'Enhancing knowledge and understanding of comprehensive risk management approaches to address loss and damage'(64). This will be achieved by seeking to address gaps in understanding and addressing loss and damage, collection, sharing, management, use of relevant data and information and organizing best practices, challenges and lessons learned;
2. 'Strengthening dialogue, coordination, coherence and synergies among relevant stakeholders'(65) by providing leadership for coordinating assessment and implementation of approaches to address loss and damage, and to foster dialogue, coordination and synergies among pertinent stakeholders,

(62) UNFCCC Conference of the Parties, 'Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013, Addendum, Part two: Action taken by the Conference of the Parties at its nineteenth session' (31 January 2014) FCCC/CP/2013/10/Add.1 Decision 2/CP 19, <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf> accessed 6 May 2017.

(63) Developing countries, led by the G-77 and China, maintained that addressing loss and damage will require tools that go beyond adaptation.

(64) Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts <http://unfccc.int/adaptation/workstreams/loss_and_damage/items/8134.php> accessed 30 June 2017.

(65) ibid.

institutions and key processes and initiatives;

3. 'Enhancing action and support, including finance, technology and capacity building'(66). This includes providing technical support and guidance to those seeking to address loss and damage, information and recommendations to the COP on how to reduce risks and manifestations of loss and damage, and efforts to mobilize expertise, financial support, technology and capacity-building.

To guide the implementation of the functions of the WIM, an Executive Committee (Excom) that meets at least twice a year and reports annually to the COP was also established(67). The overall focus in the WIM is on enhancing knowledge on loss and damage. Information gathering is a priority as there are currently informational gaps regarding how to assess non-economic loss from climate impacts, how to obtain a better understanding of risk management options and the need for detailed localised risk assessment. But there is little focus on the bigger picture, especially the question of how the loss and damage will be addressed or compensated or, in other words, what the different modes of compensation should be. The parties wanted to incorporate loss and damage in some form into an agreement that would address climate change beyond 2020. As a result, the Durban Platform for Enhanced Action had agreed 'to develop a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties'(68). The 21st COP in Paris was scheduled to adopt the proposed legal instrument.

The inclusion of loss and damage in the Paris Agreement was a small victory in the context of one of the most fraught issues in the international climate negotiations. The developing countries fought to include a loss and damage provision in the Paris Agreement. The developed countries objected as they did not want any kind of liability for climate-related negative impacts. Ultimately, the controversial provision regarding liability or compensation was deleted to

(66) ibid.

(67) The functions of the WIM are primarily to enhance knowledge and understanding of comprehensive risk management approaches, strengthening dialogue, coordination, coherence, and synergies among relevant stakeholders and enhancing action and support, including finance, technology, and capacity building. The technical arm of Excom establishes expert groups, subcommittees, panels, thematic advisory groups or task-focused ad hoc working groups, to help execute the work of Excom in guiding the implementation of the Warsaw International Mechanism as appropriate, in an advisory role and to report to Excom.

(68) Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action, Draft d - cision -/CP.17, para 2 <https://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_durbanplatform.pdf> accessed 30 June 2017.

ensure the inclusion of loss and damage in the Paris Agreement. However, 'the failure to address the liability and compensation question raises issues often at the heart of debates concerning reconciliation, redress, fairness and justice'(69). As noted by Hoad, 'the absence of this element in loss and damage outcomes raises many concerns pertinent to SIDS and their futures'(70). Moreover, the outcome in Paris raises another question, namely, whether a loss and damage mechanism will be able to provide solutions to the loss of non-tangible assets such as statehood, ecosystems and livelihood?

3.4. Loss and damage in Article 8 of the Paris Agreement

Loss and damage are now embodied in the Paris Agreement, which is the first international treaty to recognize the importance of averting, minimizing, and addressing loss and damage. Yet the Paris Agreement does not include any concrete obligations for the global north, and it ensures they are free from liability for their major greenhouse gas emissons. It is useful to set out the relevant provisions on loss and damage from Article 8 of the Paris Agreement:

Article 8:

1. Parties recognize 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.
2. The Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts shall be subject to the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement and may be enhanced and strengthened, as determined by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.
3. Parties should enhance understanding, action and support, including through the Warsaw International Mechanism, as appropriate, on a cooperative and facilitative basis with respect to loss and damage associated with the adverse effects of climate change.

(69) Darren Hoad, 'The 2015 Paris Climate Agreement: outcomes and their impacts on small island states' (2016) 11 (1) Island Studies Journal 315, 319 <http://www.islandstudies.ca/sites/default/files/ISJ-11-1-T-Hoad.pdf> accessed 6 May 2017.

(70) ibid. Hoad also notes that: 'The potential loss of territory poses a problem of displacement, cultural loss, and links to land as well as loss of rights and the ability to engage in the global political community.' These areas will be dealt with in detail in the next section of this chapter.

4. Accordingly, areas of cooperation and facilitation to enhance understanding, action and support 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; and

h) Resilience of communities, livelihoods and ecosystems.

i) The Warsaw International Mechanism shall collaborate with existing bodies and expert groups under the Agreement, as well as relevant organizations and expert bodies outside the Agreement(71).

Aside from Article 8 of the Paris Agreement (set out above) there are also some important loss and damage provisions within the Proposal of the President to adopt the Paris Agreement(72). For present purposes, the most significant provisions are paragraphs 48–52 of draft decision -/CP.21, as reproduced below:

The Conference of the Parties…

Loss and Damage

48. decides on the continuation of the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, following the review in 2016;

49. Requests the Executive Committee of the Warsaw International Mechanism to establish a clearinghouse for risk transfer that serves as a repository for information on insurance and risk transfer, in order to facilitate the efforts of Parties to develop and implement comprehensive risk management strategies;

(71) UNFCCC 'Conference of the Parties' Twenty-first session Paris, 30 November to 11 December 2015' Adoption of the Paris Agreement, FCCC/CP/2015/L.9/Rev.1 (12 December 2015), Annex 'Paris Agreement' art 8 <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf> accessed 30 June 2017.

(72) ibid, FCCC/CP/2015/L.9/Rev.1 'Proposal by the President Draft decision -/CP.21', paras 48-52.

50. Also requests the Executive Committee of the Warsaw International Mechanism to establish, according to its procedures and mandate, a task force to complement, draw upon the work of and involve, as appropriate, existing bodies and expert groups under the Convention including the Adaptation Committee and the Least Developed Countries Expert Group, as well as relevant organizations and expert bodies outside the Convention, to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change;

51. Further requests the Executive Committee of the Warsaw International Mechanism to initiate its work, at its next meeting, to operationalize the provisions referred to in paragraphs 49 and 50 above, and to report on progress thereon in its annual report;

52. Agrees that Article 8 of the Agreement does not involve or provide a basis for any liability or compensation;[73]

The above provisions connote both positive and negative consequences. On the positive side, the inclusion of separate articles on loss and damage ensures the continuation of the WIM on loss and damage. On the negative side, paragraph 51 of the decision adopting the Paris Agreement strips developing countries of their 'legal rights for legal action for the liability of other countries that caused the damage'[74]. As observed by Lyster, the 'Agreement does not involve or provide a basis for any liability or compensation, such as a compensation fund raised by levies on fossil fuel companies'[75]. Furthermore, according to Burkett:

Framing loss and damage exclusively around compensation takes the focus away from other legal and governance challenges like loss of statehood, migration and displacement. That said, it is difficult to conceive of an adequate resolution of the loss element of loss and damage without a financial mechanism for compensation[76].

Obviously, this issue has a long way to go before any solution is achieved

(73) ibid, FCCC/CP/2015/L.9/Rev.1, paras 48-52.

(74) Anju Sharma, 'Precaution and post-caution in the Paris Agreement: adaptation, loss and damage and finance' (2017) 17 Climate Policy 33.

(75) Rosemary Lyster, 'Climate justice, adaptation and the Paris Agreement: a recipe for disasters?' (2017) 26 Environmental Politics 438,450. A compensation fund raised by levies on fossil fuel companies will be analysed in detail in the next section of this chapter.

(76) Maxine Burkett, 'Loss and Damage' (2014) 4 Climate Law 119.

which will meet the hopes and expectations of the SIDS. Progress is still possible, and to that end, the COP 22 (2017) has called for the investigation of sources for financial support for addressing loss and damage, which has been a long-time demand of small island states(77).

4. The importance of addressing loss and damage

The WIM will consider both economic and non-economic loss beyond what can be accomplished in treaties for both mitigation and adaptation. Multiple human rights are affected in places in which long term slow onset processes are occurring, especially those susceptible to sea level rise where even national territorial integrity is threatened. The WIM provides 'space to consider rehabilitation, relocation, and to address the kind of damage that cannot easily be fixed by traditional aid'(78).

Concurrently, the SIDS had been pushing for recognition for the ultimate 'loss': their forced displacement from their homes. The importance of the WIM lies in the fact that it can perhaps help to advance recognition of the ethical and legal obligations underlying loss and damage. Additionally, 'the reparative function of loss and damage will assist vulnerable countries to cope with disasters for which they are least responsible'(79). In light of the slow implementation of the loss and damage mechanism, the SIDS want the focus to remain on the main issue they are facing, which is the existential threat posed by sea level rise. One of the hopes in addressing loss and damage is that the impacts of climate change will lessen as new forms of organization will help humans to continue to cope with, and adapt to, new states of climate in the future(80).

(77) UNFCCC Conference Of The Parties, 'Report Of The Conference Of The Parties On Its Twenty – Se - ond Session, held in Marrakech from 7 to 18 November 2016' (31 January 2017) FCCC/CP/2016/10/ Add 1 decision 4/CP 22 para 2 <http://unfccc.int/resource/docs/2016/cop22/eng/10a01.pdf> accessed 23 April 2017. Further, Excom has established the following substructures: an expert group on non-economic losses to develop inputs and recommendations to enhance data on and knowledge of reducing the risk of and addressing non-economic losses; a technical expert group on comprehensive risk management and transformational approaches to provide technical support and guidance; and a task force on displacement to develop recommendations for integrated approaches to avert, minimize, and address displacement related to the adverse impacts of climate change.

(78) Andrea C Simonelli 'The Ethical Responsibility of the Loss and Damage Mechanism: a consideration of Non-Economic Loss and Human Rights' 3 <http://climate-neld.com/wp-content/uploads/2015/08/ ACS.paperfull3.pdf> accessed 30 June 2017.

(79) Maxine Burkett, 'Climate Reparations' (2009) 10(2) Melbourne Journal of International Law 509 <http://www.austlii.edu.au/au/journals/MelbJIL/2009/29.html> accessed 23 April 2017.

(80) Germanwatch, 'Framing the Loss and Damage Debate' (n 16) 4 <http://loss-and-damage.net/ download/6530.pdf > accessed 23 April 2017.

However, focusing only on institutional building and avoiding the issue of why loss and damage was constituted, who is responsible for the loss and damage and what duty these states have towards the injustice suffered by the most vulnerable states due to climate change, will not help in lessening the burden of the affected communities. In short, if loss and damage are not adequately addressed, it will leave communities unprepared to face the negative consequences of climate change(81).

To understand the concept of loss and damage and how vulnerable communities experience loss and damage, research initiated by Government of Bangladesh with the assistance of the Climate and Development Knowledge Network (CDKN) was conducted in Bangladesh, Bhutan, Burkina Faso, Ethiopia, Gambia, Kenya, Micronesia, Mozambique and Nepal(82). Loss and damage includes past, present and future effects of climate disaster(83). As mentioned earlier, 'tipping points' have to be identified to avert loss and damage(84). Maladaptation and human vulnerability also aggravate loss and damage. These two factors are explained briefly below.

4.1. Maladaptation

As noted by Kreft, '[l]oss and damage is a result of the inability to respond adequately to climate stresses due to adaptation limits and constraints, and the costs associated with existing coping and adaptive strategies which might also have been an investment into mal-adaptation and erosive coping strategies'.(85) Opondo adds that '[t]he costs of responding to climate stress include monetary and non-monetary elements and differ for households and communities depending on their level of vulnerability, resilience, and poverty'(86).

It is important to note that even where adaptation and mitigation measures have been taken, these measures could in some cases result in maladaptation and further loss and damage. For example, in the case of Ho Chi Minh City in Vietnam, projects and infrastructure were built with much planning to

(81) ibid.

(82) CDKN appointed a consortium of organizations including Germanwatch, the United Nations University-Institute for Environmental and Human Security (UNU-EHS), the International Centre for Climate Change and Development (ICCCAD) and the Munich Climate Insurance Initiative (MCII) to carry out this work.

(83) Germanwatch 'Framing the Loss and Damage Debate' (n 16) 4.

(84) ibid 3; also see discussion supra at 4.

(85) Sönke Kreft and others, 'Framing the Loss and Damage Debate' (n13) 832.

(86) Opondo, 'Loss and Damage from Flooding in Budalangi District' (n 12).

mitigate the risk of flooding. But recent information on climate change shows the impacts of climate change and urbanization will be more than the expected threshold, furthermore, the infrastructure built for helping people could expose them to greater danger(87). Therefore, even with proper planning and adaptation measures, loss and damage may still occur due to anthropogenic climate change.

4.2. Vulnerability of human systems

Climate change is not the only cause of loss and damage(88). The vulnerability of human systems is another factor increasing loss and damage. Climate change has aggravated human vulnerability along with other factors such as socio-economic disadvantage. Climate change exacerbates such disadvantages because in the case of disaster, there will be fewer economic and social resources to help affected communities. A study in four African and Asian countries using a multi-dimensional vulnerability index (MDVI) analysed the differences between more and less vulnerable households in the uptake and effectiveness of measures to cope with the impacts of climatic events(89).

The vulnerability indicators were the education level of household heads, a dependency ratio based on whether dependent household members were below 18 or above 65, the size of land owned, the size of livestock owned, total income derived from non-farm income generating activities in the previous 12 months, the quality of house (whether it had mud, earth or cow dung flooring), sanitation based on whether the house had access to drinking water and private toilets, and food security(90). According to can der Geeest, '[t]he results show that virtually all households surveyed experienced adverse effects of climate-related stressors, but more vulnerable households reported severe impacts more often.'(91)

5. Insurance as a tool to address loss and damage

So far it has been established that unsuccessful mitigation and inadequate

(87) Lindsey Jones, 'Why we need to rethink "maladaptation"'(29 June 2015) <https://www.devex.com/news/why-we-need-to-rethink-maladaptation-86426> accessed 23 April 2017.

(88) Ivo Wallimann-Helmer, 'Justice for Climate Loss and Damage' (2015) 133 Climatic Change 469.

(89) Kees van der Geest and Koko Warner, 'Vulnerability, Coping and Loss and Damage from Climate Events' in Andrew E Collins and others (eds) Hazards, risks and disasters in society (Elsevier 2015) ch 8, 139 <http://collections.unu.edu/eserv/UNU:3152/vulnerability_coping_lossdamage.pdf> accessed 6 May 2017 [hereinafter Geest and Warner].

(90) ibid.

(91) ibid.

adaptation to climate change results in loss and damage. This section addresses the potential of insurance as a means of remedying that loss and damage. In a general sense, insurance is a long-established and well-known mechanism for pooling and transferring financial risks(92). However, it is contended that using insurance alone to address loss and damage caused by climate change-which entails relocating people affected by disaster, rehabilitating them and restoring their livelihood, providing infrastructural protection like building seawalls to protect them from sea level rise, the loss of sovereignty in extreme cases of inundation, loss of culture and identity-will not be an adequate or viable strategy. Scholars have observed that 'the compelling analyses of Burkett(93), Adelman(94) and others(95) regarding compensation for climate-related loss and damage for SIDS have made this point'(96), Even though the insurance system has responded to climate change impacts(97), insurance solutions shift the burden of addressing negative climate impacts to those who have least contributed to them(98). Neither the Warsaw Mechanism nor the Paris Agreement prioritise any particular insurance mechanism or proposal.

The 2008 AOSIS proposal had sought the establishment of a compensation fund for slow onset events and an insurance programme that could be adapted to suit climate change. This would help vulnerable countries share and

(92) C A Kulp and John W Hall, Casualty Insurance (4th edn, Ronald Press 1968); Irving Pfeffer and David R Klock, Perspectives on Insurance (Prentice-Hall 1974).

(93) Burkett, 'Rehabilitation: A Proposal for a Climate Compensation Mechanism for Small Island States' (n 25).

(94) Sam Adelman, 'Climate Justice, Loss and Damage and Compensation for Small Island Developing States' (2016) 7 Journal Of Human Rights And The Environment 49; Daniel A Farber, 'Basic Compensation for Victims of Climate Change' (2007) University of Pennsylvania Law Review 155.

(95) Rosemary Lyster, 'A Fossil Fuel-Funded Climate Disaster Response Fund under the Warsaw Intern - tional Mechanism for Loss and Damage Associated with Climate Change Impacts' (2015) 4 Transnational Environmental Law 125.

(96) Jeffrey McGee, Liam Phelan and Joseph Wenta, 'Writing the Fine Print: Developing Regional Insurance for Climate Change Adaptation in the Pacific' (2014) 15 Melbourne Journal of International Law 444.

(97) See Joseph Wenta, Jeffrey McGee and Liam Phelan, 'Can a Regional Insurance Mechanism Enhance Resilience to Slow Onset Impacts of Climate Change' (2016) 35(2) The University of Tasmania Law Review 23; Howard C Kunreuther and Erwann O Micheal-Kerjan, 'Climate Change Insurability of Large-Scale Diasters, and the Emerging Liability Challenge' (2007) 155 University of Pennsylvania Law Review; Michael G Faure, 'Insurability of Damage Caused by Climate Change: A Commentary' (2007) 155 University of Pennsylvania Law Review; Evan Mills, Christina Ross and Sean B Hecht, 'Limiting Liability in the Greenhouse: Insurance Risk-Management Strategies in the Context of Global Climate Change' (2007) 26A Stanford Environmental Law Journal; Ernst Rauch, 'Effects of Climate Change on the Insurance Industry' (2007) 26A Stanford Environmental Law Journal; Ross Garnaut, The Garnaut Climate Change Review - Final Report (Cambridge University Press 2008).

(98) Wenta, McGee and Phelan, ibid, 23.

transfer risk from increasingly severe weather events by pooling vulnerable communities together into a single system and it would potentially make pay outs more predictable and affordable. However, the industrialised countries preferred to address insurance and related capacity-building rather than promoting the proposal for compensation(99).

5.1. Insurance as a Risk Transfer Tool

Insurance provides many benefits to stakeholders which include regions, national governments and communities, households and individuals. Insurance relieves disaster-struck communities with prompt pay outs that reduce human suffering(100). Relief from national governments or international donors are often not timely and pose a strain to national budgets(101). Insurance is described by some as a mere pay-out mechanism. Such a description, however, is short-sighted. Loss and damage insurance can have a resilience-building function and be an important element of minimizing loss and damage(102).

Wrathall notes that '[t]he benefit of an insurance model over an ad hoc disaster response model is that insured beneficiaries enjoy a guaranteed right to post-disaster compensation, which is tied to contribution into an insurance mechanism'(103). The insurance scheme gives more certainty as it defines financial responsibilities and creates resource transfer mechanisms(104). According to the insurance principle of risk diversification, when individual entities cannot manage climatic risks, then it makes sense to share that risk

(99) Koko Warner and Sumaya Ahmed Zakieldeen 'Loss and damage due to climate change: An overview of the UNFCCC negotiations' European Capacity Building Initiative www.eurocapacity.org

(100) Kehinde Balogun, Managing loss and damage from slow onset events: Applicability of risk transfer tools including insurance (Germanwatch 2013) 7 <http://loss-and-damage.net/download/7271.pdf> accessed 30 June 2017.

(101) Koko Warner and others Innovative Insurance Solutions for Climate Change: How to integrate cl - mate risk insurance into a comprehensive climate risk management approach (United Nations Univer- sity Institute for Environment and Human Security 2013) Report No 12, November 2013, 9 <http:// collections.unu.edu/eserv/UNU:1850/pdf11484.pdf> accessed 30 June 2017.

(102) Paris Agreement (n 11); Report of the Executive Committee of the Warsaw International Mech - nism for Loss and Damage Associated with Climate Change Impacts, UNFCCC, at FCCC/SB/2014/4, <http://www.unfccc.int/resource/docs/2014/sb/eng/o4.pdf> accessed 23 April 2017.

(103) David J Wrathall and others, 'Problematising loss and damage' (2015) 8 International Journal of Global Warming 274.

(104) Koko Warner and others, 'Insurance Solutions in the Context of Climate Change-related Loss and Damage: Needs, Gaps, and Roles of the Convention in Addressing Loss and Damage' (2012) Munich Climate Insurance Initiative (MCII), Submission to the SBI Work Programme on Loss and Damage, 879 <https://www.nomos-elibrary.de/10.5771/9783845242774_877.pdf> accessed 30 June 2017.

regionally or globally(105).

In the case of unpredictable risks associated with climate impacts, if necessary risk reduction measures are implemented, then 'risk transfer tools can provide surety to governments to finance residual risks'(106). As argued by Silver and Dlugolecki, 'designing innovative risk transfer tools can help develop national distribution networks' which will help low-income people and people facing high risk from climate change(107). Risk transfer tools, if implemented correctly, will help in the disbursement of funds in a timely and reliable manner. Risk transfer mechanisms like micro insurance can protect the economic viability of households that can manage small, regular premium payments.

Thus, micro insurance policies have the capacity to protect low income people against negative climate impacts like crop loss or flood damage to infrastructure(108). However, insurance schemes should be planned as per the specific needs and involvement of the affected community, providing adequate and long-term financial support to pay the premiums for vulnerable countries as demanded by climate justice and equity principles. Measures should be taken to ensure that 'climate risk insurance should not be a mechanism for private companies to profit from the risk faced by the poor and vulnerable, nor should it be a mechanism to transfer responsibility from historically polluting countries to the poor'(109).

In sovereign level risks, where the whole country or multiple countries in the region are affected, risk diversification will be useful to face the situation(110).

(105) Warner and others, Innovative Solutions for Climate Change (n 96) 32.

(106) Balogun Managing loss and damage from slow onset events (n 95) 13.

(107) Nick Silver and Andrew Dlugolecki, 'The Insurability Of The Impacts Of Climate Change' (2009) Giro Conference, Edinburgh <file:///C:/Users/u1662215/Downloads/c11silverpaper.pdf> accessed 23 April 2017.

(108) Wil Burns, 'Loss and Damage and the 21st Conference of the Parties to the United Nations Fram - work Convention on Climate Change' (2015-2016) 22 ILSA Journal of Comparitive & International Law; Rachele Pierro, 'Micro-insurance and DRR: Challenges and Opportunities in the Context of Climate Change' (2007) Christian Aid, Climate and Disaster Governance, 2 <http://www.microfinance-gateway.org/sites/default/files/mfg-en-paper-micro-insurance-drr-challenges-and-opportunities-in-the-context-of-climate-change-2007.pdf> accessed 30 June 2017.

(109) Julie-Anne Richards Jonathan Reeves, ‹Finance for Loss and Damage: Marrakech and beyond› (Bond 2016) DEG Working Paper, 7 (emphasis in the original) <file:///Users/LawThesisProofreading/Downloads/deg_ld_series_finance_for_loss_and_damage_nov16_final-1.pdf> accessed 30 June 2017.

(110) Sonke Kreft, 'Getting Loss and Damage right in Warsaw' (Loss and Damage in Vulnerable Countries Initiative, November 2013) <http://loss-and-damage.net/4942> accessed 30 June 2017.

Insurance-related approaches can help communities, countries, and regions manage negative climate impacts that overwhelm local and national capacities(111). The main use of risk transfer tools like insurance is to transfer risk to a third party which can be a reinsurance company or the capital markets.(112) Such types of insurance can also support governments by managing budget instability through the transferring of risk to the international financial market.(113) Along with the risk transfer tool, a holistic approach will be needed to tackle climate risks(114). Currently, many international projects focus on reducing, pooling, and sharing climate-related disaster risks through different risk-financing approaches that transfer private and public sector risks to a global scale(115). World Bank reports point out that risk transferring tools work to ensure non-exposure of hazards to people and assets by creating alesserrisk distribution to people and property within a country(116). Such strategies also help to create a platform for states to be responsible for their citizens' safety and protection, helping them to face emergencies without waiting for aid appeals(117).

5.1.1. The Caribbean Catastrophe Risk Insurance Facility (CCRIF)

Of particular relevance in the context of the current research is the Caribbean Catastrophe Risk Insurance Facility (CCRIF), which is an innovative regional insurance scheme that responds to catastrophic weather events. It was the first

(111) Alan Miller, Vladimir Stenek and Richenda Connell', 'Evaluating the Private Sector Perspective on the Financial Risks of Climate Change' (2009) 15 Hastings W-Nw J Envt'l L & Pol'y 133.

(112) Balogun Managing Loss and damage from slow onset events (n 95) 8.

(113) Sean B Hecht 'Climate Change and the Transformation of Risk: Insurance Matters' (2008) 55 UCLA Law Review 1559 <http://www.uclalawreview.org/pdf/55-6-3.pdf> accessed 30 June 2017.

(114) Koko Warner, Kees Van Der Geest and Sönke Kreft, 'Pushed To The Limit: Evidence Of Climate Change Related Loss And Damage When People Face Constraints And Limits To Adaptation' (Report No. 11, United Nations University Institute for Environment and Human Security, November 2013) <http://loss-and-damage.net/download/7249.pdf> accessed 23 April 2017.

(115) Olivier Mahul and others Innovation in disaster risk financing for developing countries: public and private contributions (World Bank Group 2011) <http://documents.worldbank.org/curated/en/609591468189559108/Innovation-in-disaster-risk-financing-for-developing-countries-public-and-private-contributions> accessed 23 April 2017.

(116) Tom Mitchell, Reinhard Mechler and Katie Harris 'Tackling Exposure: Placing Disaster Risk Ma - agement At The Heart Of National Economic And Fiscal Policy (2012) Climate and Development Knowledge Network Guide, 7 <http://cdkn.org/wp-content/uploads/2012/05/CDKN_Tackling-Exposure_Final-WEB4.pdf> accessed 23 April 2017.

(117) World Bank, 'Innovation in Disasters Risk Financing for Developing Countries: Public and Private Contributions' (World Bank 2011) <https://openknowledge.worldbank.org/handle/10986/22119> accessed 30 June 2017.

multi-country risk pool in the world and 'also the first insurance instrument to develop parametric policies backed by both traditional and capital markets'[118]. It was established because the post-disaster capabilities of the Caribbean are heavily limited.

The Caribbean's deficiencies in responding to catastrophic weather give rise to the existence of a post disaster 'liquidity gap'[119]. Thus, the CCRIF was established in 2007[120] with the aim of filling this gap by providing cash-strapped Caribbean countries with affordable risk transfer opportunities that they would otherwise be unable to obtain on their own[121]. The CCRIF is designed to provide participating governments[122] with insurance for immediate financial losses caused by two 'triggering' events: tropical cyclones and earthquakes[123]. The CCRIF has many innovative features which appear relevant to the broader issues being discussed in this chapter[124].

First, the CCRIF provides less costly catastrophe insurance and ensures that the needs of member states are reflected in the scheme[125]. Secondly, by pooling risk at a regional level the countries need not set aside large amounts of public money to cater for the triggering event (tropical cyclones and earthquakes). Thirdly, the administration cost is lowered by the fact that the administration function is regionally centralized[126]. Fourthly, as the CCRIF need not pursue competitive market returns for investors it can dedicate its resources towards

(118) CCRIF, A Guide to Understanding CCRIF: A Collection of Questions and Answers (Caribbean C - tastrophe Risk Insurance Facility 2010) <http://www.ccrif.org/sites/default/files/publications/BookletQuestionsAnswersMarch2010.pdf> accessed 30 June 2017.

(119) ibid 3.

(120) CCRIF was established with funding from Japan and initial capitalization from Bermuda, Canada, the Caribbean Development Bank, the European Union, France, Ireland, United Kingdom and the World Bank: CCRF, 'About Us' (2014) <http://www.ccrif.org/content/about-us> accessed 25 May 2017.

(121) Francis Ghesquiere and others, 'Caribbean catastrophe risk insurance facility: a solution to the short-term liquidity needs of small island states in the aftermath of natural disasters' 2 <http://siteresources.worldbank.org/PROJECTS/Resources/Catastrophicriskinsurancefacility.pdf> accessed on 25 May 2017.

(122) Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, the Cayman Islands, Dom - nica, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, and Turks and Caicos Islands. See CCRIF, 'Who Are the Members of CCRIF?' (2014) <http://www.ccrif.org/node/89> accessed 25 May 2017.

(123) CCRIF, 'Triggering Event' (2014) <http://www.ccrif.org/node/89> accessed 25 May 2017.

(124) The listing and order of these innovative features is based on the listing set forth in McGee 'Writing the Fine Print' (n 91).

(125) CCRIF, 'How is the Financial Stability of CCRIF Sustained?' (2014) <http://www.ccrif.org/node/98> accessed 25 May 2017.

(126) McGee 'Writing the Fine Print' (n 91).

providing lower cost insurance(127).

In the 2013/2014 policy year, CCRIF was able to provide a 25 percent reduction in premiums as no policies were triggered in the previous year(128). Fifthly, the centralization of catastrophic insurance at a regional level provides the CCRIF with increased leverage to negotiate insurance rates and terms from reinsurers(129). Sixthly, as the CCRIF is based on a parametric trigger mechanism, rapid settlement of claims is possible(130). Consider the fact that 'in November 2013, the CCRIF had paid eight claims totaling US$32,179,470(131). The claims ranged from US$418,976 paid to Saint Lucia Following an earthquake in November 2007 to US$8,560,247 paid to Barbados following tropical cyclone Tomas in October 2010. In all eight claims the amount was paid out in full within a month'(132). Finally and perhaps most importantly, the 'CCRIF provides a mechanism for state and non-state actors outside the Caribbean to contribute financially to CCRIF's Reserves'(133).

The CCRIF received US$47.5 million in donor support in the first year and continued to attract financial support from developed countries((134)). Bermuda became the first government to be both a donor and member of the CCRIF when it gave US$500,000(135). Moreover, the CCRIF supports the process of generating expertise and experience of catastrophe risks in Caribbean governments and civil society(136).

(127) ibid.

(128) CCRIF 'Semiannual Report: June-November 2013, 8.

(129) CCRIF, 'Annual Report 2012-2013' (Report, October 2013) 26-7 http://www.crif.org/sites/default/files/publications/CCRIFAnnual Report-November2013.pdf <accessed on 25/5/2017> 113,114.

(130) McGee 'Writing the Fine Print' (n 91); see also Millar, Gascoigne and Caldwell 'Making Good the Loss' (n 45) 441.

(131) CCRIF, 'About Us' (n 116); see also CCRIF, 'Semi-annual Report: June-November 2013' 4, 8 <http://www.ccrif.org/sites/default/files/publications/CCRIF_Annual_Report_2013_2014.pdf> accessed 25 May 2017, 114.

(132) CCRIF, 'About Us' (n 116).

(133) McGee 'Writing the Fine Print' (n 91).

(134) In 2008, Ireland gave US$2.4 million and in 2009 the EU donated €12.5: CCRIF, 'European Union Donates Euro 12.5 Million to the CCRIF' (Press Release 2 April 2009) <http://www.ccrif.org/press_releases/european-union-donates-euro125-million-ccrif> accessed 30 June 2017.

(135) McGee, 'Writing the Fine Print' (n 91).

(136) Simon Young, Ekhosuehi Iyahen and Elizabeth Emanuel, 'Helping Caribbean Countries Understand Hurricane Risks and Enhancing Their Preparedness During Hurricanes: CCRIF's Real-Time Forecasting Systems (RTFS)' in CCRIF (ed), CCRIF : A Natural Catastrophe Risk Insurance Mechanism for the Caribbean – A Collection of Papers, Articles and Expert Notes: Volume 2 (CCRIF 2011) 32, 32-4.

5.1.2. Pacific Catastrophe Risk Insurance Pilot (PCRIP) and the African Risk Capacity (ARC)

Another regional risk pooling scheme similar in operation to the CCRIF is the Pacific Catastrophe Risk Insurance Pilot (PCRIP). Tonga received US$1,270,000 through PCRIP in the aftermath of Cyclone Ian in January 2014[137]. This helped the response measures to continue without interruption or delay[138]. Another regional risk pooling initiative is the African Risk Capacity (ARC) initiative, which provides financial relief to sub Saharan Africa countries against severe drought and disrupted rainfalls[139]. As drought will not affect all the participating countries at the same time or with same intensity, the ARC risk pool will be able to manage the risk of a severe drought incident on a regional basis, with less financial resources than would be necessary if each participating country insured individually.

The ARC is an index-based insurance initiative that provides a payout based on a predetermined triggering event without taking into account the cause of the event or the actual loss and damage suffered by the insured party. To help the countries provide prompt assistance to their people, ARC members receive pay outs even before the projected loss has been fully manifested. These pay outs are used to activate predetermined contingency plans, which will be carried out under the monitoring of the ARC. To be eligible to participate in the ARC, the countries along with paying premiums should, first, participate in capacity development programs relating to the operation of the ARC. Secondly, they should develop contingency plan stating how ARC pay outs will be used to respond to severe drought event. Thirdly, countries have to customize software used to project the cost of a severe drought event.

These measures make ARC insurance a risk management and risk transfer tool suitable for climate change adaptation and loss and damage mechanism to overcome the negative effects of extreme climate events. According to Burkett, '[d]iverse stakeholders deem these kinds of insurance mechanism to be essential components of an international loss and damage mechanism'[140].

(137) World Bank, 'Tonga to Receive US$1.27 Million Payout for Cyclone Response' (Press Release 23 January 2014) <http://www.worldbank.org/en/news/press-release/2014/01/23/tonga-to-receive-pay-out-for-cyclone-response> accessed 30 June 2017.

(138) ibid. Tonga, the Cook Islands, the Marshall Islands, Samoa, the Solomon Islands and Vanuatu are the participants of the Pacific Catastrophe Risk Insurance Pilot launched in 2013. The payouts are determined as per pre-agreed parametric triggers such as cyclone intensity or earthquake magnitude.

(139) African Risk Capacity, 'How ARC Works' <http://www.africanriskcapacity.org/about/how-arc-works> accessed 30 June 2017.

(140) Maxine Burkett 'Loss and Damage' (n 71) 125.

Insurance, if properly subsidised and supported by national governments and international donors, can be developed into a proper mechanism to help vulnerable communities overcome economic losses caused by extreme events and losses that are computable(141).

Despite the obvious benefits, '[r]isk transfer…is not sufficient to address all climate-related loss and damage'(142). Handling damage caused to ecosystems, cultures, traditions and long term foreseeable risks such as sea level rise and desertification will, according to the UN, require the accumulation of resources and a combination of institutional and governance approaches, as well as management and financial tools to distribute the accumulated resources(143). When it comes to an insurance solution, the focus is prevention in terms of risk management and disaster risk reduction. Insurance schemes are viable options for short term economic loss but have not yet progressed to address long term economic loss which manifests as a result of climate effects such as desertification, sea level rise, ocean acidification or glacial retreat.

For slow-onset events like sea level rise—which in the case of SIDS results in inundation of island states resulting in relocation and resettlement of the whole population, dealing with their loss of country, loss of culture, loss of livelihood-risk transfer tools like insurance will not be adequate. The loss is on a different scale and of a different nature to the loss suffered by an isolated, one-off event such as an earthquake. Although the scholarship on insurance risk pools analysed above is interesting and potentially transferable to the issue of climate change impacts, it nevertheless begs the question: how can one possibly insure against loss of an entire country or culture and how can we determine a fixed price for such loss?

5.1.3. Insurance as a Risk Reduction Tool

For the purpose of insurance, risk assessment is necessary. Risk assessment will point out critical risk-reduction measures, and 'increase risk management awareness, government investments and incentivize risk reduction activities by individuals'(144). The insurance industry possesses the experts and capacity

(141) Xin Ma and others, 'Loss and damage related to climate change: connotations and response mech - nism' (2015) 13 Chinese Journal of Population Resources and Environment 55.

(142) Burkett, 'Loss and Damage' (n 71) 125.

(143) ibid; see also the Subsidiary Body on Implementation, 'Submission of Nauru on behalf of the All - ance of Small Island States', Views and information on elements to be included in the recommenda- tions on loss and damage in accordance with decision 1/CP.16 (28 September 2012) 1.

(144) Meghan Orie and Walter R Stahel, 'Insurers› contribution to disaster reduction - a series of case stu - ies' (2013) The Geneva Reports - Risk and Insurance, Research No7 <http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Stahel%20and%20Orie,%202012.pdf> accessed 23 April 2017.

to gather and assess the data required for dealing with climate risks and the vulnerabilities of different regions(145).

The foresight of including risk transfer tools in the institutional structure of countries to buffer pending risks provides security against loss and damage to assets and livelihoods in the post-disaster period. Moreover, through including contingency plans in a country's national disaster financing institutional structure, help can be extended to the vulnerable section of the community in coping with the disaster without them having to resort to forced migration, sales of assets, money lending and reduction of food consumption(146).

The insurance industry has the expertise to design policies and set incentives for countries to address the risks of slow-onset events, as it did with the creation of boiler inspection plans for increasing boiler safety in the mid-to-late nineteenth century.(147) Insurance while offering a financial incentive uses the same incentive to guarantee a quality inspection of the boiler, thus ensuring safety(148). This kind of inspection was a new concept to the insurance industry: to prioritize safety and loss prevention along with financial interests(149).

This concept can be applied in the twenty-first century to the unavoidable challenges faced by developing countries. Utilising the insurance industry can make investment in risk reduction more efficient, whilst the capacity and resources to maintain and build the required framework should be strengthened. The goal of managing disasters is to protect life and property by identifying the risks associated with an event and developing a plan of action to minimize those risks. Such methods can be used to establish an 'effective holistic preventive and response approach to managing loss and damage'(150).

Risk reduction measures are used to reduce the risk from the impacts of extreme climatic events that are low in magnitude but occur frequently(151). However,

(145) Balogun Managing loss and damage from slow onset events (n 95).

(146) Koko Warner and others, 'Adaptation to climate change: Linking disaster risk reduction and insurance' (UNFCC 2009) <http://unfccc.int/resource/docs/2009/smsn/ngo/163.pdf> accessed 23 April 2017.

(147) Balogun, Managing loss and damage from slow onset events (n 95) 14. Balogan recounts how boiler inspections and insurance 'showed the expertise, innovative and coverage capacity of the insurance industry' to counter a new risk at that time: exploding boilers that could result in massive damage and loss of life.

(148) ibid.

(149) ibid.

(150) ibid 13.

(151) IPCC, 2012 Managing the Risks of Extreme Events and Disasters to Advance Climate Change Ada - tation - A Special Report of the Intergovernmental Panel on Climate Change, Christopher B Field and others (eds) (Cambridge University Press 2012) 582 <https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf> accessed 23 April 2017 [hereinafter IPCC 2012 Managing the Risks].

they can also be useful in high magnitude events that occur intermittently. Risk reduction measures should be carried out with the aim of reducing poverty and vulnerability(152). The Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX) outlined certain risk reduction measures, such as improving access to national decision-making processes(153). These measures will help to alleviate the vulnerability of society that leads to poverty. Risk reduction methods are now more community-based, and use existing knowledge and social structures to carry out disaster prevention measures. In Nepal, for instance, including women in local disaster preparedness committees has helped the women to take decisions with the knowledge of the risks involved and, on the other hand, has allowed the risk reduction measures to include the needs and priorities of women in decision making(154). Such measures help to reduce marginalization and disempowerment in societies and contribute to building less vulnerable societies which can build better resilience to climate change(155).

5.1.4. Challenges facing insurance in combating loss and damage in the case of extreme events and sea-level rise.

Insurance covers approximately three percent of disaster losses in developing countries compared to 40 percent in developed countries(156). Insurance in developing countries is not prevalent even though it has potential as a risk transfer mechanism, because:

- There is a lack of awareness regarding the usefulness of this mechanism.
- Insurance coverage is not easily available in developing countries as there is not enough data on risk and exposure.
- As vulnerable countries have weak governance systems and institutional frameworks, it is hard to include social protection activities as part of risk transfer tools.

(152) Karen O›Brien, Mark Pelling and Anand Patwardhan, 'Towards a sustainable and resilient future' in IPCC 2012 Managing the Risks, ibid 437-486.

(153) Padma Narsey Lal and others 'National systems for managing the risks from climate extremes and disasters' in IPCC Managing the Risks, ibid 339-392.

(154) Susan Cutter and others, 'Managing the risks from climate extremes at the local level' in IPCC Ma - aging the Risks, ibid 291-338.

(155) UN/International Strategy for Disaster Reduction, 'Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation – Good Practices and Lessons Learned' (2008) <http://www.un.org/waterforlifedecade/pdf/2008_isdr_gender_perspectives_disaster_risk_reduction_cc_eng.pdf> accessed 30 June 2017.

(156) Peter Hoeppe and Eugene N Gurenko 'Scientific and Economic Rationales for Innovative Climate I - surance Solutions' (2006) 6 Climate Policy - Special Issue on Insurance and Climate Change 607.

- Insurance is usually based on sudden or accidental events. Slow-onset events are different, and the large-scale impact of such events makes it difficult for pricing and insurability of associated risks.
- It is challenging for stakeholders to invest in disaster-reliance measures as there is no evidence on the effectiveness of the current disaster risk transfer tools.

5.1.5. The Threat of Sea-level Rise to Insurance

Sea-level rise is somewhat different to other extreme weather events. In a spatial scale it manifests globally and simultaneously at the same time on a temporal scale, and it is irreversible. Moreover, the uncertainty and unpredictability of global sea-level rise based on the melting of the Greenland and West Antarctic ice sheets creates scenarios which are very challenging to the insurance system. In the case of sea-level rise, information gathering regarding risk or advanced modelling will not be a workable solution in the long run.

The challenges to the insurance system include enormous financial risk, and when the event insured against takes place, it might occur on a very large scale. As the geographic locations are correlated, the impact of sea-level rise will be felt on the global economy and in the insurance system which is part of the global economy(157). These factors mean insurance is not suitable for slow onset events like sea level rise. The IPCC recommended retreat, accommodation, and protection as the three main actions needed in case of sea level rise but insurance does not cover these actions(158).

6. Conclusion

Loss and damage are a vast area which warrants research into its many facets, including the definition, the difference between adaptation and loss and damage, non-economic loss, displacement, migration, resettlement, and the rationale for addressing loss and damage.

This article has focused on the definition, contributing factors and history of loss and damage. It has put forward the advantages and disadvantages of applying insurance concepts to loss and damage resulting from the effects of climate change. It reviewed some existing models, such as the Caribbean Catastrophe Risk Insurance Facility, that could be adapted to cope with some of the climate change effects experienced by the SIDS. On the other hand, this article has not examined the difference between adaptation and loss and damage, nor has it addressed the non-economic aspect of loss and damage

(157) Rosemary Lyster, 'A Fossil Fuel-Funded Climate Disaster Response Fund' (n 90) 125.

(158) Robert J Nicholls and Anny Cazenave 'Sea-level Rise and its Impact on Coastal Zones' (2010) 328 (5985) Science 1517 <http://science.sciencemag.org/content/328/5985/1517?ck=nck> accessed 30 June 2017.

which, at an individual level, may include loss of culture, livelihood, identity and in a broader sense includes the right to self determination, the right to stay in one's country and the right to nationality.

This article has evaluated the impact and potential of insurance as a risk reduction and risk management tool under the UNFCCC Warsaw International Mechanism for loss and damage (WIM). It has provided a brief history of the WIM, focusing particularly on the role of SIDS. The article has also outlined the limitations of insurance to reduce loss and damage in the SIDS. The analysis above has shown that the insurance mechanism is not compatible with the SIDS' needs in relation to slow onset events such as sea level rise. This is mostly due to the unpredictable nature of the disaster, the very large scale of the likely impact and the enormous financial risk involved.

Moreover, the consequent issues of relocation, resettlement and loss of non-economic rights, are problems for which solutions lie beyond the realm of insurance. The analysis in this chapter has shown that the insurance mechanism, at best, is only suitable for economic loss arising from climate events. The analysis has drawn on arguments put forward by scholars such as Maxine Burkett. The perspective voiced by Burkett seems imminently realistic: 'insurance is not a panacea for climate-related loss and damage… rehabilitation through compensation appears necessary'(159).

Finally, it has been observed here that the loss and damage mechanism is only one component of risk management and risk transfer for which insurance can be a viable tool. Slow onset events pose other problems for SIDS like relocation, resettlement of entire populations and compensation for their economic and non-economic losses. The Paris Agreement states that action and support for loss and damage should proceed on a cooperative and facilitative basis. However, it further elaborates that 'article 8 of the Agreement does not involve or provide a basis for any liability or compensation'(160).

This leaves the financing of loss and damage measures vague and indeterminate. Financing loss and damage looms large as a challenge for policymakers, politicians and vulnerable states. The executive committee of the WIM, utilising a five-year rolling work plan, is entrusted with the task of working out the financial mechanism of loss and damage(161).

(159) Burkett 'Rehabilitation: A Proposal for a Climate Compensation Mechanism for Small Island States' (n 25) 7.

(160) Paris Agreement (n 11) para 51.

(161) UNFCCC, Conference Of The Parties, 'Report Of The Conference Of The Parties On Its Twe - ty –Second Session, held in Marrakech from 7 to 18 November 2016' (31 January 2017) FCCC/CP/2016/10/Add 1 decision 3/CP 22 para 4 <http://unfccc.int/resource/docs/2016/cop22/eng/10a01.pdf> accessed 23 April 2017.

References:

Primary Sources

Conventions and treaties

– United Nations, United Nations Framework Convention on Climate Change (New York, 9 May 1992) 1771 UNTS 107, 31 ILM 849 (1992), entered into force 21 March 1994.

– United Nations, United Nations Framework Convention on Climate Change, 'Adoption of the Paris Agreement' (adopted 12 December 2015 at the twenty-first session of the Conference of the Parties to the UNFCCC held in Paris from 30 November to 13 December 2015) entered into force 4 November 2016 FCCC/CP/2015/L9/Rev1 <http://www.un.org/ga/search/view_doc.asp?symbol=FCCC/CP/2015/L.9/Rev.1>.

Reports and submissions

– 'Artificial Islands of the World Report' <http://www.ead.ae/Tacsoft/FileManager/Quarterly/Artificial%20Islands/Artificial%20Islands%20of%20the%20World%20FINAL.pdf>.

– Association of Small Island States (AOSIS), Proposal to the AWG-LCA: Multi-Window Mechanism to Address Loss and Damage from Climate Change Impacts <http://unfccc.int/files/kyoto_protocol/application/pdf/aosisinsurance061208.pdf >.

– Balogun K, Managing loss and damage from slow onset events: Applicability of risk transfer tools including insurance (Germanwatch 2013) <http://loss-and-damage.net/download/7271.pdf>.

– Caribbean Catastrophe Risk Insurance Facility (CCRIF), 'Annual Report 2012-2013' (Report, October 2013) <http://www.crif.org/sites/default/files/publications/CCRIFAnnual Report-November2013.pdf>.

– Caribbean Catastrophe Risk Insurance Facility, 'Semi-annual Report: June-November 2013' <http://www.ccrif.org/sites/default/files/publications/CCRIF_Annual_Report_2013_2014.pdf>.

– Church JA and others, 'Sea Level Change' in Thomas F Stocker Climate Change 2013: The Physical Science Basis – Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Thomas F Stocker and others eds) (Cambridge University Press 2013).

– Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action, Draft decision -/CP.17 <https://unfccc.int/files/meetings/

durban_nov_2011/decisions/application/pdf/cop17_durbanplatform.pdf>.

– Germanwatch, 'Framing The Loss And Damage Debate: A Conversation Starter' The Loss And Damage In Vulnerable Countries Initiative (Germanwatch 2012) http://loss-and-damage.net/download/6530.pdf.

– Houghton JT and other (eds) Climate Change 2001: The Scientific Basis, Intergovernmental Panel on Climate Change, Working Group 1 (Cambridge University Press 2001).

– Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, Working Group II, Fourth Session, Geneva, 9-20 December 1991, A/AC237/WGII/CRP8 'Negotiation of a Framework Convention on Climate Change, Vanuatu draft annex relating to Article 23 (Insurance) for inclusion in the revised single text on elements relating to mechanisms' (A/AC237/WGII/Misc13) submitted by the Co-Chairmen of Working Group II, art 3(1) <http://unfccc.int/resource/docs/a/wg2crp08.pdf>.

– IPCC, 2007 Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC (ML Parry and others (eds)), pt 17.4.2.1 Physical and ecological limits, 733 <https://www.ipcc.ch/pdf/assessmentreport/ar4/wg2/ar4_wg2_full_report.pdf>.

– IPCC, 2012 Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of the Intergovernmental Panel on Climate Change, Christopher B Field and others (eds) (Cambridge University Press 2012) <https://www.ipcc.ch/pdf/special-reports/srex/SREX_Full_Report.pdf>.

– IPCC, Climate Change 2013 The Physical Science Basis - Summary for Policymakers, Technical Summary and Frequently Asked Questions <https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_SummaryVolume_FINAL.pdf>.

– IPCC, Climate Change 2014 Impacts, Adaption, and Vulnerability < https://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-IntegrationBrochure_FINAL.pdf>.

– IPCC, Fifth Assessment Report, What's in it for Small Island Developing States? (Climate & Development Knowledge Network 2014) <cdkn.org/wpcontent/uploads/2014/08/CDKN_IPCC_Whats_in_it_for_SIDS.pdf>.

– Linnerooth-Bayer J and Verheyen R, 'UNFCCC Background Paper: Insurance-Related Actions and Risk Assessment in the context of the UNFCCC' (2003) <http://www.start.org/Program/advanced_institute3_web/p3_documents_folder/Linnerooth_etal_insurance.pdf>.

– Office of the High Representative for the Least Developed Countries,

Landlocked Developing Countries and Small Island Developing States (UN-OHRLLS) Small Island Developing States – Small Islands Big(ger) Stakes (UN-OHRLLS, 2011) <http://unohrlls.org/custom-content/uploads/2013/08/SIDS-Small-Islands-Bigger-Stakes.pdf>.

– Opondo DO, Loss and Damage from Flooding in Budalangi District, Western Kenya Loss and Damage in Vulnerable Countries Initiative, case study report (United Nations University Institute for Environment and Human Security 2013) <http://loss-and-damage.net/download/7275.pdf > .

– Planton S (ed), 'Annex III: Glossary', in IPCC, 2013 Climate Change 2013: The Physical Science Basis – Contribution of Working Group 1 to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Thomas F Stocker and others eds) (Cambridge University Press 2013).

– Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013, FCCC/CP/2013/10/Add1 of 31 January 2014.

– Report of the Third International Conference on Small Island Developing States Apia, Samoa 1-4 September 2014 A/CONF223/10 (Samoa Pathway) adopted at the 8th plenary meeting, on 4 September 2014.

– Submission by Vanuatu on behalf of AOSIS, 'Elements for a Framework Convention on Climate Change', in 'Set of informal papers provided by delegations, related to the preparation of a framework convention on climate change' (18 June 1991) UN DOC.A/AC.237/Misc.1/Add.3, 30.

– Subsidiary Body on Implementation, 'Submission of Nauru on behalf of the Alliance of Small Island States', Views and information on elements to be included in the recommendations on loss and damage in accordance with decision 1/CP.16 (28 September 2012) 1.

– UN, 'World Economic and Social Survey 2013 Sustainable Development Challenges' E/2013/50/Rev1 ST/ESA/344 <https://sustainabledevelopment.un.org/content/documents/2843WESS2013.pdf>.

– UN, International Strategy for Disaster Reduction, 'Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation – Good Practices and Lessons Learned' (2008) <http://www.un.org/waterforlifedecade/pdf/2008_isdr_gender_perspectives_disaster_risk_reduction_cc_eng.pdf>.

– UNEP, Emerging Issues for Small Island Developing States – Results of the UNEP/UN DESA Foresight Process (UNEP 2014) <https://wedocs.unep.org/rest/bitstreams/16063/retrieve>.

– UNFCCC 'Conference of the Parties' Twenty-first session Paris, 30 November to 11 December 2015' Adoption of the Paris Agreement, FCCC/CP/2015/L.9/Rev.1 (12 December 2015), Annex 'Paris Agreement' <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>.

– UNFCCC Conference of the Parties, 'Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013, Addendum, Part two: Action taken by the Conference of the Parties at its nineteenth session' (31 January 2014) FCCC/CP/2013/10/Add.1 Decision 2/CP 19, <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>.

– UNFCCC Conference of the Parties, 'Report of the Conference of the Parties on its nineteenth session, held in Warsaw from 11 to 23 November 2013 Addendum Part two: Action taken by the Conference of the Parties at its nineteenth session' 31 January 2014, FCCC/CP/2013/10/Add1 Decision 2/CP 19 <http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>.

– UNFCCC Conference of the Parties, Bonn, Germany, Oct 25 Nov 5 1999, 'Action Taken by the Conference of the Parties', Decision 12/CP5 at 32 FCCC/CP/1999/6/Add1 (2 Feb 2000) <http://unfccc.int/resource/docs/cop5/06a01.pdf>.

– UNFCCC Conference of the Parties, Buenos Aires, Arg, Nov 2-14, 1998 'Action Taken by the Conference of the Parties', Decision 5/CP4, at 17, FCCC/CP/1998/16/Add1 (25 Jan 1999) <http://unfccc.int/resource/docs/cop4/16a01.pdf>.

– UNFCCC Conference of the Parties, Kyoto, Japan, Dec 1-11, 1997, Action Taken by the Conference of the Parties, Decision 3/CP3, 32, FCCC/CP/1997/7/Add.1 (11 Dec 1997) <http://unfccc.int/resource/docs/cop3/07a01.pdf>.

– UNFCCC Conference of the Parties, New Delhi, India, Oct 23 Nov 1 2002, 'Report of the Subsidiary Body for Implementation', FCC/SBI/2002/17 <http://unfccc.int/resource/docs/2002/sbi/17.pdf>.

– UNFCCC, 'A Literature Review on the Topics in the Context of Thematic Area 2 of the Work Programme on Loss and Damage: A Range of Approaches to Address Loss and Damage Associated with the Adverse Effects of Climate Change' (15 November 2012) FCCC/SBI/2012/INF14 <http://unfccc.int/resource/docs/2012/sbi/eng/inf14.pdf >.

– UNFCCC, 'Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010' FCCC/CP/2010/7/Add.1 <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4>.

– UNFCCC, 'Report of the Subsidiary Body for Implementation on its thirty-fourth session, held in Bonn from 6 to 17 June 2011', FCCC/SBI/2011/7 (12 August 2011) <http://unfccc.int/resource/docs/2011/sbi/eng/07.pdf>.

– UNFCCC, Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), FCCC/AWGLCA/2010/14, 13 August 2010.

– UNFCCC, Conference Of The Parties, 'Report Of The Conference Of The Parties On Its Twenty –Second Session, held in Marrakech from 7 to 18 November 2016' (31 January 2017) FCCC/CP/2016/10/Add 1 decision 3/CP 22 <http://unfccc.int/resource/docs/2016/cop22/eng/10a01.pdf>.

– UNFCCC, Conference Of The Parties, 'Report Of The Conference Of The Parties On Its Twenty – Second Session, held in Marrakech from 7 to 18 November 2016' (31 January 2017) FCCC/CP/2016/10/Add 1 decision 4/CP 22 <http://unfccc.int/resource/docs/2016/cop22/eng/10a01.pdf>.

– UNFCCC, Decision 1/CP.16 (COP 16) 'The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention' in FCCC/CP/2010/7/Add.1 <https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>.

– UNFCCC, Report of the Executive Committee of the Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts, at FCCC/SB/2014/4 <http://www.unfccc.int/resource/docs/2014/sb/eng/o4.pdf>.

– UNFCCC, Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts <http://unfccc.int/adaptation/workstreams/loss_and_damage/items/8134.php>.

– Warner K and others, 'Adaptation to climate change: Linking disaster risk reduction and insurance' (UNFCC 2009) <http://unfccc.int/resource/docs/2009/smsn/ngo/163.pdf>.

– Warner K and others, 'Evidence from the Frontlines of Climate Change: Loss and damage to Communities despite coping and adaptation', Loss and damage in Vulnerable Countries Initiative Policy Report, Report No9 (United Nations University Institute for Environment and Human Security 2012).

– World Bank, 'Innovation in Disasters Risk Financing for Developing Countries: Public and Private Contributions' (World Bank 2011) <https://openknowledge.worldbank.org/handle/10986/22119>.

Secondary Sources

Books/ebooks

- Abate R (ed), Climate Change Impacts on Ocean and Coastal Law: US and International Perspectives (Oxford University Press 2015).
- Atapattu S, Human Rights Approaches to Climate Change: Challenges and Opportunities (Routledge 2015).
- Brown MA and Sovacool BK, Climate Change and Global Energy Security: Technology and Policy Options (MIT Press 2011).
- Caribbean Catastrophe Risk Insurance Facility, A Guide to Understanding CCRIF: A Collection of Questions and Answers (Caribbean Catastrophe Risk Insurance Facility 2010) <http://www.ccrif.org/sites/default/files/publications/BookletQuestionsAnswersMarch2010.pdf>.
- Crate SA and Nuttall M (eds), Anthropology and Climate Change: From Actions to Transformations (2nd ed, Routledge 2016).
- Garnaut R, The Garnaut Climate Change Review - Final Report (Cambridge University Press 2008).
- Gerrard MB and Wannier GE (eds), Threatened Island Nations (Cambridge 2014).
- Gerrard MB and Wannier GE Threatened Island Nations: Legal Implications of Rising Seas and Changing Climate (Cambridge University Press 2013).
- Hiebert M, Education for Sustainable Development in Small Island Developing States (Commonwealth Secretariat 2013) <http://www.keepeek.com/Digital-Asset-Management/oecd/commonwealth/education/education-for-sustainable-development-in-small-island-developing-states_9781848591462-en#page2>.
- Koch H-J, Konig D, Sanden J and Verheyen R (eds), Legal Regimes for Environmental Protection: Governance for Climate Change (Brill 2015).
- Kotze LJ, Global Environmental Constitutionalism in the Anthropocene (Bloomsbury Publishing 2016).
- Kulp CA and Hall JW, Casualty Insurance (4th edn, Ronald Press 1968).
- Mazrui AA and Wondji C, The UNESCO General History of Africa (University of California Press 1999).
- McAdam J (ed),.
- Climate Change and Displacement: Multidisciplinary Perspectives (Bloomsbury Publishing 2010).
- , Climate Change, Forced Migration and International Law (Oxford University Press 2012).

– Milkias P, Developing the Global South: A United Nations Prescription for the Third Millennium (Algora Publishing 2014).

– Oppenheim L (ed), The Collected Papers of John Westlake on Public International Law (Cambridge University Press 1914).

– Pfeffer I and Klock DR, Perspectives on Insurance (Prentice-Hall 1974).

– Piguet E, Pécoud A and Guchteneire P (eds) Migration and Climate Change (Cambridge University Press 2011).

– Rayfuse R and Scott SV (eds), International Law in the Era of Climate Change (Edward Elgar Publishing 2012).

– Sodhi NS and Ehrlich PR (eds), Conservation Biology for All (Oxford University Press 2010).

– Stoutenburg JG, Disappearing Island States in International Law (Brill 2015).

– Verheyen R, Climate Change Damage and International Law: Prevention Duties and State Responsibility (Leiden 2005).

– Yamamoto L and Esteban M Atoll Island States and International Law: Climate Change Displacement and Sovereignty (Springer Science and Business Media 2013).

Book chapters

– Cutter S and others, 'Managing the risks from climate extremes at the local level' in IPCC 2012 Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of the Intergovernmental Panel on Climate Change, Christopher B Field and others (eds) (Cambridge University Press 2012).

– Geest K and Warner K, 'Vulnerability, Coping and Loss and Damage from Climate Events' in Andrew E Collins and others (eds) Hazards, risks and disasters in society (Elsevier 2015) <http://collections.unu.edu/eserv/UNU:3152/vulnerability_coping_lossdamage.pdf >.

– Kreft S and others, 'Framing the Loss and Damage Debate: A Thought Starter by the Loss and Damage in Vulnerable Countries Initiative' in Oliver C Ruppel, Christian Roschmann and Katharina Ruppel-Schlichting (eds), Climate Change: International Law and Global Governance Volume II: Policy, Diplomacy and Governance in a Changing Environment (Nomos Verlagsgesellschaft, 2013).

– Lal PN and others 'National systems for managing the risks from climate

extremes and disasters' in IPCC 2012 Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of the Intergovernmental Panel on Climate Change, Christopher B Field and others (eds) (Cambridge University Press 2012).

– Millar I, Gascoigne C and Caldwell E, 'Making Good the Loss : An Assessment of the Loss and Damage Mechanism under the UNFCCC Process' in Michael B Gerrard and Gregory E Wannier (eds), Threatened Island Nations (Cambridge 2014).

Mimura N L and others, 'Small Islands' in Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, ML Parry and others (eds) (Cambridge University Press 2007) 687-716 <https://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter16.pdf>.

– O'Brien KO, Pelling M and Patwardhan A, 'Towards a Sustainable and Resilient Future' in IPCC 2012 Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of the Intergovernmental Panel on Climate Change, Christopher B Field and others (eds) (Cambridge University Press 2012).

– Young S, Iyahen E and Emanuel E, 'Helping Caribbean Countries Understand Hurricane Risks and Enhancing Their Preparedness During Hurricanes: CCRIF's Real-Time Forecasting Systems (RTFS)' in CCRIF (ed), CCRIF : A Natural Catastrophe Risk Insurance Mechanism for the Caribbean – A Collection of Papers, Articles and Expert Notes: Volume 2 (CCRIF 2011).

Articles

– Adelman S, 'Climate Justice, Loss and Damage and Compensation for Small Island Developing States' (2016) 7 Journal Of Human Rights and The Environment 49.

– Alan Miller, Vladimir Stenek and Richenda Connell', 'Evaluating the Private Sector Perspective on the Financial Risks of Climate Change' (2009) 15 Hastings W-Nw J Envt'l L & Pol'y 133.

– Ashe JW, Lierop R and Cherian A, 'The Role of the Alliance of Small Island States (AOSIS) in the Negotiation of the United Nations Framework Convention on Climate Change (UNFCCC)' (1999) 23(3) Natural Resources Forum 209.

– Biermann F and Boas I 'Preparing for a Warmer World: Towards a Global Governance System to Protect Climate Refugees' (2010) 10(1) Global Environmental Politics 60 <http://www.mitpressjournals.org/doi/abs/10.1162/glep.2010.10.1.60> .

- Bodansky B, 'The United Nations Framework Convention on Climate Change: A Commentary' (1993) 18(2) Yale J Int'l L 453, 528 <http://digitalcommons.law.yale.edu/yjil/vol18/iss2/2> .
- Bozzato F, 'Dryland: Artificial Islands as New Oceanscapes' (2013) 17(4) Journal of Futures Studies 1, 8 <http://www.jfs.tku.edu.tw/wp-content/uploads/2013/10/174-A01.pdf> .
- Briguglio L, 'Small Island Developing States and Their Economic Vulnerabilities' (1995) 23(9) World Development 1615 <www.icao.int/Meetings/IWAF2016/.../HL%20Lunch_Boubacar%20Djibo.pdf
- Brown O, 'Migration and Climate Change', (2008) IOM Migration Research Series No. 31.
- Burkett M, 'Loss and Damage' (2014) 4 Climate Law 119.
- Burkett M, 'Climate Reparations' (2009) 10(2) Melbourne Journal of International Law 509 <http://www.austlii.edu.au/au/journals/MelbJIL/2009/29.html>.
- Burkett M, 'Rehabilitation: A Proposal for a Climate Compensation Mechanism for Small Island States' (2015) 13 Santa Clara Journal of International Law 81, 83 <http://digitalcommons.law.scu.edu/scujil/vol13/iss1/5> .
- Burkett M, 'Rehabilitation: A Proposal for a Climate Compensation Mechanism for Small Island States' (2015) 13 Santa Clara Journal of International Law 81.
- Burns W, 'Loss and Damage and the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change' (2015-2016) 22 ILSA Journal of Comparative & International Law.
- Campbell J and Barnett J, Climate Change and Small Island States: Power, Knowledge and the South Pacific (Routledge 2010).
- Crutzen PJ and Stoermer EF, 'The "Anthropocene"' (2000) 41 Global Change Newsletter 17-18 <http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf> .
- Damage, 879 <https://www.nomos-elibrary.de/10.5771/9783845242774_877.pdf>.
- Faist T and Schade J Disentangling Migration and Climate Change: Methodologies, Political Discourses and Human Rights (Springer Science & Business Media 2013).
- Farber DA, 'Basic Compensation for Victims of Climate Change' (2007) University of Pennsylvania Law Review 155.
- Faure MG, 'Insurability of Damage Caused by Climate Change: A Commentary' (2007) 155 University of Pennsylvania Law Review.
- Gagain, M 'Climate Change, Sea Level Rise, and Artificial Islands: Saving the

Maldives' Statehood and Maritime Claims Through the "Constitution of the Oceans"' (2012) 23 Colorado Journal of International Environmental Law & Policy 76 http://www.colorado.edu/law/sites/default/files/GAGAIN%20_correctedv2_.pdf

– Gervet B, 'Deforestation Contributes to Global Warming' (Department of Civil and Environmental Engineering Luleå University of Technology, March – June 2007) <https://www.ltu.se/cms_fs/1.5035!/deforestation%20-%20final.pdf>.

– Hastrup K and Olwig KF (eds), Climate Change and Human Mobility: Global Challenges to the Social Sciences (Cambridge University Press 2012).

– Hastrup K, 'Andaman Islanders and Polar Eskimos: Emergent Ethnographic Subjects c.1900' (2013) 1 Journal Of The British Academy 3 <http://www.britac.ac.uk/sites/default/files/JBA-001-003-Hastrup.pdf>.

– Hoad D, 'The 2015 Paris Climate Agreement: outcomes and their impacts on small island states' (2016) 11 (1) Island Studies Journal 315, 319 <http://www.islandstudies.ca/sites/default/files/ISJ-11-1-T-Hoad.pdf> .

– Hoeppe P and Gurenko EN, 'Scientific and Economic Rationales for Innovative Climate Insurance Solutions' (2006) 6 Climate Policy - Special Issue on Insurance and Climate Change 607.

– Hutchinson T and Duncan N 'Defining and Describing What We Do: Doctrinal Legal Research' (2012) 17(1) Deakin Law Review 83.

– Koko Warner and others, 'Insurance Solutions in the Context of Climate Change-related Loss and Damage: Needs, Gaps, and Roles of the Convention in Addressing Loss and Damage' (2012) Munich Climate Insurance Initiative (MCII), Submission to the SBI Work Programme on Loss and Damage.

– Kreft S, 'Getting Loss and Damage right in Warsaw' (Loss and Damage in Vulnerable Countries Initiative, November 2013) <http://loss-and-damage.net/4942>.

– Kunreuther HC and Micheal-Kerjan EO, 'Climate Change Insurability of Large-Scale Diasters, and the Emerging Liability Challenge' (2007) 155 University of Pennsylvania Law Review.

– Lyster R, 'A Fossil Fuel-Funded Climate Disaster Response Fund under the Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts' (2015) 4 Transnational Environmental Law 125.

– Lyster R, 'Climate justice, adaptation and the Paris Agreement: a recipe for disasters?' (2017) 26 Environmental Politics 438.

– Lyster R, 'A Fossil Fuel-Funded Climate Disaster Response Fund' (n 90) 125.

– Ma X and others, 'Loss and damage related to climate change: connotations and response mechanism' (2015) 13 Chinese Journal of Population Resources and Environment 55.

– Mace MJ, 'The Bali Road Map: Can it Deliver an Equitable Post-2012 Climate Agreement for Small Island States?' (2008) 17 Rev Eur Community & Int'l Envtl Law 183.

– Mahul O and others, Innovation in disaster risk financing for developing countries: public and private contributions (World Bank Group 2011) <http://documents.worldbank.org/curated/en/609591468189559108/Innovation-in-disaster-risk-financing-for-developing-countries-public-and-private-contributions>.

– McGee J, Phelan L and Wenta J, 'Writing the Fine Print: Developing Regional Insurance for Climate Change Adaptation in the Pacific' (2014) 15 Melbourne Journal of International Law 444.

– Mills E, Ross C and Hecht SB, 'Limiting Liability in the Greenhouse: Insurance Risk-Management Strategies in the Context of Global Climate Change' (2007) 26A Stanford Environmental Law Journal.

– Mitchell T, Mechler R and Harris K, 'Tackling Exposure: Placing Disaster Risk Management At The Heart Of National Economic And Fiscal Policy (2012) Climate and Development Knowledge Network Guide, 7 <http://cdkn.org/wp-content/uploads/2012/05/CDKN_Tackling-Exposure_Final-WEB4.pdf>.

– Ödalen J, 'Underwater self-determination: Sea-level rise and deterritorialized Small Island States' (2014) 17(2) Ethics, Policy & Environment 225 http://liu.diva-portal.org/smash/get/diva2:651133/FULLTEXT01.pdf

– Orie M and Stahel WR, 'Insurers' contribution to disaster reduction - a series of case studies' (2013) The Geneva Reports - Risk and Insurance, Research No7 <http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Stahel%20and%20Orie,%202012.pdf>.

– Palutikof JP and Boulter SL and others, Climate Adaptation Futures (John Wiley & Sons 2013).

– Pierro R, 'Micro-insurance and DRR: Challenges and Opportunities in the Context of Climate Change' (2007) Christian Aid, Climate and Disaster Governance, 2 <http://www.microfinancegateway.org/sites/default/files/mfg-en-paper-micro-insurance-drr-challenges-and-opportunities-in-the-context-of-climate-change-2007.pdf>.

– Rajamani L, 'Addressing Loss and Damage from Climate Change Impacts'(2015) 30 Economic & Political Weekly 17.

– Rauch E, 'Effects of Climate Change on the Insurance Industry' (2007) 26A Stanford Environmental Law Journal. Richards JA and Reeves J, 'Finance for Loss and Damage: Marrakech and Beyond' (Bond 2016) DEG Working Paper, 7.

– Riedy C, 'Sustainable Development and Climate Change' (2011) 16(4) Journal of Futures Studies 97.

– Rietbergen S and others, Island Voices - Island Choices: Developing Strategies for Living with Rapid Ecosystem Change in Small Islands (IUCN Ecosystem Management Series No6 2008) <https://portals.iucn.org/library/sites/library/files/documents/CEM-006.pdf>.

– Robert J Nicholls and Anny Cazenave 'Sea-level Rise and its Impact on Coastal Zones' (2010) 328 (5985) Science 1517 <http://science.sciencemag.org/content/328/5985/1517?ck=nck>.

– Sean B Hecht 'Climate Change and the Transformation of Risk: Insurance Matters' (2008) 55 UCLA Law Review 1559 <http://www.uclalawreview.org/pdf/55-6-3.pdf>.

– Sharma, A 'Precaution and post-caution in the Paris Agreement: adaptation, loss and damage and finance' (2017) 17 Climate Policy 33.

– Silver N and Dlugolecki A, 'The Insurability Of The Impacts Of Climate Change' (2009) Giro Conference, Edinburgh <file:///C:/Users/u1662215/Downloads/c11silverpaper.pdf>.

– Simonelli AC, 'The Ethical Responsibility of the Loss and Damage Mechanism: a consideration of Non-Economic Loss and Human Rights' 3 <http://climate-neld.com/wp-content/uploads/2015/08/ACS.paperfull3.pdf>.

– Steffen W and others, 'Planetary boundaries: Guiding human development on a changing planet' (2015) 347(6223) Science 15.

– Steffen W, Crutzen PJ and McNeill JR, 'The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?' (2007) 36(8) Ambio 614 https://www.researchgate.net/profile/John_Mcneill4/publication/5610815_The_Anthropocene_Are_Humans_Now_Overwhelming_the_Great_Forces_of_Nature/links/0fcfd511e373d55e47000000.pdf.

– Sumudu Atapattu, 'Climate Change: Disappearing States Migration and Challenges for International Law' (2014) 4(1) Washington Journal of Environmental Law and Policy 1 https://digital.lib.washington.edu/dspace-law/bitstream/handle/1773.1/1356/4WJELP1.pdf;sequence=3.

– Tsaltas G, Bourtzis T and Rodotheatos G, 'Artificial Islands and Structures as a Means of Safeguarding State Sovereignty Against Sea Level Rise: A Law of the Sea Perspective' (2010) University of New South Wales https://www.iho.int/mtg_docs/com_wg/ABLOS/ABLOS_Conf6/S2P3-P.pdf

– Vanhala L and Hestbaek C 'Framing Loss and Damage in the UNFCCC Negotiations: The Struggle over Meaning and the Warsaw International Mechanism' (forthcoming in 'Global Environmental Politics') 10 <http://discovery.ucl.ac.uk/1478385/1/Vanhala%20and%20Hestbaek%20

%282016%29%20Framing%20Loss%20and%20Damage%20Final.pdf

– Wallimann-Helmer I, 'Justice for Climate Loss and Damage' (2015) 133 Climatic Change 469.

– Warner K and Geest K, 'Loss and Damage from Climate Change: Local-Level Evidence from Nine Vulnerable Countries' (2013) Int J Global Warming 5(4) 367, 381.

– Warner K and others, Innovative Insurance Solutions for Climate Change: How to integrate climate risk insurance into a comprehensive climate risk management approach (United Nations University Institute for Environment and Human Security 2013) Report No 12, November 2013, 9 <http://collections.unu.edu/eserv/UNU:1850/pdf11484.pdf>.

– Warner K, Geest K and Kreft S, 'Pushed To The Limit: Evidence Of Climate Change Related Loss And Damage When People Face Constraints And Limits To Adaptation' (Report No. 11, United Nations University Institute for Environment and Human Security, November 2013) <http://loss-and-damage.net/download/7249.pdf>.

– Wenta J, McGee J and Phelan L, 'Can a Regional Insurance Mechanism Enhance Resilience to Slow Onset Impacts of Climate Change' (2016) 35(2) The University of Tasmania Law Review 23.

– Wrathall DJ and others, 'Problematising loss and damage' (2015) 8 International Journal of Global Warming 274.

Websites and blogs

– Adelman S, 'After Paris Climate Deal the EU Must Turn Aspiration into Achievement' (The Conversation, 19 December 2015) <https://theconversation.com/after-paris-climate-deal-the-eu-must-turn-aspiration-into-achievement-52458>.

– African Risk Capacity, 'How ARC Works' <http://www.africanriskcapacity.org/about/how-arc-works>.

– Caribbean Catastrophe Risk Insurance Facility, 'About Us' (2014) <http://www.ccrif.org/content/about-us>.

– Caribbean Catastrophe Risk Insurance Facility, 'How is the Financial Stability of CCRIF Sustained?' (2014) <http://www.ccrif.org/node/98>.

– Caribbean Catastrophe Risk Insurance Facility, 'Triggering Event' (2014) <http://www.ccrif.org/node/89>.

– Caribbean Catastrophe Risk Insurance Facility, 'Who Are the Members of CCRIF?' (2014) <http://www.ccrif.org/node/89>.

– Choo K, 'Washed Away: As Sea Levels Rise, Island Nations Look To The

Law To Fend Off Extinction' (ABA Journal, 1 March 2012) <http://www.abajournal.com/magazine/article/washed_away_as_sea_levels_rise_island_nations_look_to_the_law>.

– Ghesquiere F and others, 'Caribbean catastrophe risk insurance facility: a solution to the short-term liquidity needs of small island states in the aftermath of natural disasters' 2 <http://siteresources.worldbank.org/PROJECTS/Resources/Catastrophicriskinsurancefacility.pdf>.

– Jones L, 'Why we need to rethink "maladaptation"'(29 June 2015) <https://www.devex.com/news/why-we-need-to-rethink-maladaptation-86426>.

– McAdam J, 'The Normative Framework of Climate Change-Related Displacement'(Brookings,3April2012)<https://www.brookings.edu/research/the-normative-framework-of-climate-change-related-displacement/>.

– Members, Alliance of Small Island States <http://aosis.org/members/>

– Stokes B, Wike R and Carle J, 'Global Concern about Climate Change, Broad Support for Limiting Emissions - US, China Less Worried; Partisan Divides in Key Countries' (Pew Research Center Global Attitudes & Trends, 5 November 2015) <http://www.pewglobal.org/2015/11/05/global-concern-about-climate-change-broad-support-for-limiting-emissions/>.

– UN Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, 'About the Small Island Developing States' <http://unohrlls.org/about-sids/>.

– Warner K and Zakieldeen SA, 'Loss and damage due to climate change: An overview of the UNFCCC negotiations' European Capacity Building Initiative <www.eurocapacity.org>.

Media reports and press releases

- CCRIF, 'European Union Donates Euro 12.5 Million to the CCRIF' (Press Release 2 April 2009) <http://www.ccrif.org/press_releases/european-union-donates-euro125-million-ccrif>.

- UN and Climate Change 'Seal-Level Rise in Small Island Nations to Cost US$Trillions: Shift to Green Policies and Investment Critical' 5 June 2014 <http://www.un.org/climatechange/blog/2014/06/sea-level-rise-in-small-island-nations-up-to-four-times-the-global-average-to-cost-us-trillions-in-annual-economic-loss-and-impede-future-development-shift-to-green-policies-and-investment-criti/>.

- World Bank, 'Tonga to Receive US$1.27 Million Payout for Cyclone Response' (Press Release 23 January 2014) <http://www.worldbank.org/en/news/press-release/2014/01/23/tonga-to-receive-payout-for-cyclone-response>.

Table of Contents: