POLICY REPORT

Loss and Damage at COP23: Looking at Small Island Developing States

Vera Künzel, Laura Schäfer, Sabine Minninger and Roxana Baldrich

GERMANWATCH

Brot für die Welt

Brief Summary

With the incoming Fijian UNFCCC COP-Presidency, a growing awareness is raised for the impacts of climate change and especially climate-induced loss and damage. Fiji as a Small Island Developing State (SIDS) shares its specific situation and characteristics that determine its affectedness with a number of other SIDS. The paper explains the concept of loss and damage and its emergence within the climate regime. It further takes stock of the most pressing climate related impacts for SIDS, such as sea level rise, tropical storms and ocean accidification and looks at options to deal with them under UNFCCC. It concludes with expectations for COP 23 and policy recommendations how to further strenghten the issue of loss and damage within and outside the UN climate regime.

Imprint

Authors:
Vera Künzel, Laura Schäfer and Roxana Baldrich (Germanwatch), Sabine Minninger (Brot für die Welt);
Thanks to Sönke Kreft and Rixa Schwarz

Layout:
Hanna Fuhrmann

Publisher:
Germanwatch e.V.
Office Bonn:
Kaiserstr. 201
D-53113 Bonn
Phone +49 (0)228 / 60 492-0, Fax -19

Office Berlin:
Stresemannstr. 72
D-10963 Berlin
Phone +49 (0)30 / 28 88 356-0, Fax -1

Brot für die Welt – Evangelischer Entwicklungsdienst
Evangelisches Werk für Diakonie und Entwicklung e.V.
Caroline-Michaelis-Str.1
10115 Berlin

Internet: www.germanwatch.org
E-mail: info@germanwatch.org

October 2017

Purchase order number: 17-2-13e

This publication can be downloaded at: **www.germanwatch.org/en/14568**

BMZ Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

Brot für die Welt – Evangelischer Entwicklungsdienst

Financially supported by the Federal Ministry for Economic Cooperation and Development (BMZ) and Bread for the World – Protestant Development Service. Responsibility for the contents rests with Germanwatch.

Content

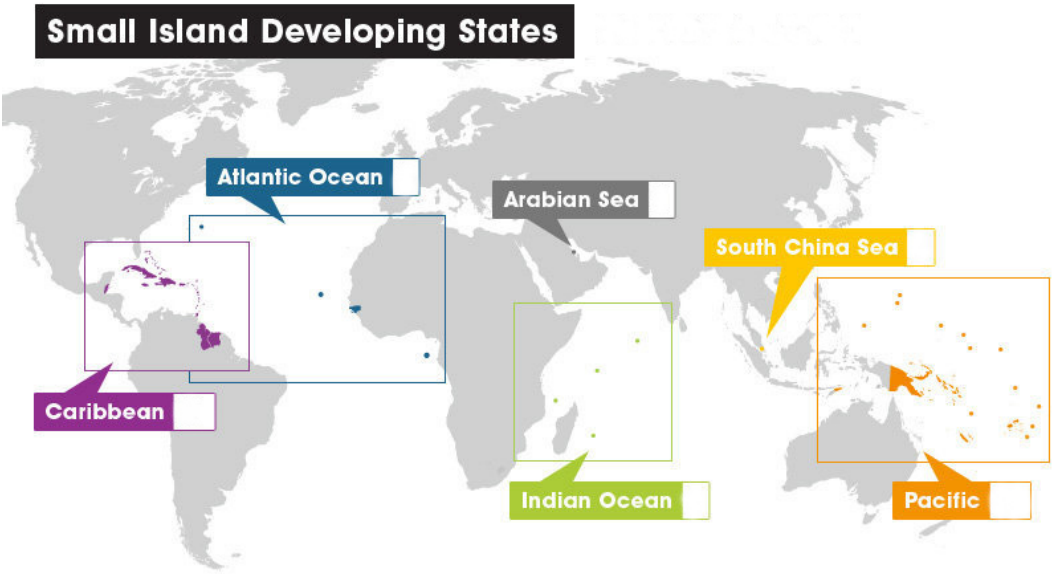


Figure 1[1]

1 Introduction

The climate is changing and the impacts are already being felt all across the world. Existing mitigation commitments and actions are essential to limit the scope but will not prevent all dangerous climate change related impacts. Moreover, not all climate change impacts can be successfully adapted to, be it due to financial, technical or physical constraints (IPCC 2014). Hence, climate change will lead to unavoidable losses.

Vulnerable countries, like Small Island Developing States (SIDS), already experience loss and damage (L&D) and the scope will increase over the next years. With wind speeds of up to 300 km/h, hurricane Irma, that hit the Caribbean in September 2017, was the strongest storm ever recorded in the Atlantic. On the Caribbean islands who felt the force of Irma, including Barbuda, Anguilla, Haiti, and St. Kitts & Nevis, critical facilities as well as homes and businesses were destroyed. In Barbuda, 90 % of buildings are destroyed, 50 % of the population (of around 1,000 people) left homeless. In 2016, Fiji and neighboring islands were directly hit by cyclone Winston, the strongest tropical cyclone recorded to strike the island nation. With wind speeds up to 300km/h, 44 people were killed, and 40,000 homes were damaged or destroyed causing a total damage of USD 1.4 billion (Newswire 2016). Later during the same year, hurricane Matthew brought widespread destruction and catastrophic loss of life during its journey across the Western Atlantic, including parts of Haiti, Cuba, and Dominican Republic.

COP23, the first “Island COP” with Fiji as a presidency, provides a unique opportunity for SIDS and other vulnerable developing countries to raise awareness for their climate change related challenges, and to bring their concerns into the center of the negotiations. This briefing document provides an introduction to the topic of L&D and describes the specific vulnerability of SIDS and their priorities regarding L&D. In a last step, policy recommendations for COP23 are formulated.

[1] www.scidev.net/filemanager/root/site_assets/spotlights/sids_oceans/sids-map_fileminimizer_.jpg

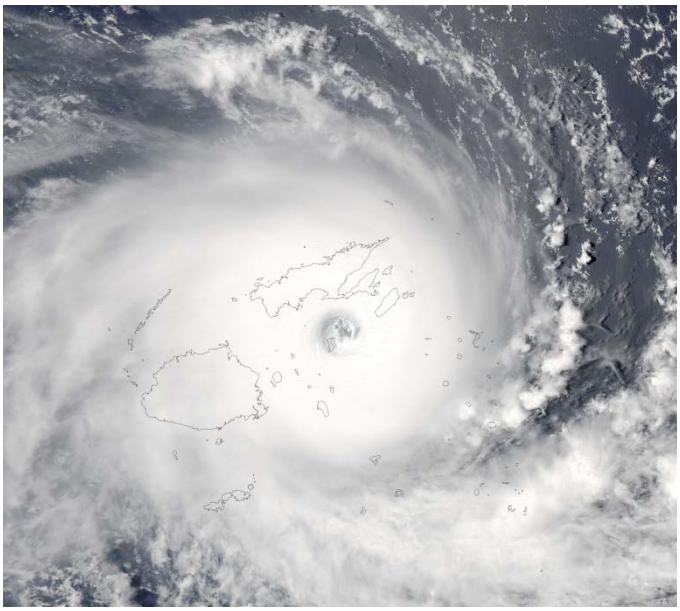


Figure 2: Cyclone Winston hitting Fiji (Source: NASA 2016)

2 Background – What is Loss and Damage?

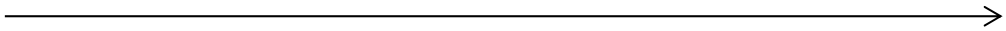
Prior to looking deeper into the actual climate change impacts in SIDS, the concept of L&D and its emergence within the UNFCCC negotiations will be explained. Within UNFCCC a milestone was reached through the establishment of the Warsaw International Mechanism for Loss and Damage (WIM) in 2013 (decision 2/CP. 19). The issue finally got embedded institutionally within the international climate regime – providing a platform to explore and identify effective responses to climate change induced L&D, to expand the understanding of climate consequences and to find an appropriate mix of tools to address L&D.

2.1 Introducing the Concept of Loss and Damage

A widely shared definition of L&D does not exist yet. “Damage” on the one hand, which can be put on a level with tort, describes harming climate change impacts afflicting a person or entity with the possibility to repair or rebuild. “Loss”, on the other hand, can be understood as harmful climate change impacts without possibility to repair or rebuild. These occur in human systems afflicting livelihoods as well as in natural systems. Regarding the included climate change impacts, L&D encompasses extreme events (floods) and slow onset processes (melting permafrost), as well as events triggered by a combination of the aforementioned (glacial melting leading to glacier lake outburst floods). Losses and damages may be both, economic (e. g. destroyed infrastructure) but also non-economic (loss of heritage when areas become uninhabitable for populations). As a baseline for a common understanding of the concept, we use the following working definition:

"Loss and damage refers to negative effects of climate variability and climate change that people have not been able to cope with or adapt to" (Warner/van der Geest 2012).

L&D can be broadly differentiated in three categories – avoided, unavoided and unavoidable (Verheyen 2012). As a means to address L&D, Mechler and Schinko (2016) have suggested both transformative and curative measures. While transformative measures avoid risks ex-ante through transformative risk management, curative measures deal with climate impacts ex-post. (See figure 3).



Avoided	Unavoided	Unavoidable
Avoidable damage avoided Damage prevented through mitigation and/or adaptation measures	Avoidable damage and loss not avoided Where the avoidance of further damage was possible through adequate mitigation and/or adaptation, but where adaptation measures were not implemented due to financial or technical constraints	Unavoidable damage and loss Damage that could not be avoided through mitigation and/or adaptation measures. E. g. coral bleaching, sea level rise, damage due to extreme events where no adaptation efforts would have helped prevent the physical damage
Transformative measures Avoiding risks ex-ante through transformative risk management (building on DRR and CCCA)		Curative measures Dealing with unavoided and unavoidable impacts ex-post

Figure 1: Graphic based on Mechler/Schinko 2016

Consequently, one essential element to address L&D is the implementation of effective strategies for both reducing greenhouse gas emission and ramping up adaptation action and support and reducing vulnerabilities. The other essential element includes strategies to address incurred and future L&D, especially for particularly vulnerable countries to climate change impacts.

The disproportional distribution of climate change impacts

Climate change impacts will not be distributed evenly and there are some countries that will suffer disproportionally from impacts of climate change. On the one hand, people in poverty are more vulnerable to climate change, having a lower level of physical health, living in worse housing conditions, having less access to instruments like insurance and in general less resources to cope with rising costs (Hirsch et al. 2015). Impacts of climate change, on the other hand, will hit some places more severe than others leading to higher exposure of people respective to their place of residence. It will be particularly developing countries, having contributed least to climate change, who will be afflicted most by its impacts – making climate change an issue of justice. Enhancing mitigation ambition systematically reduces the extent of climate change induced L&D, simultaneously related costs. However, with climate impacts becoming more and more severe, the challenge for governments to tackle L&D turns into a determinant of state stability, primarily for most vulnerable

countries. Thus, it is important to first and foremost support the most vulnerable countries and communities to find adequate ways to address L&D.

2.2 Loss and Damage in the UNFCCC-Negotiations

During the last two decades, the UNFCCC focus has shifted from mitigation, to mitigation and adaptation, and now finally including L&D in its current agenda. The emergence of L&D as a focus area of the international climate policy arena is caused by the realization that existing mitigation commitments and actions will not prevent dangerous climate change related impacts. Moreover, not all climate change impacts can be successfully adapted to, be it due to financial, technical or physical constraints. Hence, climate change will lead to unavoidable losses induced by extreme weather events as well as slow-onset changes.

From Bali to Paris

The following timeline provides an overview of the key steps regarding the L&D topic under the UNFCCC.

1991 Proposal by Vanuatu on behalf of Alliance of Small Island States (AOSIS) for the international community to provide "assurance" that climate change would not endanger their survival;

2007 Bali Action Plan mandate (COP 13) to consider means to address L&D;

2008 AOSIS presents a proposal for a Multi-Window Mechanism to Address Loss and Damage at COP 14 which was not picked up;

2010 Establishment of the SBI Work Program on loss and damage in Cancun (COP 16);

2011/12 Further elaboration of L&D in Durban (COP 17) and Doha (COP 18);

2013 Establishment of the Warsaw International Mechanism (WIM) at COP 19 under the Cancun Adaptation Framework;

2014 COP 20: Approval of the work plan of the WIM Interim Executive Committee (ExCom);

2015 Article 8 of the Paris Agreement emphasizes the "importance of averting, minimizing and addressing loss and damage associated with the adverse effects of climate change". The WIM is anchored in the agreement and the COP is mandated to expand and strengthen it;

2016 WIM review during COP 22 in Marrakesh;

2017 WIM ExCom works on five year rolling work plan.

Understanding the Warsaw Mechanism on Loss and Damage

The WIM was established to promote *"implementation of approaches to address loss and damage associated with the adverse effects of climate change…in a comprehensive, integrated and coherent manner"* (2/CP. 19, para. 5). It addresses L&D from both extreme weather events and slow onset processes. The mechanism shall fulfill its role by undertaking following functions (paragraph 5)

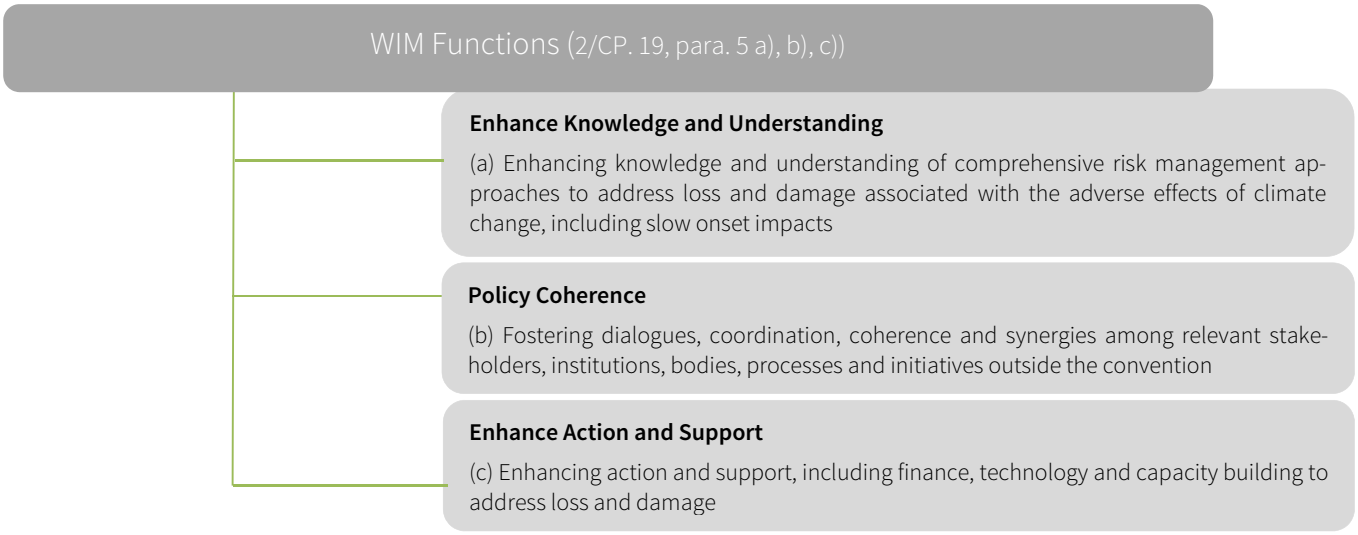


Figure 4: WIM Functions

To *"guide the implementation of functions referred to under paragraph 5"* (2/CP. 19, para. 3) the COP also established an Executive Committee (ExCom) of the WIM, accountable to the COP, reporting to it annually through the SBSTA and SBI. COP 20 decided on the two-year work plan of the ExCom, which includes nine areas of work. The thematic focus lies on enhancing knowledge and awareness raising regarding L&D as well as dialogues. There are no substantial activities reflecting action and support, in particular finance.

While this work plan has been mostly completed, the ExCom in 2017 has developed its new, five-year rolling work plan, which will be decided upon at COP23.

The strategic work streams outlined by the ExCom include:

a. Enhanced cooperation and facilitation in relation to slow onset events

b. Enhanced cooperation and facilitation in relation to non-economic losses

c. Enhanced cooperation and facilitation in relation to comprehensive risk management approaches (including assessment, reduction, transfer and retention) to address and build long-term resilience of countries, vulnerable populations and communities to loss and damage, including in relation to extreme and slow onset events

d. Enhanced cooperation and facilitation in relation to human mobility including migration, displacement and planned relocation

e. Enhanced cooperation and facilitation in relation to action and support, including finance, technology and capacity-building, to address loss and damage associated with the adverse effects of climate change

3 Context – Looking at SIDS Regarding Loss and Damage

COP23, the first "Island COP" with Fiji as a presidency, provides a unique opportunity for SIDS and other vulnerable developing countries to raise awareness for their climate change related challenges and to bring their concerns into the center of the negotiations. Already in February 2017, UNFCCC Executive Secretary Patricia Espinosa emphasized that Fiji's assumption of COP23 Presidency highlights the need to address the vulnerability of SIDS to climate change. This chapter puts the topic of L&D into the context of the Island COP23. In a first step, it describes the specific vulnerabilities of SIDS regarding climate change and takes stock of the different forms of L&D that particularly concern SIDS. Based on this stocktaking, it analyzes concrete urgent action areas for SIDS in addressing L&D on a political level in a second step.

3.1 Loss and Damage in SIDS – a Stocktaking

The United Nations categorize a group of 57 low lying island states in the Pacific, Atlantic, and Indian Oceans, Caribbean and South China Sea as SIDS (UN DESA 2017). They share common environmental and socioeconomic characteristics and are therefore facing similar threats when it comes to climate change. Thirteen of them are located in the Pacific, with Fiji being one of them.
SIDS have a combined population of about 65 million – slightly less than one percent of the world's population – and an average land area of about 24 thousand km (UN-OHRLLS 2013b). Cuba is the most populated island with 11.3 million inhabitants whereas Niue is the least populated one, with 1,500 inhabitants only. On average, 26 % of the land area of SIDS lie five meters or less above sea level and almost 30 % of the population is living in these low lying areas. However, there are considerable differences among islands. Whereas 100 % of the Maldives' and Tuvalu's land mass lie below five meters other SIDS such as Papua New Guinea have only a very small percentage of low lying areas.

SIDS' average CO_2 per capita emissions are 4.9 metric tons. However, on 76 % of SIDS, the per capita CO_2 emissions are below this threshold, and 86 % of SIDS does not exceed it. The highest emissions, which inflate average emissions, can be attributed to high-income countries such as Trinidad and Tobago – the largest emitter among SIDS with 37.4 mt. In the least developed countries such as Comoros, Timor-Leste or Guinea Bissau, CO_2 per capita emissions are around 0.2 mt. only (UN-OHRLLS 2013).

The IPCCs 5th Assessment Report (AR5) describes the particular affectedness of SIDS to be mostly defined by sea level rise (SLR), tropical (and extra tropical) cyclones, increasing temperatures of air and sea surface as well as changing rainfall patterns. This poses specific risks ranging from the loss of livelihoods, coastal settlements, ecosystem services and economic stability to the decline and possible loss of coral reef ecosystems. For some SIDS, their very existence could be threatened by SLR.

The following climate impacts pose a particular threat to Pacific countries:

Sea level rise (SLR)

Climate-related SLR poses a great threat to low-lying coastal areas with elevations of only a few meters (IPCC 2014). Specific threats arise through immediate and longer-term effects, towards which reef islands formed on coral atolls are especially vulnerable (Yamano et al. 2007).

Immediate effects of SLR include **saltwater intrusion of surface waters, increasingly severe storm surges** (especially at times of high tide), **submergence and increased flooding of coastal land**. Longer-term effects of SLR are **increased erosion, saltwater intrusion into groundwater** and a decline of **coastal wetlands (saltmarshes, mangroves etc.)** (Waycott et al. 2011). This will affect a range of ecosystem goods and services and will lead to a decline in support for local fisheries, because feeding habitats for many species of adult demersal fish will get lost. Additionally, their coastal protection function from erosion and storm events will decline as well. *"These physical impacts in turn have both direct and indirect socioeconomic impacts, which appear to be overwhelmingly negative"* (Nicholls and Cazenave 2010). Because most population and infrastructure is located in coastal zones, SIDS economies are at greater risk from SLR in comparison to other geographic areas. Furthermore, damage costs, when expressed as percentage of GDP, are much higher than in other parts of the world. Small Island States will therefore *"find it most difficult to raise the finances necessary to implement protection"* (Anthoff et al. 2010

Sea level rise and climate change

Two main factors contributing to SLR can be assigned to climate change: First, **water mass input from land ice melt** (land ice mass loss between 1993 and 2009 explains around 60 % of the rate of SLR) and land water reservoirs and second, **thermal expansion of sea water due to ocean warming** (accounts for about 30 % of the observed SLR in the period from 1993 to 2009). Climate-related changes in the sea level, particularly the accelerated decline of polar ice sheet mass, raise the possibility of future SLR of 1 m or more by 2100 which poses a severe threat to the part of the world population living in low-elevation coastal zones below 10 m elevation (Nicholls/Cazenave 2010).

Due to non-uniform ocean warming and salinity variations, sea level is not rising uniformly across regions. For example, the western Pacific has been particularly affected, with SLR of up to three times higher than the global mean.

The effects of SLR jeopardize human health and social stability (McMichael/Lindgren 2011). It is already endangering freshwater supplies (through salinization), food yields (through loss of arable land) and physical safety (through damages to coastal infrastructure such as roads, housing and sanitation systems), in several low-lying Small Island States. In the worst case, the effects of SLR lead to the **displacement** of people, forcing them to migrate or make planned relocations unavoidable. For instance, *"Low islands such as […] Tuvalu face the real prospect of submergence and complete abandonment during the 21st century"* (Nicholls/Cazenave 2010). Examples of this include the Torres Islands in Vanuatu, where communities have been displaced due to a combination of tectonic subsidence and SLR causing increasing inundation of low-lying settlement areas, similar to Papua New Guinea and the Solomon Islands, where a widespread inundation event in 2008 displaced some 63,000 people. This inundation was caused by a combination of factors – remotely generated swell waves and a great increase of the flooding's severity due to anomalously high regional sea levels linked with the El Niño-Southern Oscillation phenomenon (ENSO) and ongoing SLR (IPCC 2014).

Extreme weather events, including tropical cyclones/hurricanes

As described in IPCC AR5, the particular affectedness of SIDS is inter alia defined by tropical (and extra tropical) cyclones/hurricanes and other extreme weather events. Researchers conclude that in particular, the possibility of increases in frequency and intensity of extreme weather events, rather than changes in mean conditions, pose the most immediate danger to SIDS (Barnett 2011).

Inter-linkages with SLR make those events even more severe: *"Extreme events superimposed on a rising sea level baseline are the main drivers that threaten the habitability of low-lying islands as sea levels continue to rise"* (IPCC 2014).

Tropical Cyclones and Climate Change

While the relationship between climate change and tropical cyclones and the effect of climate change on the frequency and intensity of El Niño events are debated, a few observations can still be made. First, the IPCC does confirm that there have been more frequent and intense El Niño events since the 1970s and it has also been observed that El Niño years increase the frequency of tropical cyclones in islands to the east of the international dateline. Second, ENSO also has a significant influence on tropical cyclone frequency and *"there is evidence that they may become more intense in the future—meaning that such cyclones may last longer, exhibit higher wind speeds, and unleash more rainfall"* (Barnett 2011).

Extensive climate projections by the Australian Bureau of Meteorology and CSIRO for several Islands in the western tropical Pacific also confirm the link between extreme weather events and climate change. These projections show that, under the high-emissions (A2) scenario, extreme rainfall events that currently occur once every 20 years on average will likely occur four times per 20-year period, on average, by 2055 and seven times per 20-year period, on average, by 2090 (IPCC 2014). These observations corroborate with the fact that we have seen numerous particularly extreme weather events during the past couple of years – such as cyclone Winston in 2016, the strongest cyclone to make landfall in the southern hemisphere causing mass damage with 40 % of the population of Fiji being affected, including more than 60,000 displaced persons and 40,000 damaged homes. Winston caused USD 470 million worth of damages, roughly 10 % of the GDP of Fiji (Germanwatch 2016).

Climate induced or aggravated extreme weather events pose a real threat to development in the Pacific Islands: They have direct and indirect, short and long term socioeconomic impacts which are similar to those of SLR – if not worse, at least in the short term. The health risks associated with extreme weather events include drowning, injuries, certain vector, food- and water-borne diseases, increased disease transmission and health problems associated with deterioration of water quality and quantity (IPCC 2014). The destruction of infrastructure and loss of productive farmland also pose a great threat to human health and economic development, and there is some proof that severe weather-related events in a destination country can have a significant negative impact on tourism as well.

What is more, as with SLR, the high costs of damages related to extreme events such as hurricanes and droughts are also associated with the small size of island states. This is because *"[o]n small islands such events often disrupt most of the territory, especially on single-island states, and have a very large negative impact on the state's GDP, in comparison with larger and more populous states where individual events generally only affect a small proportion of the country and have a small impact on its GDP"* (IPCC 2014).

Ocean acidification

Ocean acidification defines the particular affectedness of SIDS. It is caused by the increasing atmospheric concentration of carbon dioxide and, in combination with ocean warming, is severely impacting coral reefs. Indeed, large fractions of coral ecosystems are expected to face extinction

even at 1.5 °C global warming. Acidification can result in reduced coral growth and coral skeleton weakening. Coral bleaching has already been observed in the region of the Coral Triangle – the reef community with the largest biodiversity making up a third of the world's remaining tropical reefs.

The observed and projected climate induced changes of the Coral Triangle are associated with severe impacts for its marine life and coastal population. The sensitivity of marine organisms to acidification is enhanced by temperature increases and sea-level rise. Similar to seagrass and mangrove environments, the Coral Triangle provides crucial ecosystem services to coastal communities. Its decline signifies the loss of a vital source for food production, of coastal protection from storm surges and sea-level rise as well as of a fundament of the region's tourism sector (ADB 2017). This is to be expected to have negative impacts as services like coastal protection through coral reefs and fisheries are very likely to be affected (AR5), e. g. because marine species are moving away from regions with warmer waters to those with cooler waters (UN-OHRLLS 2013a).

3.2 Dealing with Loss and Damage in SIDS

3.2.1 Effectively Addressing Slow Onset Processes

Chapter 3.1 showed that of the manifold impacts threatening SIDS, the "ocean-related" slow onset processes are of specific concern. **Sea-level-rise** poses existential threat to low-lying coastal areas on islands and atolls. One priority will therefore be to find effective measures to address SLR and other slow onset processes. The WIM addresses slow onset processes in its initial work plan (Action Area 3) as well as in the new five-year-work plan. The overall goals for this Action Area are the enhancement of data (access) and knowledge and the identification of ways forward on approaches to address slow onset processes. In this context, a database was established to map organizations working on slow onset processes.

The WIM ExCom developed a technical paper, identifying possible approaches regarding:

Sea level rise	Ocean acidification
▪ Develop a lowland drainage system	▪ Develop shellfish marine culture facilities
▪ Create vegetative buffers and set-back areas	▪ Develop mobile marine protected areas
▪ Map flood zones	▪ Develop fishing cooperatives
▪ Relocate homes/businesses currently in flood zones	▪ Develop social protection programs
▪ Provide local communities with customized information on flood risks	

Additionally, a compendium to develop recommendations to improve knowledge, understanding and capacity to address slow onset processes and their impacts is under construction by the WIM ExCom.

3.2.2 Migration and Displacement

Affectedness of Pacific Island States

The affectedness of SIDS through climate change impacts and the related implications for human mobility are manifold. As defined above, SIDS already feel the effects of climate change through SLR, increased intensity of extreme rainfall events, ocean acidification, and warming temperatures which are of particular importance of staying inhabitable.

SLR poses the threat of coastal erosion and salt-water intrusion, which will negatively affect the availability of fresh water resources, pollute arable land and make agriculture impossible. Therefore, islands could become uninhabitable and force people to leave, even before it would be basically "flooded". The increase in ocean temperature and ocean acidification, as mentioned above, threatens the maritime resources, fisheries and coastal protection even further and will lead to intense economic damage.

A very unique threat for Pacific Island Nations lies in the potential risk of full "disappearance" of states, resulting from a loss of territory (one of the defining elements of a state), which could make the affected islanders stateless. This case is without precedent and therefore legally very difficult, but with undoubted major implications for the affected island nation.

Apart from the fulfillment of fundamental needs, land is of particular cultural importance in the Pacific region. Therefore migration, displacement and relocation would pose a risk of losing their own culture, a loss that is hardly impossible to measure.

Prevention, support and preparation needed

Without any doubt, the only way to definitely prevent people from being forced to leave their homes is massive mitigation action. For numerous Pacific Islands this is a question of survival and existence. Improved disaster risk reduction and management as well as climate change adaptation measures like building seawalls, planting mangroves and other measures against coastal erosion, could help preventing displacement. Sufficient international financial support is necessary.

If migration or planned relocations (e. g. to higher lands) turn out as a last resort for affected people and communities, these processes need to be organized well in advance and with the necessary involvement of the affected populations and people. Their human rights needs to be secured during the whole process and a life in dignity ensured. Relocation of communities shall be organized in a transparent, participative and informative manner. Additionally, the island nations or the communities cannot be left alone with the financial burden, but should be able to claim international financial support (Künzel et al. 2016).

Anote Tong, former president of Kiribati, called for a policy on "migration with dignity". It understands migration in response to climate change as a long-term-strategy to avoid additional burden for the affected people. One part is the up-skilling of the population to improve options to work abroad. The central aim is to avoid forced (mass) migration and relocation; therefore the term "refugee" should be avoided.

Legal gaps for cross boarder movements and development of the issue in the international and UNFCCC policy sphere

In terms of forced migration and displacement Kälin and Schrepfer point out, that *"there is no international legal assurance that in the event of a sudden-onset disaster, or when a slow-onset*

disaster has left individuals with no other option for survival, a person will be able to seek international protection in another country, either temporarily or permanently" (Kälin/ Schrepfer 2012). This protection gap for climate-induced migrants or displaced people needs to be closed and their legal position needs to be improved.

The first important steps in the UNFCCC arena have been taken since first mentioning a need for improved understanding, cooperation and coordination in cases of *"climate change induced displacement, migration and planned relocation"* (Cancun Adaptation Framework 2010). After involving the issue in the initial work plan of the WIM as "Action Area 6", in 2015 the Paris Climate Agreement entailed a decision mandating the WIM to establish a *"task force on displacement"* that initially started its work in May 2017. The group of experts and members of the WIM ExCom whose work aims *"to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change"* shall be endorsed by the WIM ExCom and afterwards taken into consideration by the COP in 2018. Additionally, in the Paris Agreement a reference was made for the need to protect the rights of migrants when taking action on climate change.

A close coordination of the task force with pioneering processes like the Platform on Disaster Displacement (the successor of the Nansen initiative) is intended and necessary in terms of coherence and avoiding duplication. The Platform on Disaster Displacement, with Fiji being a member state, aims to implement the Nansen Protection Agenda, which has been developed over the course of three years. As the first intergovernmental process to work on protecting people displaced across borders by disasters and in the context of climate change, it mainly focuses on exploring existing political instruments in order to close the protection gap.

3.2.3 Comprehensive Climate Risk Management

Dealing with L&D requires a comprehensive approach to risk management along the entire risk continuum. It starts with preventing L&D through adequate mitigation action and minimizing L&D through adaptation measures. Aiming at strengthening the resilience of poor and vulnerable people, communities and countries, comprehensive climate risk management (CCRM) should involve a portfolio of actions aimed at improving the understanding of disaster risks, reducing and transferring risk as well as responding to and recovering from events and disasters – as opposed to a singular focus on any one action or type of action.
Important approaches for CCRM are summarized below (ExCom 2017):

- Risk reduction through structural measures (e.g. engineering techniques to achieve hazard resistance structures), non-structural measures (e.g. knowledge, practice or agreements to reduce risks and impacts), legislative measures (such as building codes and standards) or early warning systems;
- Financial risk transfer through climate risk insurances, catastrophe bonds or climate bonds;
- Risk retention through contingent credits, contingency and reserve funds, contingency budgets and social protection;
- Resilient recovery after a disaster to "build back better" to prevent or reduce future L&D;
- Transformational approaches (e.g. diversification of livelihoods and migration) to address residual L&D.

Within the UNFCCC framework, CCRM is featured in the Paris Agreement in Paragraph 8. It asks parties to enhance understanding, action and support for L&D on a cooperative and facilitative basis. One of the eight areas for cooperation and facilitation is CCRM. The topic was also included

in the ExCom's initial two-year workplan. Action Area 2 focused on "Enhancing the understanding of, and promote, comprehensive risk management approaches (assessment, reduction, transfer, retention), including social protection instruments and transformational approaches, in building long-term resilience of countries, vulnerable populations and communities". In this context, the ExCom established an expert group on the topic, developed a compendium on CCRM approaches and gathered input by international, regional, bilateral and non-governmental organizations on "climate risk analysis".

The new, five-year workplan of the ExCom again prominently features CCRM, however still focuses on enhancing knowledge and strengthening dialogue and synergies, not reflecting the WIM's third function – enhancing action and support – with regard to CCRM approaches. In the coming two years, the ExCom inter alia wants to fully set up the expert group, revise the compendium, improve the understanding on tools and instruments addressing the limits of the current CCRM approaches as well as enhance the understanding of risk transfer mechanisms.

Climate risk insurance as one instrument for comprehensive Climate Risk Management

Climate risk insurance is a facilitative mechanism, which provides support against the loss of assets, livelihoods and lives due to climate-related risks. It does so by ensuring effective and expeditious post-disaster financial support at an individual, community, national and regional level. We understand climate risk insurance as products that cover losses and damages caused by extreme weather events, which are intensified and increased in frequency by climate change. By providing timely finance that improves financial liquidity shortly after a disaster, insurance can play a role as a safety net and buffer for people and countries shortly after an event (Schaefer et al. 2017) By reducing the residual risk that could not be reduced by measures already taken, insurance can help lessen financial repercussions of volatility and, in the longer term, help people to adapt to climate change. It creates a space of certainty within which investments, planning and development activities can be undertaken (Schaefer et al. 2016).

CCRM is an everyday necessity in SIDS and CCRM like insurance are alreadywidely used in SIDS countries. Moreover, there are ambitious initiatives on how to address climate risks to be found in SIDS region. For example, the "Caribbean Catastrophe Risk Insurance Facility" (CCRIF SPC) is a regional catastrophe fund for Caribbean governments to limit the financial impact of devastating tropical cyclones, excess rainfall and earthquakes by quickly providing financial liquidity when a policy is triggered. Following hurricane Matthew, CCRIF SPC paid out over USD 29 Million to the four member countries Haiti, Barbados, Saint Lucia and St. Vincent & the Grenadines. The funds – which were received two weeks after the event and were the first form of liquidity to be received – were used to cover the salaries of key emergency personnel. Another example is the "Pacific Catastrophe Risk Assessment and Financing Initiative" (PCRAFI), a regional risk pool in the Pacific aiming to provide disaster risk management and finance solutions to help build the resilience of Island states. Countries can insure themselves against tropical cyclones, earth-quakes and tsunamis. Complementary, disaster risk management work is conducted under the Pacific Resilience Program, which aims to strengthen early warning and preparedness and improve countries' post-disaster response capacity.

While these initiatives are an important step to address the particular vulnerability of SIDS and can help to provide the necessary financial backup in case of extreme events, direct access to interna-

tional climate finance to cover other CCRM measures for SIDS is fairly limited. Multilateral climate finance delivery channels such as the Green Climate Fund thus have a particular focus on this country group.

3.2.4 Loss and Damage Finance

The implementation of the international agenda for L&D has limitations: Neither the Paris Agreement nor COP decisions contain specific commitments for Parties regarding financial support. It is noted that the Parties should enhance support for L&D-related activities. Additionally, due to the pressure of some developed country parties, paragraph 52 of the COP decision reads like an "exclusion clause": provisions defined in article 8 of the agreement do not include or are a basis for liability or compensation.

It is an additional challenge that L&D is immanently partly interwoven with other fields such as development activities, humanitarian aid, food aid, disaster risk recovery and adaptation finance. Regardless of international commitments, these fields are mainly not funded adequately and already existing needs are not yet satisfied. Adaptation finance for example, only reached 17 % (or USD 25 billion) of all public climate finance in 2014 (Buchner et al. 2015), contrasting to the commitment of dividing it fair between mitigation and adaptation measures.

Amount needed to finance loss and damage

As the amount of money necessary to deal with L&D largely depends on the extent of impacts, which in turn depends on the development of GHG emissions respectively, mitigation ambition and numbers are hard to predict.

But observing scales of damages from the last years gives an idea of the gap we are facing currently and in the future. The World Bank's study on Sovereign Climate and Disaster Risk Pooling, commissioned by the German G20 presidency, estimates that extreme events such as hurricanes, heavy rains, floods and droughts, as well as heat waves and the shifting of the seasons, are causing economic losses of more than USD 300 billion every year worldwide (World Bank Group 2017). The losses caused by climate-related and natural disasters, however, amount to as much as USD 520 billion annually, once indirect damage such as the drop in consumer spending has been taken into account.

Climate-related damage adds up to a 2 % loss in gross domestic product (GDP) over the long-term average, particularly in poverty-stricken and vulnerable high-risk countries (such as in Honduras between 1996 and 2015). In addition, in terms of estimated total loss, in 2015, the Caribbean state of Dominica lost 77 % of its GDP to climate-related damage (Kreft et al. 2016). However, compared to adaptation finance, an assessment of the scale of L&D finance needed based on a transparent and scientifically viable concept doesn't exist yet. Such an assessment needs to be undertaken.

Work of the ExCom on L&D finance

L&D financing was included in the ExCom's initial two-year workplan. Action area seven aimed at "Encourag(ing) comprehensive risk management by the diffusion of information related to financial instruments and tools that address the risks of L&D associated with the adverse effects of climate change to facilitate finance in L&D situations in accordance with the policies of each developing country and region, taking into account the necessary national efforts to establish enabling environments". During the last two years, the ExCom developed an information paper on best practices, challenges and lessons learned from existing financial instruments. One conclusion

was that a mix of financial instruments or tools would be necessary (ExCom 2016). Moreover, a technical paper on gaps in existing institutional arrangements within and outside of the UNFCCC to address L&D was prepared. Finally, the ExCom invited the Standing Committee on Finance to dedicate its 2016 forum to the theme of financial instruments that address the risks of L&D associated with the adverse effects of climate change. A summary report of the forum, happening in Manila in September 2016, was produced.

The topic of L&D finance is also integrated into the new five-year rolling workplan. However, the planned activities for the coming two years still focus on enhancing knowledge and strengthening dialogue and synergies, not reflecting the WIM's third function – enhancing action and support. The ExCom wants to produce a technical paper elaborating the sources of financial support, as provided through the Financial Mechanism, for addressing L&D and make options on how to facilitate or enhance the availability of finance for L&D better understood. Moreover, they aim at making financial instruments that address the risks of L&D being considered in the work of the SCF related to the biennial assessment. It is open, how these activities will support vulnerable country groups like the SIDS - whose direct access to international climate finance for SIDS is already fairly limited – and who need to finance CCRM measures as daily necessity.

Instruments for Loss & Damage financing

The ExCom's information paper on best practices, challenges and lessons learned from existing financial instruments suggest the following approaches to finance L&D: comprehensive risk management capacity with risk pooling and transfer, catastrophe risk insurance, contingency finance, climate-themed bonds, catastrophe bonds as well as financing approaches to make development climate resilient. However, there are also innovative tools that actors came up with to generate financial means for addressing L&D (Durand et al. 2016; Richards/Boom 2014):

- **Financial transaction tax (FTT):** Fee on transactions and trades such as bonds, stocks and currencies, could generate significant amount of money, but challenges are posed regarding implementation;
- **International airline passenger levy (IAPAL):** Fees on international airline tickets – proposed to UNFCCC in 2008 and renewed in 2016;
- **Solidarity levy:** Levy determined individually by the countries and on various things but for a common cause;
- **Bunker fuels levy:** Tax on emissions by cargo ships and airplanes – no taxes yet, but high potential;
- **Fossil fuels major carbon levy:** Tax targeting the 90 major fossil fuel extracting companies, responsible for 63 % of greenhouse gas emissions, concept developed by CJP;
- **Global carbon levy:** Global carbon pricing system (by tax or trading schemes), not implemented on the international level yet, could shift consumption away from fossil fuels as an additional advantage.

3.2.5 Dealing with Non-Economic Loss and Damage

The concept of non-economic loss and damage (NELD) captures the impacts of climate change that are hard to quantify and often go unnoticed by the outside world, such as the loss of traditional ways of living, cultural heritage and biodiversity. It also encapsulates losses whose valuation raises ethical concerns – loss of life and human health (Hirsch et al. 2017). The concept of NELD has recently emerged as a policy issue in the negotiations under the United Nations Framework

Convention on Climate Change. The goal is to implement or develop approaches that minimize the risk of NELD occurring or that effectively respond to losses (Serdeczny et al. 2016).

The ExCom of the WIM has established an expert group to develop inputs and recommendations to enhance data on and knowledge of reducing the risk of NELD, including how to factor these into the planning and elaboration of measures to address L&D associated with the adverse effects of climate change, at ExCom 3 (April 2016). The first meeting of the Expert Group on NELD took place on 15–16 September 2016 in Bonn. The Pacific region is represented in the Expert Group by the Secretariat of the Pacific Regional Environment Program.

The work of the Expert Group will contribute to enhancing data on and knowledge of NELD associated with the adverse effects of climate change and identifies ways forward for reducing the risk of and addressing NELD with a specific focus on potential impacts within regions.

In the Pacific, the loss of NELD is already a reality. When e. g. island communities are forced to relocate because sea-level rise has rendered the land uninhabitable, in this case NELD refers to the loss of land that the community identifies with. The land where the ancestors are buried is of priceless value. The loss of an identity or culture can cause stress and affect the health. The concept of NELD takes into focus such items – the material and non-material dimensions that defy quantification and/or monetization, but that still matter to people.

Two categories of NELD are discussed (Serdeczny et al. 2016):

Material loss and damage	Non-material loss and damage
▪ Life	▪ Dignity
▪ Biodiversity	▪ Knowledge
▪ Ecosystem Services	▪ Social cohesion
▪ Land	▪ Identity
▪ Home	▪ Mental health
▪ Artifacts	
▪ Physical health	

The five-year work plan of the WIM has to also consider NELD and develop further understanding on the topic but also provide concrete help for the most vulnerable communities already affected.

4 COP23 - Policy Recommendations for Loss and Damage

4.1 COP23

COP23 will take place in Bonn under presidency of Fiji, the first ever Island State that has taken over this role. More than 20,000 people from all over the world are expected to take part in the conference. One key task for COP23 will be to take forward the implementation of the 2015 Paris Agreement. Developing the implementation guidelines (Paris rulebook) as well as concrete ways to organize raising ambition will be at the center of negotiations.

With anchoring climate-induced L&D as a stand-alone topic in the Paris Agreement (Art.8), it was uplifted and gained recognition as a key challenge to be addressed. Fiji´s presidency of this year´s COP raised high expectations for a momentum to advance the UNFCCC L&D agenda and to advocate for concrete steps to be taken to address these challenges. However, these expectations were not fully met yet – the topic of L&D is not very present on the COP agenda. The hope is still, that the affectedness of the SIDS will enable the Presidency to raise awareness regarding this topic, even if it is not dominating the COP agenda.

In his speech at this year´s United Nations General Assembly Fijian Prime minister and COP23-President Frank Bainimarama pointed out: "*For the Fijian people, climate change is real. It affects our lives altogether. Whether it is the whole villages we are moving out of the way of the rising seas; the loss of our ancestral burial grounds; the salinity affecting our crops; or the constant threat of destruction to homes and infrastructure [...].*" (Climate Home 2017).

4.2 Policy Recommendations

With the overall goal being to prevent L&D, all possible measures to enhance mitigation action should be taken. During COP23, the COP agenda schedules the endorsement of the ExCom's five year workplan as well as the election of members of the ExCom. As the work of the ExCom is not fully financed yet, the COP should also see a financial commitment to allow the WIM ExCom and the UNFCCC secretariat to move forward with the implementation of the work plan's activities. However, the preceding analysis clearly showed that the new five-year workplan still focuses its activities on enhancing knowledge and strengthening dialogue and synergies, not adequately reflecting the WIM's third function – enhancing action and support. Hence, four years after the establishment of the WIM, its full operationalization, equally reflecting all three function, is still outstanding. However, climate change impacts are already being felt all across the world and vulnerable countries, like SIDS, already experience L&D and the scope will increase over the next years. The immediate necessity to deal with these impacts will not adequately be satisfied under the UNFCCC, however, there are processes and initiatives outside the UNFCCC process which can support countries in dealing with L&D.

The following chapter highlights issues which should be taken forward during COP23 and beyond (inside UNFCCC). If relevant, we will also describe processes and initiatives "outside UNFCCC" which can help to bring topics forward in the coming years.

a) Slow onset processes

Within UNFCCC

- Make sure that technical meetings and information generations included in the work plan of the WIM (strategic work stream a) lead to outcomes that address the needs of people on the ground, on the frontline of impacts by slow onset processes;
- Strengthen cross-cutting work e. g. regarding displacement in the context of slow onset processes.
- IPCC has provided information on slow onset processes, this knowledge has to be fed into the UNFCCC process especially into the WIM ExCom who is tasked to enhance the knowledge on slow onset processes (especially relevant for the to be completed compendium on slow onset processes

b) Migration, displacement and relocation

Inside UNFCCC

- The WIM ExCom´s work on human mobility including migration, displacement and planned relocation (strategic work stream d), including the task force on displacement shall focus on, inter alia:
    - Constructive work on closing the (legal) protection gap for people displaced by the impacts of climate change; e. g. through compiling relevant best practices on a bilateral level to disseminate and potential for up-scaling (such as through the Platform on Disaster Displacement). Further, closely collaborate with relevant institutions and ongoing intergovernmental processes (e. g. Platform on Disaster Displacement, Global Compacts on safe and orderly Migration and Refugees, Sendai Framework) related to migration and displacement to increase attention to climate change, its impacts and underlying causes; especially strengthening the linkages into the field of migration policy;
    - For relocation as a "last resort" option, human rights based guidelines are needed to secure the process focuses on the needs of affected communities (should be transparent due to prior and constant information, participatory, gender-responsive, etc.);
    - Identify funding possibilities for activities aiming to address climate induced human mobility;
    - Ensure that the recommendations of the Task Force will not only be disseminated but implemented by the WIM.

Outside UNFCCC

- **Platform on Disaster Displacement:** The successor of the Nansen Initiative, that published its Protection Agenda for people displaced by natural disasters in the context of climate change, is a key process to address the protection gap.
- **Global Compacts for safe, orderly and regular migration and on Refugees:** The impact of Climate change on migration patterns needs to be involved in the Global Compacts as drivers of movements; consultations have already taken place, but the link needs to be secured in the final Compacts. It is crucial to anchor the issue into migration governance arrangements

c) Climate risk management and transfer

Inside UNFCCC

- Endorsement of the clearinghouse on risk transfer with a strong focus on
  - Identifying concrete ways to build synergies between the WIM clearinghouse on risk transfer, the G7-InsuResilience Initiative, the G20 Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions and the "Centre for Global Disaster Protection";
  - Securing the participation of all relevant actors (e. g. beneficiaries, governments, private sector, civil society, development cooperation partners) in shaping and implementing insurance products. Interventions that support the implementation of reliable and needs-based insurance solutions which are affordable to and accessible for the target group and which are embedded into comprehensive resilience building efforts

Outside UNFCCC

- **G7 "InsuResilience Initiative":** In 2015 the G7 started the InsuResilience Initiative, an initiative on climate risk insurance. The specific goal of InsuResilience is to increase the number of people in low- and middle-income countries with direct insurance coverage against the negative impact of climate change induced events by 400 million people over the next five years (2015-2020). Compared to today, this represents a doubling of covered people and a significant improvement in the quality and sustainability of climate risk management. This initiative has the potential to boost momentum for climate risk insurance approaches and enhance climate resilient development. However, for it to do so, it needs to make sure that the initiative's interventions follow a clear pro-poor approach, reach their target group and sustainably improve their situation. A principles- and human rights-based-approach to climate risk insurance can help achieve this, e.g. by using the MCII Pro-Poor Principles as guidance.
- **G20 "Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions":** Since 2017, the management of climate risk is also included on the G20 agenda. To strengthen adaptation efforts and resilience against climate risks, the Group of 20 announced a Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions during their summit in June. The partnership shall build on InsuResilience, yet its thematic focus is planned to be broader and also include additional financial strategies for risk management. The G20 action on climate risk insurance provides a good start in the long term; however, G20 members must also assist countries in being able to actively use climate insurance solutions. This should include, inter alia, providing financial support to most affected countries in their premium payments, and investing in transparent national structures and plans that ensure the funds are disbursed effectively and reach the poor and affected people

d) Loss and damage finance

Within UNFCCC

- Decision that UNFCCC Financial Mechanism shall encompass climate finance for L&D;
- Confirmation of the WIM's mandate to mobilize finance to address L&D based on 2/CP 19 including a mandate for the ExCom to develop financing options and sources to address L&D (including through and in cooperation with the GCF).

Outside UNFCCC

- Lawsuits: To hold large GHG emitters accountable for their contribution to climate change and its impacts, several lawsuits (e. g. Peruvian Saul Luciano Lliuya suing German energy company RWE) aim to claim financing in order to prevent L&D. These claims raise the issue of responsibility of large GHG emitters in terms of liability for L&D. (Frank et al. 2017).

e) Non-economic loss and damage

Inside UNFCCC

- Develop further understanding on the topic;
- Ensure that support for affected populations and communities will be provided;
- Include participatory approaches to address NELs, like consultations on the regional level;
- Needs of the affected communities shall not only be identified but addressed concretely;
- Ensure that recommendations to be developed by the NELs Expert Group will be taken up and implemented.

Additional activities during COP23 to increase attention and further anchoring L&D in the negotiations:

- Include L&D in the Climate Action Agenda;
- Include L&D in implementation guidelines where appropriate;
- Request developed country Parties to also report on finance for L&D under "transparency of support" ;
- Include WIM outcomes as inputs for the global stocktake;
- Constantly include L&D on the agenda of the Subsidiary Bodies;
- Foster activities to implement the WIM's mandate to mobilize finance to address L&D based on 2/CP 19, including assessing the scale of finance necessary for addressing L&D and developing concrete options for L&D financing (including the institutional architecture) shall be initiated.

5 List of Acronyms

ENSO	El Niño-Southern Oscillation
ExCom	Executive Committee of the Warsaw International Mechanism on Loss and Damage
IPCC	Intergovernmental Panel on Climate Change
L&D	Loss and Damage
NELD	Non Economic Loss and Damage
SIDS	Small Island Developing States
SLR	Sea level rise
UNFCCC	United Nations Framework Convention on Climate Change
WIM	Warsaw International Mechanism on Loss and Damage

6 Bibliography

Anthoff, D., Nicholls, R.J., and Tol, R.S.J. (2010): The economic impact of substantial sea-level rise. Mitigation and Adaptation Strategies for Global Change, 15(4) 321–335.

Asian Development Bank (ADB) (2017): A region at risk. The human dimensions of climate change in Asia and the Pacific, Manila.

Barnett, J. (2011): Dangerous climate change in the Pacific Islands: food production and food security. Regional Environmental Change, 11(1) 229–237.

Buchner, B.K., Trabacchi, C.M.F., Abramskiehn, D., et al. (2015): Global Landscape of Climate Finance 2015. Report by the Climate Policy Initiative (CPI), Venice.

CCRIF SPC (2016): CCRIF Completes Payments totalling US$29 million to Member Governments Affected by Hurricane Matthew. Available at: http://www.ccrif.org/news/ccrif-completes-payments-totalling-us29-million-member-governments-affected-hurricane-matthew.

Climate Home (2017): Fiji PM Frank Bainimarama's speech to the UNGA – in full. Available at: http://www.climatechangenews.com/2017/09/21/fiji-pm-frank-bainimaramas-speech-to-the-unga-in-full/.

Durand, A., Hoffmeister, V., Weikmans, R., et al. (2016): Financing options for loss and damage: a review and roadmap, Discussion Paper 21/2016, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn.

Frank, W., Bals, C., Grimm, J. (2017): First climate lawsuit against Energy Company before German courts, Factsheet Germanwatch, Bonn.

Germanwatch Klima Kompakt (2016): Gravierende Folgen durch Erwärmung: Februar treibt bisherigen globalen Temperaturrekord in atemberaubende Höhen, Nr.89/ 04.2016., 3-4.

Hirsch, T., Minninger, S., Wirsching, S. (2017): Non-Economic Loss And Damage - With Case Examples from Tanzania, Ethiopia, El Salvador and Bangladesh, Bread for the World and Development, Berlin.

Hirsch, T., Kreft, S., Künzel, V. et al. (2015): Climate-Related Loss and Damage: Finding a Just Solution to the Political Challenges. Berlin: Brot für die Welt/Germanwatch/Act Alliance.

IPCC (2014): Climate Change 2014: Impacts, adaptation, and vulnerability. Part A: Global and sectoral aspects. Contribution of working group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Field, CB, Barros VR, Dokken DJ et al. (Hrsg.) Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Kälin, W., Schrepfer, N. (2012): Protecting People Crossing Borders in the Context of Climate Change Normative Gaps and Possible Approaches; University of Bern, Switzerland, Legal and Protection Policy Research Series, Bern.

Kreft, S. Eckstein, D., Melchior, I. (2016): Global Climate Risk Index 2017 - Who suffers most from extreme weather events? Weather-related loss events in 2015 and 1996 to 2015; Briefing Paper Germanwatch, Bonn.

Künzel, V., Wirsching, S. (2016): Migration, Vertreibung & Flucht Infolge des Klimawandels. Handlungsbedarf für die Bundesregierung. Klima Allianz Deutschland, VENRO, Berlin.

McMichael, A.J., Lindgren, E. (2011): Climate change: present and future risks to health, and necessary responses. Journal of Internal Medicine, 270(5) 401-413.

Mechler, R., Schinko, T. (2016): Climate risks beyond adaptation: Balancing principles of distributional and compensatory justice for identifying the space for Loss and Damage. Presentation at the Ecological economics in sustainability and degrowth transformations conference in Budapest. Available at:
https://www.wu.ac.at/fileadmin/wu/d/i/ecolecon/Research_Seminars/Mechler_ESEE_210617_final.pdf.

NASA Earth Observatory (2016): Tropical Cyclone Winston Slams Fiji. Available at:
https://www.earthobservatory.nasa.gov/NaturalHazards/view.php?id=87562.

Newswire (2016): $2.98 billion damage caused by TC Winston. Available at:
https://www.newswire.com.fj/national/tc-winston/2-98-billion-damage-caused-by-tc-winston/.

Nicholls, R.J., Cazenave, A. (2010): Sea-level rise and its impact on coastal zones. Science, 328(5985) 1517-1520.

Richards, J.-A., Boom, K. (2014): Carbon Majors Funding Loss and Damage; Discussion Paper Volume 39 of the Publication Series Ecology, Heinrich Böll Foundation, Berlin.

Schaefer, L., Kreft, S., Warner, K. (2017): Exploring and managing adaptation frontiers with climate risk insurance. In: Mechler R, Bouwer L, Linnerooth-Bayer J et al. (Hrsg.) (2017) Loss and Damage from Climate Change. Concepts, Principles and Policy Options, Springer, forthcoming.

Schaefer, L, Waters, E, Kreft, S, et al. (2016) Making climate risk insurance work for the most vulnerable. Policy Report No. 1. United Nations University Institute of Environment and Human Security (UNU-EHS). Available at: http//www.climate-insurance.org/fileadmin/mcii/documents/MCII_PolicyReport2016_Making_CRI_Work_for_the_Most_Vulnerable_7GuidingPrinciples.pdf. Accessed 20 March 2017.

Serdeczny, O., Waters, E., Chan, S. (2016): Non-Economic Loss and Damage in the Context of Climate Change - Understanding the Challenges. Discussion Paper 3/2016, German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE), Bonn.

UNFCCC Decision 2/CP. 19: Warsaw international mechanism for loss and damage associated with climate change impacts. FCCC/CP/2013/10/Add.1. Available at:
http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf.

UNFCCC Cancun adaptation framework 2010 (FCCC/CP/2010/7/Add.1). Available at:
http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=4.

UN-OHRLLS (2013a): Small Island Developing States in numbers, New York 2013; available at:
http://unohrlls.org/custom-content/uploads/2014/04/SIDS_IN_NUMBERS_121813_FA_WEB.pdf.

UN-OHRLLS (2013b): Small Island Developing States Factsheet, New York. Available at:
http://unohrlls.org/custom-content/uploads/2013/09/Small-Island-Developing-States-Factsheet-2013-.pdf.

UN-DESA (2017): Small Island Developing States. Available at:
https://sustainabledevelopment.un.org/topics/sids/list.

Verheyen, R. (2012): Tackling Loss & Damage – A new role for the climate regime? Available at:
http://www.lossanddamage.net/download/6877.pdf.

Warner, K., van der Geest, K. (2013): Loss and damage from climate change: local–level evidence from nine vulnerable countries. In: International Journal of Global Warming, 5 (4) 367-386.

Executive Committee of the Warsaw International Mechanism for Loss and Damage (2017): Compendium on comprehensive risk management approaches. Available at: http://unfccc.int/files/adaptation/workstreams/loss_and_damage/application/pdf/compendium_march_2017.pdf.

Executive Committee of the Warsaw International Mechanism for Loss and Damage (2016): Best practices, challenges and lessons learned from existing financial instruments at all levels that address the risk of loss and damage associated with the adverse effects of climate change. Available at: http://unfccc.int/files/adaptation/groups_committees/loss_and_damage_executive_committee/application/pdf/aa7_d_information_paper.pdf.

Waycott, M., McKenzie, L.J., Mellors, J.E., et al. (2011): Vulnerability of mangroves, seagrasses and intertidal flats in the tropical Pacific to climate change. In: Vulnerability of Tropical Pacific Fisheries and Aquaculture to Climate Change. In:Bell, D., J.E. Johnson, and J.A. Hobday (Hrsg.). Secretariat of the Pacific Community, Noumea, New Caledonia, 297-368.

World Bank Group (2017): Sovereign climate and disaster risk pooling. World Bank Technical Contribution to the G20. Available at: http://www.bmz.de/de/zentrales_downloadarchiv/themen_und_schwerpunkte/klimaschutz/DFRI_G20.pdf.

Yamano, H., Kayanne, H., Yamaguchi, T., et al. (2007): Atoll island vulnerability to flooding and inundation revealed by historical reconstruction: Fongafale Islet, Funafuti Atoll, Tuvalu. Global and Planetary Change, 57(3-4) 407-416.

Germanwatch

Following the motto “Observing, Analysing, Acting”, Germanwatch has been actively promoting global equity and the preservation of livelihoods since 1991. In doing so, we focus on the politics and economics of the North and their worldwide consequences. The situation of marginalised people in the South is the starting point of our work. Together with our members and supporters as well as with other actors in civil society, we intend to represent a strong lobby for sustainable development. We attempt to approach our goals by advocating for the prevention of dangerous climate change, for food security, and compliance of companies with human rights.

Germanwatch is funded by membership fees, donations, grants from “Stiftung Zukunftsfähigkeit” (Foundation for Sustainability) as well as grants from various other public and private donors.

You can also help achieve the goals of Germanwatch by becoming a member or by donating to:

Bank für Sozialwirtschaft AG,
BIC/Swift: BFSWDE33BER
IBAN: DE33 1002 0500 0003 2123 00

For further information, please contact one of our offices

Germanwatch – Bonn Office
Kaiserstr. 201
D-53113 Bonn, Germany
Phone: +49 (0)228 / 60492-0
Fax: +49 (0)228 / 60492-19

Germanwatch – Berlin Office
Stresemannstr. 72
D-10963 Berlin, Germany
Phone: +49 (0)30 / 2888 356-0
Fax: +49 (0)30 / 2888 356 -1

E-mail: info@germanwatch.org

or visit our website:

www.germanwatch.org

GERMANWATCH

Observing. Analysing. Acting.
For Global Equity and the Preservation of Livelihoods.