

**LOSS AND DAMAGE GAP ANALYSIS FROM CLIMATE CHANGE
SAMOA COUNTRY REPORT
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List of Acronyms

ACP	African, Caribbean and Pacific Group of States
ADB	Asia Development Bank
AOSIS	Alliance of Small Island States
CCCPIR	Coping with Climate Change in the Pacific Island Region
COSPPac	Climate, Oceans Support Programme for the Pacific (COSPPac)
COP	Conference of the Parties
DALA	Damage and loss assessment
EU	European Union
ENSO	El Nino-Southern Oscillation
FINPAC	Finnish-Pacific Reducing Vulnerability in the Pacific Island Communities Project
GEF	Global Environmental Fund
iCLIM	Integrated Climate Information Management (iCLIM)
ICU	Island Climate Update
ICT	Information and communications technology
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
LDC	Least Developed Countries
MNRE	Ministry of Natural Resource and Environment
PACCSAP	Pacific Australian Adaptation to Climate Change Science and Adaptation Planning
PDNA	Post disaster needs assessment
PIC	Pacific Island Countries
REDD+	Reducing emissions from deforestation and forest degradation in developing countries
SIDS	Small Island Developing States
SUNGO	Samoa umbrella organisation for non-government Inc
SPC	Secretariat of the Pacific Community
UN	United Nations
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme
USAID	United States of America AID
USCCSP	United States Climate Change Science Programme
WASH	Water, sanitation and hygiene

1. INTRODUCTION

1.1 Background

Recent developments have seen the topic of climate change related loss and damage move into the mainstream of international climate change negotiations. This was evidenced with the adoption of the Warsaw International Mechanism on Loss and Damage at COP 19 in 2013 and then at the most recent COP in Lima during which developed countries agreed to a proposed inclusion of the topic in the official post-summit statement. To date however, the discussion on loss and damage has focused mainly on the concept as a principle –i.e. that polluting developed countries should compensate small island countries for the loss and damage incurred as a result of man-made climate change. This has been part of the discussion about longer-term scenarios in which the boundaries of adaptation options are exceeded, i.e. adaptation is no longer capable of withstanding the (progressively severe) impacts of climate change. However while the principle of loss and damage is now firmly entrenched in the international climate change agenda, the subject is characterised by a shortage of empirical information, and remains theoretical in nature. Recognising the pressing need to inform the debate with solid on-the-ground research-based evidence, the Secretariat of the Pacific Environment Programme (SPREP) sought an expert on loss and damage to conduct a gap analysis on loss and damage issues in three Pacific Island Countries (PICs), as a first step towards establishing a coherent on-going programme on this issue in the region.

SPREP is an inter-governmental technical organisation mandated by the Pacific Islands Forum Leaders to service the environmental programming needs of PICs. This includes the issue of climate change and SPREP is the lead regional organisation in this field. SPREP plays a key role in supporting PICs in the UNFCCC negotiations process and provides active support to a Regional Loss and Damage Working Group established under the auspices of the Pacific Climate Change Round Table. The loss and damage gap analysis will align with and complement the work plan of the Regional Loss and Damage Working Group. It will also assist in providing empirical evidence to link the national to the regional and international levels.

The loss and damage gap analysis is funded by a grant from GIZ through its Global Programme on Risk Assessment and Management for Adaptation to Climate Change. It forms part of GIZ's preparatory activities geared towards the development of a four-year programme of support to the Pacific Island Region commencing in 2015. Currently GIZ's support to the region is channelled through the Secretariat of the Pacific Community (SPC) through a programme entitled: Coping with Climate Change in the Pacific Island Region (CCCP-IR). The Geoscience Division of SPC has actively been working on assessing the economic impact of natural disasters in the region and has built up a significant repository of knowledge. The loss and damage

gap analysis has therefore sought to involve SPC and CCCPIR as active partners in the study.

1.2 Objective of the Gap Analysis

The main objective of the assignment is to conduct a gap analysis study on loss and damage issues in a cross-section of PICs so as to inform the development of a programme of activities on loss and damage at the regional level, as well as to feed into international negotiations on climate change.

Countries included in the study are Samoa (volcanic island with Polynesian ethnicity), Vanuatu (dispersed chain of volcanic islands with Melanesian ethnicity) and Kiribati (dispersed atoll islands with Micronesian ethnicity). The gap analysis focuses on identifying the main issues with respect to loss and damage in these countries with a view to establishing information, knowledge and capacity needs, including perceptions at community levels on climate change and loss and damage.

The national studies include a focus on key sectors in the context of Small Island Developing States (SIDS), such as public and private infrastructure, environment, fisheries, agriculture, tourism, as well as social and other private sectors. Of particular interest to SIDS are the issues of vulnerable groups and their dependence on ecosystems, the nature and extent of non-economic losses, patterns of migration, displacement, and human mobility.

1.3 Methodology

Methods to complete the gap analysis involved a combination of literature review, document analysis, in-country stakeholder consultations, and expert group discussions. National counterparts were identified to assist the expert consultant with data collection, liaising with national stakeholders and facilitating country visits. Following is a more detailed description of the different methods used:

- a. Review of leading literature on loss and damage and an overview of the status of existing knowledge with emphasis on empirical studies;
- b. Document analysis of relevant government policies, reviews, reports, etc. in the sectors concerned in the three countries;
- c. In-country consultations with:
 - Government stakeholders from relevant sectors, including climate change, disaster management, economic and development planning, agriculture, forestry and fisheries, tourism, trade and industry, social development, environment and foreign affairs, women, youth and other vulnerable groups
 - Private sector stakeholders with an economic interest in loss and damage
 - Development partners engaged in loss and damage discussions

- Men and women from communities that are already being impacted by climate change

1.4 Framework for analysing the gaps

Three simple steps were used to analyse the data collected. The first step involved identifying the current status of events. The second step involved identifying needs to bridge the gaps and the third step involved formulating recommendations in the form of proposed future actions. This third step was guided directly by the needs identified in the second step.

More specifically, the first step involved an assessment of the current knowledge of loss and damage; identification of loss and damage issues and impacts by sector; current projects and programmes on loss and damage; current plans, policies and legislation on loss and damage; current tools, methodologies and guidelines on loss and damage and an assessment of non-economic losses and migration, displacement and population mobility. The second step, involved identifying country-level needs, describing those needs based on the assessments carried out in the first step. The third step involved formulating country-specific recommendations to address the sector-specific needs identified in the second step of the analysis.

1.5 Challenges

Time constraints were the major challenge with the project in terms of being able to fulfil all of its requirements. The terms of the project imposed a very tight timeframe of 60 days for the completion of three gap analyses in three culturally, geographically and economically distinct PICs. These gap analyses included conducting data collection and in country consultations over a vast region which presents particular travel challenges. While some of this challenge was mitigated by engaging in-country specialists, the breadth of sectorial coverage requested was nevertheless a challenge for one / two in-country specialists to cover. Project design on follow on work should bear in mind these specific challenges.

1.6 Content of the report

This report is divided into 7 parts. Part 1 provides a background to the gap analysis and the project objective, the methodology used and some of the challenges involved. Part 2 focuses on developing a common understanding of loss and damage. This is done by providing a brief background to loss and damage under the UNFCCC, proposing a working definition of loss and damage and outlining the scope of loss and damage, as well as setting out the current treatment of loss and damage under the UNFCCC. Part 3 looks at the current state of knowledge of loss and

damage, in-country loss and damage issues identified by sector including impacts experienced, an assessment of the current projects, programmes, plans, policies, legislation, tools, guidelines and methodologies available on loss and damage and an assessment of non-economic losses, migration, displacement and population mobility. Part 4 identifies and describes the needs based on the gaps and/or information lacking from the assessments in part 3. Part 5 provides key national recommendations towards a national programme on loss and damage, part 6 provides a concept paper on regional actions on loss and damage drawn from the three country recommendations and finally part 7 provides a list of references consulted for this report.

2. COMMON UNDERSTANDING OF LOSS AND DAMAGE

2.1 Background to Loss and Damage under the UNFCCC

In 1991, Vanuatu as the Chair of the Alliance of Small Island States (AOSIS) proposed as part of the UN Framework Convention on Climate Change an insurance scheme to address the consequences of sea level rise. Although this was not taken up entirely under the 1992 agreement, reference to insurance is made in Article 4 (8) of the Convention. It states that in the “implementation of the commitments in this Article, the Parties shall give full consideration to what actions are necessary under the Convention, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of developing country Parties arising from the adverse effects of climate change and/or the impact of the implementation of response measures, especially on” small island countries and other countries also identified under Art 4 (8).

In the run up to the global climate change conference in Copenhagen, AOSIS included in its proposed legally binding Protocol, a section that establishes an international mechanism to comprehensively address the long standing needs of small island developing states. The AOSIS loss and damage proposal can be categorised into the following key areas:

- Risk assessment;
- Risk management, including through risk sharing and risk transfer;
- Approaches to address slow onset events; and
- Approaches to address recovery, rehabilitation and permanent losses.

Although Parties at the Copenhagen meeting did not agree on a binding outcome, the same proposal with a few amendments formed AOSIS’s position calling for the establishment of an international mechanism to address loss and damage from the adverse effects of climate change. At the 19th session of the Conference of the Parties in Warsaw, Parties to the UNFCCC established the Warsaw International Mechanism on Loss and Damage under Decision 2/CP.19.

2.2 Working definition of Loss and Damage

The growing importance of loss and damage for the international community has been highlighted by the IPCC (2014). However, in the context of the UNFCCC, there is yet to be an agreed definition of loss and damage. Nevertheless, Warner et al (2012) have proposed a working definition of loss and damage: “the negative effects of climate variability and climate change that people have not been able to cope with or adapt to”.

The scope of loss and damage has been recognized to result from a spectrum of climate change impacts, from extreme weather events to slow onset processes

(UNFCCC, 2012; Warner et al., 2012). Loss and damage emanating from climate change impacts can be economic in nature, such as loss of income or damage to property and assets, and non-economic, including cultural, social and psychological impacts of climate change, as well as the loss of biodiversity and ecosystem services, amongst others (Morrissey and Oliver-Smith, 2013).

Verheyen (2012) breaks loss and damage into three categories: i) avoided, ii) unavaoided and iii) unavoidable. Avoided loss and damage is used to characterize the impacts of climate change that are avoided by mitigation and adaptation. Unavaoided loss and damage could have been avoided, but has not been because of inadequate mitigation and adaptation efforts. Lastly, there is some loss and damage that is unavoidable no matter how ambitious mitigation and adaptation efforts are. Those impacts that are either unavaoided or unavoidable will need to be addressed by a range of approaches beyond mitigation and adaptation, such as risk transfer tools and insurance and risk retention measures including social safety nets and contingency funds. Ultimately, the more successful mitigation and adaptation efforts are, the less loss and damage will be incurred.

2.3 Loss and Damage extreme and slow onset events

Siegele (2012) points out that novel climate conditions and unprecedented climate change impacts may occur on a variety of temporal and spatial scales. A distinction is sometimes made between “rapid onset” and “slow onset” events. A rapid onset event may be a single, discrete event that occurs in a matter of days or even hours, whereas slow onset events evolve gradually from incremental changes occurring over many years or from an increased frequency or intensity of recurring events.

A technical paper on slow onset events produced by the UNFCCC in 2012, further highlights that there are some important relationships between rapid onset and slow onset events. Drought, for example, is an extreme weather event, but it is also closely linked to slow onset, incremental climatic change. This has also been highlighted by the IPCC (2007). In addition, the phenomenon of an ecological threshold or tipping point has been identified which is “the point at which there is an abrupt change in an ecosystem quality, property, or phenomenon, or where small changes in one or more external conditions produce large and persistent responses in an ecosystem. Ecological thresholds occur when external factors, positive feedbacks, or nonlinear instabilities in a system cause changes to propagate in a domino-like fashion that is potentially irreversible. Once an ecological threshold is crossed, the ecosystem in question is not likely to return to its previous state” (USCCSP, 2009, p.1). The IPCC further observed that the “limits to resilience are faced when thresholds or tipping points associated with social and/or natural systems are exceeded, posing severe challenges for adaptation” (IPCC, 2012, p.20).

2.4 Loss and Damage under the UNFCCC's Cancun Adaptation Framework

In the context of defining loss and damage, the Cancun Adaptation Framework established under UNFCCC decision 1/CP.16, identifies slow onset events to include “sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification”. The technical paper on slow onset events produced by the UNFCCC (2012) provides a detailed outline of some of the impacts of slow onset events listed under the Cancun Adaptation Framework.

3. CURRENT STATE: LOSS AND DAMAGE ISSUES/ SECTOR SPECIFIC

The sectors, departments, ministries and organizations involved in the Samoa country consultation include senior management and representatives from the: Climate Resilient Unit of the Ministry of Finance; Ministry of Natural Resources and Environment namely the Water Resource Division, Disaster Management and Meteorological Divisions; Ministry of Land Transport Authority; Political and Protocol Unit of the Ministry of Foreign Affairs and Trade; Samoa Tourism Authority; Samoa Umbrella for Non Government Organization Inc (SUNGO); Red Cross; and Conservation International Samoa.

3.1 Knowledge of Loss and Damage

Knowledge and understanding of loss and damage in the context of climate change in Samoa varies and range from low to medium and high. While it is better understood in some sectors it is not the case in other sectors and organizations. Those that have knowledge and understanding of loss and damage are officials that attend the UNFCCC negotiations. More elaboration of this will be provided in the following sector specific sections.

Currently there is better knowledge and understanding of loss and damage in relation to natural disasters such as cyclones, earthquakes and tsunamis. The understanding of loss and damage in this context relates to economic losses and damages that result from impacts of cyclones and tsunami. Non-economic losses were part of the post disaster needs assessment (PDNA) of cyclone Evans for the first time. However, the PDNA did not refer to non-economic losses but it listed cultural heritage, emotional, social and psychological, spiritual impacts, emotional attachment to land and relocation. No clear indications were provided on how they will be addressed. The issue of non-economic losses is therefore still very new to a lot of sectors and organisations.

Little is known and understood about slow onset events and impacts and the scope of what loss and damage is. Sea level rise, temperature rise, ocean acidification and drought for example, are known to some sectors to have climate related impacts but are not known as far as they are regarded as loss and damage slow onset events. The current experience with loss and damage in Samoa are mostly with extreme events such as natural disaster so there is a need to build sectors and communities understanding on the slow onset events and impacts.

In the context of Samoa, the need for Samoa to define what loss and damage is in its national context was highlighted as key. With the growing importance of loss and damage to Samoa, it reinforces the need for robust scientific information to inform decision-making at the national level. Baseline information on loss and damage especially on slow onset events remain very limited and inadequate due to limited

knowledge and understanding of the issue, limited to unavailability of up-to-date monitoring tools and equipment, limited scientific and technical expertise, limited capacity and capability in sectors, and limited financial means.

Some attribute loss and damage from climate change to global emissions of other larger developed and developing countries and while small and vulnerable countries such as Samoa and small islands contribute the least to the problem of climate change, they remain most vulnerable to the impacts. Loss and damage must therefore be understood and framed in this understanding. Attribution therefore plays an important part in the loss and damage dialogue, particularly on what can be attributed to climate change and what is not, and the level of financial, technology and capacity building support that a country like Samoa needs to be able to address loss and damage.

3.2 Loss and Damage issues, events and impacts

Those involved in managing key sectors in Samoa identified loss and damage events, whether extreme or slow onset events, of importance for their specific sectors. Those loss and damage events were identified in relation to what the sector management views as important and based on impacts in sectors from events that are currently being experienced and reported at the national level or impacts from events that are observed in relation to global research, literature, observation and monitoring.

Water Resource Division/Ministry of Natural Resource and Environment

The Water Resource Division is part of the Water Sector co-ordination unit under the Ministry of Natural Resource and Environment. The division deals mainly with Water Catchment Management, Flood Monitoring, Hydrology and Hydrogeology work. The division also assists in conducting impact assessments especially post disaster assessments and is currently working closely with other regional initiatives such as the Pacific Catastrophe Risk Assessment Financing Initiative (PCRAFI) by collecting and supplying of information.

Loss and Damage, particularly economic losses and damages as it relate to the impacts of natural disasters are well known to the Water sector. A lot of work focuses on minimising losses and damages from natural disasters. But as far as loss and damage from climate change and the impacts of the slow onset events, they are fairly new and not well understood.

Loss and damage was introduced to the Ministry of Natural Resource and Environment by those directly involved with the climate change negotiations under the UNFCCC and the Department as a whole is currently working on building their knowledge and understand of the issue. Some of the general understanding of loss

and damage is in relation to the impacts of climate change caused by the greenhouse gas emission of other larger developed and developing countries so there is also the understanding that there should also be financial means available for small countries that emit the least but are experiencing devastating impacts of climate change.

The main loss and damage events the sector faces include cyclones, tsunamis, drought, sea level rise, and salinity. The impacts of cyclones and tsunamis on the water sector include water contamination and inundation due to sea level rise and storm surges, damages to water reservoirs and water storages as a result of cyclones and tsunamis. Water salinity from rising sea level in some areas is a growing problem in Samoa and has been identified as one priority area for future work.

Disaster Management Division/Ministry of Natural Resource and Environment

Loss and damage is much clearer in the context of natural disasters but loss and damage in the context of climate change is not well understood and discussed. The current knowledge and understanding of loss and damage from natural disaster is a result of experiences from natural disasters such as cyclone, tsunamis, earthquake and flooding.

Samoa is already experiencing impacts from slow onset events such as sea level rise, temperature rise and ocean acidification but the knowledge and understanding of what slow onset events are and their impacts remains very limited and in some sectors loss and damage is a very new concept. Understanding loss and damage includes defining what loss and damage is to Samoa, and understanding the scope of loss and damage from climate change and the link to natural disasters or extreme events.

GEF Division/Ministry of Natural Resource and Environment

GEF (Global Environmental Fund) division is under the Ministry of Natural Resource and Environment. Within the Ministry of Natural Resources and Environment, there is a general understanding of the concept of loss and damage and its relevance to Samoa. Currently, there are a number of projects in Samoa on disaster risk management that aims at improving the resilience of livelihoods and communities in Samoa. The projects however, have not explicitly addressed loss and damage. Loss and damage therefore remains as a concept that will be phased and integrated into future projects and activities. More discussion of those projects is provided in the following section on current projects and programmes.

Some of the key loss and damage events that are important to Samoa include ocean acidification, sea level rise, temperature rise and drought. Impacts that are currently being experienced include loss of livelihoods, damages to infrastructure due to

extreme events such as cyclones and coastal erosion due to sea level rise, flooding, cyclones and heavy rainfall.

Climate Resilient Unit /Ministry of Finance

The Climate Resilient Unit is part of the Ministry of Finance. The experience with loss and damage are mostly with natural disasters and very little on climate change, particularly on baseline information, knowledge and understanding of the slow onset events and impacts. The need for baseline information on slow onset events and impacts will enable Samoa to provide information to its bilateral and multilateral partners.

The current impacts that Samoa faces are impacts from cyclones, flooding, tsunami and coastal erosion due to sea level rise. Coastal communities have experienced the impacts of sea level rise through coastal erosion. Communities have reported vegetation that were planted inland a few years ago that are eroded by the sea. The impacts of salinity of ground water from sea level rise have also been observed in Samoa. These impacts have financial implications for the Finance Ministry and the Government of Samoa.

Tourism Authority

Loss and damage is an important issue to the tourism sector. The impacts of natural disasters such as the recent cyclone Evan of 2012 and the tsunami of 2009 revealed the extent of economic impacts, losses and damages faced by the sector. Cyclone Evan of 2012 revealed an estimated loss in revenue over the period required for reconstruct to an estimated value of SAT 21.7 million and the estimated loss to the sector due to the tsunami in 2009 was USD 123 millions.

The loss and damage extreme events and slow onset events that are important to the sector include: cyclones, flooding, tsunami and sea level rise. The losses and damages experienced by the sector include: damages to infrastructure such as roads and hotel facilities; loss of income for employers and employees; close of business; and loss of revenue for the tourism sector due to cyclones, flooding, tsunami, sea level rise and coastal erosion. Coastal erosion is a problem and there are reported cases of very severe erosion. Beach fales such as Manase beach fales in Savaii has loss a lot due to heavy erosion. Tafatafa village beach fales in Upolu is also suffering very severe coastal erosion due to sea level rise.

Other issues that are not directly loss and damage but are important to the sector include crown of thorn and sand mining. Crown of thorn is a growing problem that requires a lot of attention and so is the issue of sand mining. In addition to these issues is the lack of information pre-disaster. Tourist operators often have good post-disaster information but not the pre-disaster information. The pre-disaster

information is usually very important in insurance claims in which the operators often struggle to provide after a disaster.

Ministry of Land Transport Authority

The Ministry of Land Transport Authority deals with damages to land, sea and air. In relation to land, the sector is responsible for reserve land for road works, water works, phone lines and power. The main loss and damage issues in the transport sector are damages to roads and bridges, sea and air, and the financial losses associated with those damages. Most of the damages accounted for by the Ministry of Land Transport Authority are due to natural disasters such as cyclones, flooding and tsunami. Climate change was noted as an important driver as climate change exacerbates the natural disasters.

Other issues that were highlighted as important, although not directly link to the sector but for Samoa as a whole, include: impacts of sea level rise and non-economic losses that are not recoverable such as environmental losses and damages, losses and damages to cultural sites and loss of lives. These are difficult to put a price on.

Political and Protocol Division/Ministry of Foreign Affairs and Trade

The Political and Protocol Division is part of the Ministry of Foreign Affairs and Trade. The Ministry of Foreign Affairs is also the political focal point for the UNFCCC. Therefore, all climate change related issues are under the Political and Protocol Division.

The general knowledge and understanding of climate change and particularly loss and damage from climate change in the Political and Protocol Division is very low. There is a general knowledge on climate change but not a lot is understood or known about loss and damage from climate change.

Samoa Umbrella Organization for Non Government Organizations Inc (SUNGO)

SUNGO is the umbrella organization for non-government organizations in Samoa. The understanding and experience of loss and damage are from the impacts of extreme events such as cyclones, tsunami and floods. General references are made to impacts such as coastal erosion but generally there is very little knowledge and understanding of loss and damage in the context of climate change, particularly the slow onset events and impacts.

Conservation International/Samoa

Conservation International is a global organization with an office in Samoa and works on issues such as climate change, ocean, fresh water, food, forest, global stability and livelihoods.

Loss and damage is part of a bigger challenge and is not just an issue for the future but is one of the present. Issues that were highlighted as important include: ecosystem loss and the need to understand ecosystem loss better in the context of loss and damage, differentiating the gradual and slow onset events from the extreme events, coastal ecosystem losses, terrestrial ecosystems, ground water resources, impacts on fisheries and the financial constraints of these events and impacts on countries like Samoa. Financial resources are already strained for adaptation and any additional activities, projects or programmes on loss and damage would require additional financial resources for countries.

Samoa Red Cross

The Red Cross in Samoa works with communities on increasing awareness, training, building self-esteem, increasing and maintaining positive psychological morale, conducting surveys and preparing communities for disasters. Through household surveys, the Red Cross is able to determine household losses from disasters. However, there is not a lot of knowledge on loss and damage from climate change particularly on slow onset events.

3.3 Loss and Damage projects / programmes

Assessments of the current projects in Samoa are provided below. There is one specific project on loss and damage and the rest are projects on adaptation to climate change. Although most projects are on building resilience and adaptation to climate change, some have activities that address loss and damage and have the potential to contribute to loss and damage work indirectly. This include sea level rise monitoring, coral reef impact monitoring, risk assessment scenarios that are part of current adaptation projects.

Brief descriptions of these projects are provided below including observed limitations in addressing loss and damage. This is not an exhaustive list of projects and there may be others that are not captured here. The information provided here is based on projects identified by the different sectors and those that are listed under the Pacific Climate Change Portal managed by the Secretariat of the Pacific Environment Programme (SPREP). The projects include:

1. Pacific Adaptation to Climate Change (PACC)

The main objective of this project is focused on reducing the vulnerability of Pacific nations to the adverse effects of climate change through integrating longer-term climate change risks into development and resource management planning into areas such as: enhancing the resilience of current developments to the impacts of long term climate change impacts, including climate change risks adaptations into existing institutional and decision making processes at the community and national

planning level, promoting community engagement in processes of climate-related risks. The key sectors involved are coastal Zone Management, food production and food security and water resource management.

The duration is from January 2009 – June 2015. Although this is an adaptation project, some of its activities are useful for loss and damage related work such as enhancing resilience of current development to short and long-term impacts. However, this project does not address loss and damage.

2. Development of a Disaster Risk Management Web Search Tool

The project is from January 2007 to May 2017. It is listed as a capacity building project with a focus on areas of economic development and disaster risk management. The project does not address loss and damage.

3. Implementation of the Regional Early Warning Strategy (REWS)

The duration of this project is from January 2007 to December 2017. The areas of focus include: social development, early warning systems, hazard, disaster risk management and disaster risk reduction. This project although is not specifically on loss and damage, its activities however contributes to minimizing losses and damages.

4. Republic of Korea: Pacific Islands Climate Change Prediction Services Project

The project status is from January 2015 to January 2017. The project was specifically identified as a capacity building type project. The main objective of project is to strengthen the adaptive capacity of vulnerable communities to climate risks. The project aims to create and establish a climate prediction system. The project is also working in collaboration with other current and previous projects as well a building upon what those projects have already implemented, such as the Pacific Australian Adaptation to Climate Change Science and Adaptation Planning (PACCSAP), Finnish-Pacific Reducing Vulnerability in the Pacific Island Communities Project (FINPAC), and the Climate, Oceans Support Programme for the Pacific (COSPPac), Island Climate Update (ICU) Outlook Forum, the PEAC Outlook Forums and the Integrated Climate Information Management (iCLIM) project.

This project is not specifically on loss and damage although some of its activities can contribute to loss and damage work, particularly the work on climate prediction systems.

5. Global Environment Facility-Small Grants Program – Community-Based Adaptation Project Samoa

The project status is listed as current although the dates provided were from January 2006 with duration of 120 months. The project was listed as a capacity building project that is focused on implementing mitigation and adaptation, education, awareness and training, understanding climate science, impacts, adaptation and social development.

The project does not address loss and damage specifically, although some of its activities can contribute to loss and damage, particularly on understanding the science of loss and damage.

6. Vegetation and Land Cover Mapping and Improving Food Security for Building Resilience to a Changing Climate in Pacific Island Communities

The project is listed as current since January 2011 and is a pilot project. The main goal of the project is to increase climate change resilience of terrestrial food production systems for Pacific Island communities through implementation of innovative techniques and management approaches through introducing integrated agricultural production systems that are based on assessments of climate resilience of existing systems, improving land system data and analysis tools such as vegetation tools and land use mapping, getting the participating Pacific countries to utilise the GIS tools and techniques to identify areas of food vulnerability, monitor vegetation and land cover change over time.

This project does not address loss and damage specifically.

7. ACP-EU National Disaster Risk Reduction (NDRR)

This is a current project that started in April 2011 until April 2017. The project was launched to support the Disaster Risk Management (DRM) and Climate Change Adaptation (CCA) activities that were already occurring in African, Caribbean and Pacific Group of States (ACP). The project focuses on 4 primary areas: mainstreaming disaster risk reduction, risk identification and assessment, early warning systems and communications on disaster risk reduction and integration of disaster prevention into post-disaster recovery.

This project does not specifically address loss and damage. However, some of its activities can contribute to loss and damage particularly as the focus areas represents the most critical aspects of a comprehensive programmatic approach to reducing risk, improving resilience at all levels and contributing to larger regional and national sustainable agendas.

8. ACP-EU Building Safety and Resilience in the Pacific

This is a current project and the duration of this project is from September 2015 to March 2018. The objective of project is to reduce vulnerability, economic, social and environment costs of disasters caused by natural hazards. The project aims to strengthen Pacific Island Countries' capacity to address existing and emerging challenges with regard to risks posed by natural hazards and related disasters. Project also aims to maximise synergies between Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA). Project aims to achieve this by mainstreaming DRR and CAC at the national and regional levels.

This project focuses on reducing vulnerabilities to natural disasters and does not address slow onset events or loss and damage.

9. Gap Analysis on Loss and Damage to Climate Change in selected Pacific Island countries

This is a short-term project listed from October 2014 - June 2015.

This Gap Analysis focuses on identifying the main issues with respect to loss and damage. The project aims to establish information, knowledge, capacity needs in these participating Pacific Islands (Samoa, Vanuatu & Kiribati) as well as including community perceptions on climate change. The national studies focussed on key sectors such as Environment, Fisheries, Agriculture, Tourism, Social and Private sectors.

This is a research-based project that looked specifically at the issue of loss and damage.

10. Nansen Initiative

Is a consultative process intended to build consensus on the development of a protection agenda addressing the needs of people displaced across international borders by natural disasters, including climate change.

While the process address the issue of migration and the needs of persons displaced across boarders in relation to disaster risk reduction, internal displacement or management of migration as an adaptation measure, it is not clear if the process addresses migration, displacement as a an element of loss and damage and of non-economic loss.

11. Implementation of the Strategic Program for Climate Resilience: Pacific Region – ADB Project Number 46449-001 Regional-Capacity Development Technical Assistance

This is a current project, Dates: November 2013- August 2016. The project looks at climate change adaptation and disaster risk reduction and their integration into national and local policies and plans. The main output is the mainstreaming of climate change and disaster risk reduction in national and local development policies and plans. The project will also establish a regional technical support mechanism.

The project does not address the mainstreaming of loss and damage into national development policies and plans.

12. Finnish-Pacific Project to Reduce Vulnerability of the Pacific Island Countries' Livelihoods to the effects of Climate Change (FINPAC)

This is a current project from January 2013 to December 2017. The project is a pilot project and will end in 2017. The objective of the project is to improve understanding of weather and climate services so that it will improve the general decision making of grassroots communities and policy makers during the life of the project with the aim of continuing and sustaining long term improvement of

weather and climate services in addressing the needs of people and sectors adapting to climate change and reducing risks of extreme events.

The project addresses extreme events in the context of adaptation but it does not address slow onset events and loss and damage.

13. USAID – Pacific Island Coastal Community Adaptation Project (C-CAP)

This is listed as a current project from April 2012 and a project that is looking at building the resilience of vulnerable coastal communities in the Pacific region to withstand intense and frequent weather events and ecosystem degradation in the short term, and sea level rise in the long term.

The project focuses on building resilience of vulnerable coastal communities in the Pacific region to withstand more intense and frequent weather events and ecosystem degradation in the short term and sea level rise in the long term. The key actions of this project includes rehabilitating and constructing new, small-scale community infrastructure, building capacity for community engagement for disaster prevention and integrating climate resilient policies and practices into long term land use plans and building standards.

The project addresses sea level rise but it is not clear what aspect of sea level rise will the project be addressing and if loss and damage from sea level rise is addressed.

14. South Pacific Sea Level and Climate Monitoring Project

This is a current project since June 1991 and is on-going. The project was implemented in IV phases with phase I from 1991-1995 and phase IV from 2006-2010. The objectives of the project include: maintaining the investment in existing and new monitoring infrastructure; continue core process of collecting, analysing, storing and disseminating high quality sea level data from SPSLCMP stations; enhance institutional capacity through training and technology transfer.

The project addresses key aspect to the collection of baseline information on sea level rise, which is considered a loss and damage slow onset event. However, it is not a loss and damage project.

15. Synergistic Impact of Global Warming and Ocean Acidification on Coral Reefs

This project is listed as current with a start date of January 2013. It is not clear whether this project is still current. The project develops equations describing changes in coral growth rates in response to increased temperature and ocean acidification. The data enable the development and refining of models for the evaluation of future impacts of climate change on Pacific coral reef communities. Results will help define appropriate management responses and prioritization interventions at the most vulnerable sites.

This is an important project to assessing the impacts of ocean acidification on coral reefs and finding adaptable solutions. However, this project does not address the impacts of ocean acidification on other marine species such as shellfish and does not consider ocean acidification in the scope of loss and damage from slow onset events.

16. Technical Support Project for Pacific Islands Guan

This project is listed as current with a start date of January 2004. The Global Climate Observing System (GCOS) Upper Air Network consists of stations selected from World Weather Watch. The goal of the project is to provide a technical support and program management solution to ensure upper air programs that are part of GUAN are operated in the Pacific effectively.

Weather observation could provide important baseline information for extreme events but it does not address loss and damage from extreme events or slow onset events. It is also not clear whether the project is still on-going.

17. Pacific Storms Climatology Products

This project is listed as current with a start date of January 1999 so it is not clear if this project is still current. The objectives of the project include: users being able to explore how extreme events have been expressed historically and may be expected in a changing climate. The information will be critical in risk assessment scenario development in support of coastal land use planning and resource management. This will provide high quality science based information for decision making and policy making especially with coastal planning. This will include outputs such as a broad range of in-situ station and remotely sensed derived data products for the Pacific basin and a formulation of new integrated and/or regional climate indices.

The project is limited to extreme events and does not address slow onset events. It is also not a loss and damage specific project.

18. ADAPT Asia-Pacific

The project has an end date of May 2016. The principal objective of ADAPT Asia Pacific is to establish a fully functional and self-sustaining adaptation project preparation facility that will support the preparation of specific projects, but build on the capacity of the region's governments to independently access climate adaptation funds.

The project does not address the preparation of specific loss and damage projects.

19. Integration of Climate Change Risk and Resilience into Forestry Management

This is listed as a current project from June 2011 to June 2015. The main objective of project is to increase resilience and adaptive capacity of Samoa's forest areas and communities dependent on them for livelihoods to the threat of climate change through targeted adaptation interventions in lowland, agro-forestry and upland-

native forest sub-sectors. Relevant sectors involved include Ministry of Natural Resources and Environment and Meteorology.

This project does not address loss and damage.

20. Samoa – Australia Partnership for Development: Climate Change

This is listed as a current project from November 2008. The main objective of project is to provide support to the Government of Samoa to implement activities under Samoa's National Adaptation Plan of Action, primarily in the water, forest and tourism sectors. This will include a national tourism adaptation strategy setting out adaptation standards for tourism services and national strategy for forest fire prevention.

This project does not address loss and damage.

21. Pilot Program for Climate Resilience

This is listed as a current project, November 2013 to August 2016. The main objective of project is to pilot and demonstrate ways in which climate risk and resilience may be integrated into core development planning and implementation in a way that is consistent with poverty reduction and sustainable development goals. The project aims to provide incentives for scaled-up action and initiates transformational change.

This project does not address loss and damage.

22. Cities and Climate Change Initiative Asia Pacific

This project is listed as a current project, from June 2010. It is not clear if this project is still current. The main objective of this initiative is to strengthen the climate change response of cities and local governments. The initiative aims to achieve this through promoting active climate change collaboration between local governments and association, enhance policy dialogue on climate change, supporting local governments in preparing climate action plan and foster awareness, education and capacity building. For example in Samoa, the initiative aims to establish its objective through capacity building on climate risk management, policy planning and knowledge sharing.

This project does not address loss and damage.

23. Coping with Climate Change in the Pacific Island Region

This is listed as a current project, from November 2012 to December 2015. The main objective of the project is to enhance the competence and capabilities of local population, national governmental authorities and regional organisation to be able to cope with the effects of climate change as well as being able to combat its causes. The project aims to achieve this through reviewing policies and integrating adaptation considerations into policies and focusing on management of land and coastal natural resources as well as tourism.

This project however does not address loss and damage

24. Pacific Islands Global Climate Observing System (PI-GCOS)

This project is listed as a current project, from August 2000 and it is not clear if this project is still valid. The main objective is to develop capacity for application of climate information to cope with climate variability and change. Project aims to establish a robust and sustainable Pacific Islands climate observing system that meets long-term climate observation needs in the region and in the world.

This project does not address loss and damage specifically but its activities could contribute to work on loss and damage particularly on raising the profile of PI-GCOS and institutions responsible for systematic observations for atmosphere, terrestrial, and ocean among policy makers and the public communities and increasing the numbers of professionals at all levels in the field of science relating to climate, hydrology and oceanography in the Pacific Island countries.

25. Pacific Catastrophic Risk Assessment Financing Initiative (PCRAFI)

The initiative aims to provide Pacific Island Countries with risk modelling and assessment tools and to engage countries in a dialogue on integrated financial solutions for the reduction of their financial vulnerability to natural disasters and to climate change. The initiative is part of a broader agenda on disaster risk management and climate change adaptation in the Pacific Island Countries.

This initiative does address loss and damage pay out for countries impacted by natural disasters such as cyclones and earthquake. The limitation of this current initiative is that it only caters for extreme events such as cyclones and earthquakes and it does not address slow onset events.

26. Ocean 21 Initiative

The Oceania 21 Summit, originally established in 2012 as the (Pacific) “Leaders’ Summit” and supported by 15 Pacific Island States and Territories, was conceived after the Rio+20 event with the aim of galvanizing Pacific support to promote sustainable development, share innovatory experiences, design joint projects and examine consequences of climate change events on the Pacific Island nations. The initiative was instigated by the Pacific Island nations’ perception of the lack of reactivity from the international community following the Copenhagen Conference (2012) and the Warsaw Conference (2013) leading to the conclusion that the Pacific Islands could no longer rely on other countries to take action on their behalf, as the first victims of Climate Change.

Leaders wanted to improve observations of climate change impacts in the region and have nominated SPREP to be the regional organization responsible for coordinating its work in the Pacific. From the Pacific Leaders Declaration loss and damage is featured as one of the key areas for Pacific small island states. This initiative

Water Resource Division/Ministry of Natural Resource and Environment

There are currently no specific projects in the Water sector on loss and damage. However, the sector is starting to work on saltwater intrusion and monitoring of groundwater. This involves placing boreholes around the coastal area to monitor the incoming rising sea levels. Samoan Water Authority has been complaining about the salinity issues but there is not enough work on pump testing to find out the sustainable use of the bores. Some of the constraints also include the limited technical expertise in the country and financial means to conduct this work.

The Water sector is also working with families and communities along the flood plain areas to relocate them upstream as part of a precautionary measure. The sector also works closely with communities to identify grants for the rehabilitation of fresh water springs that have been impacted and inundated by rising sea level. At the regional level, the sector is involved with other initiatives such as the PCRAFI. This is through collecting and building the baseline information from the water sector. The scope of the PCRAFI however has been noted as limiting only to cyclones and earthquakes.

Disaster Management Division/Ministry of Natural Resource and Environment

There are currently no specific projects or programme on loss and damage in the Disaster Management Division. However, some of the current projects identified earlier have been noted as important for loss and damage even though they are not specifically on loss and damage.

The Ministry of Natural Resource and Environment has recently set up a Climate Change Committee and Samoa is also in the process of setting up a climate change section as a separate unit under the Ministry of Natural Resource and Environment. This is work in progress that would require capacity and institutional set up. Any additional and specific work on loss and damage would require institutional capacity and financial support.

GEF Division/Ministry of Natural Resource and Environment

There are currently no specific projects or programmes on loss and damage. However, there are soft and hard infrastructure adaptation projects on constructing seawalls and planting of mangroves to prevent further coastal erosion from sea level rise.

Climate Resilient Unit/Ministry of Finance

There are currently no specific projects or programmes on loss and damage that involves the Climate Resilient Unit. However, other adaptation related projects and

programmes were identified as adding value to the loss and damage agenda. This includes the PCRAFI and the Pacific Resilient Programme. The Pacific Resilient Programme is considered a good component that goes hand in hand with the PCRAFI, particularly as the former focuses on pre-preparation in advance of any paramedic initiative.

Samoa Tourism Authority

There are currently no specific projects or programmes on loss and damage in the Tourism sector. However, some adaptation related projects were identified that currently involves the sector. Some have been identified and described earlier such as Coping with Climate Change in the Pacific Region, Samoa-Australian Partnership for Development and the Pacific Storms Climatology Products. As highlighted in the earlier assessments of these projects, these are on adaptation and they do not address loss and damage directly.

Other adaptation related work that the sector is currently doing include a project on Archrock. This project focuses on how to use geo textile to prevent erosion. Erosion is due to sea level rise, flooding and cyclone. Tourist operators have been advised to integrate climate change into their daily plans and activities. The sector has also conducted GIZ mapping of vulnerable areas and developed awareness material for local communities and beach fale operators.

Ministry of Land and Transport Authority

There are currently no specific projects or programmes on loss and damage in the Ministry of Land and Transport Authority. However, other important adaptation related projects and work that is part of its business as usual function were identified as important to the sector. These include adopting a preventative approach, joint national project with the Ministry of Natural Resource and Environment, and the SIN Project, which focuses on identifying all flood prone areas.

Political and Protocol Unit/Ministry of Foreign Affairs and Trade

There are currently no projects or programmes on loss and damage that involve the Ministry of Foreign affairs and Trade.

Samoa Umbrella Organization for Non Government Organizations Inc (SUNGO)

There are currently no projects or programmes on loss and damage that involve SUNGO. However, SUNGO is involved in several adaptation programmes in collaboration with the Ministry of Finance and the Ministry of Natural Resource and Environment.

Conservation International/Samoa

No specific projects or programmes on loss and damage were identified. However, the need to identify whether countries currently have data on ecosystem degradation or loss and if the data have been quantified were highlighted as important. What could be helpful is also identifying and differentiating solutions that are adaptive versus those that are exclusively loss and damage.

Samoa Red Cross

There are currently no projects or programmes on loss and damage. However, the Red Cross identified some of the work that is part of its business as usual function. This include vulnerability capacity assistance, disaster risk preparation, post disaster response and capacity building training.

3.4 Loss and Damage plans, policies and legislation

This section will assess the current national and sector specific plans, policies and legislations. The aim is to ascertain if the policies, plans and legislations address loss and damage and if so, than in what manner. Samoa has several national plans and policies, and sector specific policies and plans.

Climate change and disaster resilience are listed under priority area 4 of the Strategy for the Development of Samoa 2012-2016 and includes the mainstreaming of climate change and disaster resilience into long term goals. One of the key strategies is to address the impacts of climate change and ensure community preparedness for disaster risk reduction, disaster risk management and strong community resilience. However, the Strategy for the Development of Samoa does not have loss and damage in its key priorities nor is it mentioned in the strategy.

It is understood that the Strategy for the Development of Samoa (NDS) 2012-2016 did not make reference to loss and damage as the issue was still being negotiated at the UNFCCC and Samoa did not want to include loss and damage too early. However, in the Samoan context, loss and damage needs to be framed carefully so that the country knows what it can achieve with its limited resources and capacity and what it will get support with from its developed partners.

Water Resource Division/Ministry of Natural Resource and Environment

Samoa has a Water Management Act 2008, a Water Resource Management Plan and a National Disaster Management Plan that provides protection of Samoa's water resources from events that may constitute disaster and emergency situations. The Act also makes provision to address the need for adequate water during periods of

disaster and emergency and the rights to access water sources on a temporary basis for the purposes of meeting demands and needs for water during periods of disaster or emergency. However, the Samoa Water Management Act 2008 is silent on climate change and loss and damage.

Disaster Management Division/Ministry of Natural Resource and Environment

The Samoa National Disaster Management Plan 2012-2014 make a very brief mention of climate change, sea level rise, environmental degradation, coastal erosion, water quality and resource management as all important environmental issues being managed in Samoa. It makes references to loss and damages to infrastructure and to life but in the context of natural disasters or extreme events. There is no specific mention of loss and damage from climate change events and impacts, particularly slow onset events and impacts.

GEF Division/Ministry of Natural Resource and Environment

Loss and damage is not integrated into current sector plans and regulations. However, it is incorporated into the goals for the next National Climate Change Strategy 2015-2019. One of the governance goals of the strategy is to access international climate change finance mechanisms, including loss and damage.

Climate Resilient Unit/Ministry of Finance

Loss and damage is not in the sector plan, policies and legislation.

Samoa Tourism Authority

The Samoa Tourism Strategic Marketing Plan 2014-2019 was launched in 2014. The sector plan takes into account disaster risk management, and loss and damage. The reference to loss and damage is by implication a very broad reference that encapsulates both losses and damages from both extreme events and slow onset events. However, there is very limited elaboration on slow onset events.

Ministry of Land Transport Authority

Climate change and loss and damage are not in the sector plans, policies and legislation but it is now incorporated into the Transport Sector Plan, as it is part of the requirements of some of the projects that involves the transport sector. Some of the sector weaknesses include very good post disaster response and very weak pre-disaster preparation. Climate change, loss and damage, disaster risk management all need to be incorporated into the national and sector budget and plans.

Political and Protocol Unit/Ministry of Foreign Affairs and Trade

Climate change is one of the focus areas under the Ministry of Foreign Affairs and Trade. However, its current plans, policies and legislation do not address loss and damage.

Samoa Umbrella Organization for Non Government Organizations Inc (SUNGO)

Climate Change is not featured well in the SUNGO plans and strategies. However, it is captured in some of SUNGO's activities. While climate change falls into one of its objectives on capacity building, loss and damage remains not being addressed.

Conservation International/Samoa

Climate change is one of the key areas of work for Conservation International. However, it is not clear if loss and damage is in their current policies and plans.

Red Cross Samoa

Addressing loss and damage from climate change is not in the Red Cross plans and policies.

3.5 Tools, guidelines and methodologies

This section provides an assessment of the current tools, guidelines and methodologies on loss and damage in the different sectors and organisations.

Water Resource Division/Ministry of Natural Resource and Environment

There are currently no tools, guidelines and methodologies on loss and damage in the Water Resource Division. However, rainfall gauges were identified as a current tool that is used to measure the amount of liquid precipitation and rainfall.

Disaster Management Division/Ministry of Natural Resource and Environment

The DALA (Damage and Loss Assessment) was highlighted as a methodology that is currently being used to identify production losses and income losses. The DALA was also used to assess loss and damage to cultural heritage as a result of cyclone Evans. However, it was not used on other non-economic categories such as relocation, loss of ancestral land amongst others. The DALA was used in Samoa for the first time after Cyclone Evan and it has only just been introduced into other Pacific islands as well. Other tools identified include the Accident Compensation Schemes for loss and lives. However, its use is very limited.

GEF Division/Ministry of Natural Resource and Environment

No tools, guidelines and methodologies on loss and damage were identified.

Climate Resilient Unit/Ministry of Finance

No tools, guidelines and methodologies on loss and damage were identified.

Tourism Authority

No tools, guidelines and methodologies on loss and damage were identified.

Ministry of Land Transport Authority

No tools, guidelines and methodologies on loss and damage were identified.

Political and Protocol Unit/Ministry of Foreign Affairs and Trade

No tools, guidelines and methodologies on loss and damage were identified.

Samoa Umbrella Organization for Non Government Organizations Inc (SUNGO)

No tools, guidelines and methodologies on loss and damage were identified.

Conservation International/Samoa

No tools, guidelines and methodologies on loss and damage were identified.

Samoa Red Cross

No tools, guidelines and methodologies on loss and damage were identified.

3.7 Non-economic losses

In 2013, the UNFCCC released a technical paper on non-economic losses in the context of the work programme on loss and damage from climate change. The paper refers to non-economic losses as what “can be understood as the remainder of items that are not economic items” (UNFCCC 2013, p.3). Items falling under the definition of non-economic losses are those not commonly traded in markets and where there is also the absence of a market price. These characteristics make assessing the value of non-economic losses very challenging (ibid).

Non-economic losses can occur from both slow onset and extreme events, such as the loss of territory to sea level rise, and loss of life from extreme events such as

cyclones (UNFCCC 2013, p.4). The paper further identifies areas where non-economic losses might occur, including, *inter alia*, life, health, displacement and human mobility, territory, cultural heritage, indigenous/local knowledge, biodiversity and ecosystem services (UNFCCC 2013, p.4, Morrissey et al 2013).

Non-economic loss in the context of loss and damage from climate change is a fairly new and emerging concept to most sectors in Kiribati. However, sectors identified key areas that align closely to the areas identified by Morrissey et al (2013) and the UNFCCC (2013). They include traditional knowledge especially in traditional farming, cultivation, food preparation and preservation, traditional seasonal patterns for planting and for fishing, culture and identity, lifestyle, land and cultural sites.

Knowledge

Economic losses and damages due to extreme events and natural disasters are clear. In contrast to non-economic losses in the context of loss and damage from climate change, it is a fairly new and an emerging concept to most sectors in Samoa. Aspects of non-economic losses were considered in the recent cyclone Evan post disaster assessment for the first time, although they were not referred to as non-economic losses. In the PDNA (Cyclone Evan 2012), it referred to the following impacts of cyclone Evan: cultural heritage, mental, psychological, emotional and spiritual impacts on individuals, people and communities, relocation and emotional ties to ancestral lands (PDN Assessment Cyclone Evan 2012).

Those involved in the consultation also highlighted key areas that were within the scope of what non-economic losses. Those areas together with those identified in the PDNA from cyclone Evan closely resemble those identified by Morrissey et al (2013) and the UNFCCC (2013). The non-economic losses areas identified by participants include: environmental losses; loss of ties to ancestral land, traditional cultural practices and identity due to relocation; loss of traditional knowledge especially of traditional seasonal patterns for planting and for fishing; and loss and damages to cultural sites and gravesides, loss of biodiversity, relocation, migration and displacement.

Non-economic losses and damages are often unrecoverable and very difficult to put an economic value on. The current assessments of losses and damages are framed purely in economic terms. Culture and identity, the environment and attachment to ancestral land amongst others are key categories of non-economic losses and are not fully considered. While due acknowledgement of the fact that it was considered in the recent PDNA of Cyclone Evan, more still needs to be done. Additional consideration and work could include developing guidelines and methodologies for further assessments of non-economic losses, documenting and inventorying of non-economic losses and finding ways and approaches to address non-recoverable non-economic assets. The sensitivity in putting an economic and dollar value on

something such as culture and cultural heritage, should not deter countries from finding appropriate approaches to address permanent losses and unrecoverable losses such as loss and ancestral land, culture, cultural identity and relocation. Two approaches that were identified are compensation schemes and solidarity funds.

Current projects and/or programmes

There are no specific projects or programmes on non-economic losses in the context of loss and damage from climate change. However, traditional knowledge is being considered in adaptation activities and recently cultural heritage, environmental impacts and attachment to ancestral land amongst others were considered in the cyclone Evan post disaster needs assessment. Other initiatives include a seminar on the impacts of climate change on mental health that was hosted by the Ministry of Natural Resources and Environment in early part of 2015. This seminar is part of a programme that is associated with the Convention on Biodiversity.

Plans, policies and legislation

Non-economic losses in the context of loss and damage from climate change are not in the plans, policies or legislation of the sectors, divisions and organizations covered in this report. As mentioned above, this is a fairly new concept and sectors and organizations are considering incorporating this important area into future work and into the sector plans and policies.

Tools, guidelines and methodologies

The DALA (Damage and Loss Assessment) Methodology was used to assess loss of cultural heritage site. While the DALA was used for assessment of cultural heritage sites, it was not used to assess other impacts such emotional impacts, relocation, emotional attachment to ancestral land and others.

3.8 Migration, displacement and population mobility

Migration, displacement and population mobility is already happening in Samoa. Samoa has experienced displacement due to the impacts of natural disasters and Samoa experienced this both with the 2009 tsunami and cyclone Evan in 2012. In these events communities and villages relocate inland. For instance, the village of Falealupo relocated after cyclone Evan from the coast to inland.

External migration is also happening and Samoan people are already migrating to other countries within the region and elsewhere. Mostly for re-settlement and labour migration but yet as part of external migration, displacement and population mobility due to climate change. However, Samoa like other Pacific island countries, are participating in regional and international migration schemes such as the Pacific Access Category, the Recognised Seasonal Employer Work Scheme by the New

Zealand government and the Seasonal Workers Scheme by the Australia Government.

Other important issues that were raised in relation to the issues of migration, displacement and population mobility due to climate change include the need for land if population had to move because their islands are inhabitable. The issues of climate change refugees, conflict and stability associated with migration, relocation and population movement, were raised as potential consequences of climate change impacts and an area that need further consideration. Questions were also raised in relation to the role of big emitter countries on these issues and their role in supporting countries that will need to relocate if and when the time arrives.

Knowledge

Communities and government sectors are aware that internal migration and population mobility from village to village and from island to island is already happening. People move for find employment, for family reasons, because of the impacts of natural disasters such as flooding, cyclone and coastal erosion. Sectors are aware of this population mobility and while some sectors such as Tourism work with communities on issues such as relocation, some do not deal with migration, displacement and human mobility directly or as part of its function.

External migration is not unfamiliar to Samoan although the external migration schemes and programmes are not loss and damage related. People migrate abroad for employment, resettlement and to participate in regional schemes such as the Pacific Access Category, Recognised Seasonal Employer Work Scheme and Seasonal Workers Programme by the New Zealand Government and the Seasonal Workers Scheme by the Australian Government.

Current projects and programmes

There are currently no formalised and funded projects or programmes on loss and damage, both on internal and external migration, displacement and population mobility due to climate change. However, different sectors are addressing the issues of internal movement and relocation due to the impacts of extreme events and some slow onset events as part of their normal business as usual functions.

In terms of external migration, Samoa is participating in the following schemes:

1. Recognised Seasonal Employer (RSE) Work Scheme

This is a labour scheme provided by the Government of New Zealand, specifically in the horticulture and viticulture industries due to shortages of local workers. This scheme facilitates the temporary entry of additional workers from overseas including the Pacific and Samoa to harvest and pack crops.

2. Pacific Access Category

The Pacific Access Category Scheme of the New Zealand Government allows citizens of several Pacific Island countries including Samoa to be granted residency class visas in New Zealand.

3. Seasonal Workers Programme (Government of Australia)

The seasonal Workers Programme offers seasonal labour for those employers in selected locations in the agriculture and accommodation industry who cannot meet their seasonal labour needs with local labour. The programme is also aimed at contributing to the economic development of the participating countries by providing access to work opportunities in Australia.

Plans, policies and legislation

No plans, policies and legislation specifically addressing external migration, displacement and population mobility from climate change were identified. However, internally at the national level, while there are no specific policies, plans and legislation on migration, displacement and population mobility due to climate change, there are land use legislation that are in place which deals with types of situation where communities are advised to move and relocate because of vulnerability and natural disasters.

Tools, guidelines and methodologies

No tools, guidelines or methodologies were identified on migration, displacement and population mobility.

4. LOSS AND DAMAGE NEEDS

4.1 Needs Identification and Description

This section identifies the needs of specific sectors, departments and organisations in relation to loss and damage. The needs and the descriptions of needs are based on the analysis performed in Section 3, above, particularly what is needed to address loss and damage in the sector contexts.

Water Resource Division/Ministry of Natural Resource and Environment

Representative of the Water Resource Division identifies the following needs:

- Enhance knowledge and awareness of sector on loss and damage particularly on the slow onset events;
- Develop scientific understanding on slow onset events relevant to the water sector such as drought and sea level rise, and include the collection of baseline data and information on impacts, such as e-coli and chemical contamination;
- On-going monitoring of impacts on the water sector;
- Capacity building around understanding the issue of loss and damage, slow onset events and their impact on water; monitoring the impacts, research, collection of information and analysing of information for decision making; additional staff for additional work on loss and damage as staff are currently overwhelmed with their own duties;
- Financial resources to be able to do additional work on loss and damage.

Disaster Management Division/Ministry of Natural Resource and Environment

Representative of the Disaster Management Division identifies the following needs:

- Better understanding of loss and damage especially the slow onset events and the difference between slow onset events and natural disaster, non-economic losses and defining loss and damage in the Samoan context;
- Improve observation and monitoring of climate change impacts, slow onset events and the collection of baseline information on slow onset events;
- Set criteria to determine loss and damage and monitor different impacts such as sea level rise, ocean acidification, temperature rise and drought. This includes developing guidelines and methodologies for assessing loss and damage and mainstreaming loss and damage into different sector plans and policies for each sector;
- Capacity building in terms of loss and damage at all levels of government and community. This could include institutional arrangements for loss and damage or strengthening current ones to address needs of countries in relation to loss and damage, additional staff to work on loss and damage, building knowledge and awareness of sectors and communities on loss and damage, building capacity of sectors and communities on monitoring;

collecting information and analysing information, and enhance the research capacity of sectors;

- Identify and explore comprehensive approaches to address loss and damage especially impacts of slow onset. Examples of an approach identified is the use of compensation such as the insurance and accident compensation schemes for loss of livelihoods, loss of personal assets and loss and lives;
- Financial support for specific work on loss and damage.

GEF Division/Ministry of Natural Resource and Environment

Some of the specific loss and damage needs include:

- Further program on building resilient livelihoods and protect coastal infrastructure and communities;
- Explore comprehensive approaches to address loss and damage including institutional strengthening to be able to address loss and damage at the sector level and at the different national level.

Climate Resilient Unit/Ministry of Finance

Representative of the Climate Resilient Unit identifies the following needs:

- Build the understanding of loss and damage especially on slow onset at all level of Samoan society;
- Frame loss and damage as a development issue and integrate loss and damage into national and sector plans and policies;
- Capacity building: Institutional strengthening particularly on modernised monitoring systems that will provide information on real time, institutional and sector capacity to collect baseline information on loss and damage particularly on slow onset events and the different impacts, and including a centralize place to collect and store data;
- Enhance community resilience through enhanced partnership with Civil Society Support Programmes, regional and international partners;
- Programs to strengthen community resilience to current, future impacts and takes into account the slow onset impacts;
- Approaches to address loss and damage and include exploring comprehensive approaches to address loss and damage. This could mean new approaches and/or expanding current ones. An approach that could be expanded is the PCRAFI and by expanding the scope of the PCRAFI from not just cyclones and earthquakes but to include other impacts such as slow onset impacts. It is also important to include mid risk insurance for key assets and for more Pacific countries to join PCRAFI in risk pooling to make premiums lower. Contingency emergency funds. This was introduced in Samoa. This was set up to help countries that do not qualify for the PGRAFI.
- Means of Implementation (finance, technology and capacity building) specifically for loss and damage) and financial resilience.

Samoa Tourism Authority

Some of the specific needs of the Tourism sector include:

- Building the knowledge on loss and damage particularly on slow onset events. This will include some level of capacity building and raising awareness at all levels of government and communities;
- Enhance research on Crown of Thorn/invasive species is a growing problem;
- Capacity building on loss and damage around building research capacity and capability of sector on slow onset events and its impacts on the sector. Some of the areas that need research attention include sea level rise, temperature rise and crown of thorns. Additional capacity building are required on collecting information and analysing those information, technical training for staff on loss and damage, improved monitoring system for monitoring slow onset events and impacts, developing seasonal information packages for the sector on heat and rainfall outlook, and downscaling information for tourists and the communities;
- Comprehensive approaches to address loss and damage such as affordable insurance packages for all types of tourist operators;
- Product diversification from one type of tourist operation to another and with this there is a lot of capacity needs involved and finance to assist people;
- Financial resources and capacity building associated with needs listed above and any additional work on loss and damage.

Land Transport Authority

Representative of the Land Transport Authority identified the following needs:

- Build knowledge and understanding on loss and damage at all levels including decision makers and communities. This can be done through workshops, training programmes or consultation. Training needs to be on-going and build the knowledge as the issue develops;
- Capacity Building: Enhance current institutional capacity so that there is additional capacity for loss and damage and upgrading skills of the sector staff and inter-sector training so that each sector is aware of what the other sectors are doing on loss and damage. This could include sharing of information on impacts of loss and damage on each sector;
- Sharing best practices on how to address loss and damage with other Pacific countries including New Zealand and Australia;
- Develop a national legal framework for the whole country where loss and damage is also incorporated and where there is harmonization between sectors; and
- Financial support for additional work on loss and damage including those listed here.

Political and Protocol Unit/Ministry of Foreign Affairs and Trade

Representative of the Political and Protocol Unit identified the following needs:

- Building the knowledge and understanding of loss and damage in the sector. This includes community awareness; and
- Financial support for sectors to be able to address loss and damage as additional burden to adaptation to climate change on countries.

Samoa Umbrella Organization for Non Government Organizations Inc (SUNGO)

Representative of SUNGO identified the following needs:

- Build knowledge on loss and damage through training programme similar to those currently run by SUNGO. Climate change is a huge issue and loss and damage is new so it is essential to build knowledge and understanding on loss and damage; and
- Awareness programmes for the community on loss and damage and the impacts.

Conservation International/Samoa

Participants identified the following needs:

- Capacity building in dealing with loss and damage;
- Government assistance programmes;
- Consider balance of resources for adaptation and those for loss and damage as they are not mutually exclusive but resources are limited; and
- Identify solutions for addressing permanent losses whether insurance or other financial instruments.

Red Cross Samoa

Representative of the Samoa Red Cross identified the following needs:

- Capacity building around building knowledge of communities on loss and damage and include training programmes for communities on the impacts; and
- Financial support including sustainability of financial support to address loss and damage.

Non-economic losses, migration, displacement and population mobility

In relation to non-economic losses, migration, displacement and population mobility, many sectors noted the need to:

- Enhance the understanding of non-economic losses;

- Enhance understanding of migration, displacement and population mobility due to climate change including exploring approaches to address permanent losses and non-economic losses; and
- Collect information and record patterns of internal migration.

5. RECOMMENDATIONS ON LOSS AND DAMAGE ACTIONS/PROGRAMMES

This section provides recommendations for addressing the needs identified in Samoa to address loss and damage from the impacts of climate change. The recommendations are based on the analysis of gaps and needs in this report, and will require dedicated financial and technical support from regional and international organisations with the appropriate expertise:

1. Enhancing countries'/region understanding of loss and damage from climate change, define loss and damage and what it means to their own context, including the need to understand the differences between rapid onset and slow onset.
2. Build baseline information for slow onset events that will set criteria to determine loss and damage, monitoring the different slow onset events and their impacts, develop methodologies to assess loss and damage.
3. Capacity building. Initially, capacity building on a broad scale would address many of the needs identified by the sectors and organizations that are covered in this report. Accordingly, capacity-building activities should include the following topics:
 - Developing better understanding of the issue of loss and damage, especially on slow onset events and impacts at the national level (government sector specific), provincial and community levels. This should include the issues of non-economic losses, migration, displacement, and population mobility;
 - Training on risk assessment, risk reduction and risk management across different sectors, including the use of standardised guidelines, methodologies and tools developed to carry out risk assessments;
 - Establishing research capabilities aimed at fostering internal collaboration among sectors on loss and damage, especially in the area of slow onset impacts;
 - Improve monitoring systems to modernised systems;
 - Strengthening national and inter-sectorial policy coordination and collaboration on loss and damage;
 - Enhancing human capacity dedicated to working on loss and damage additional to current sectorial work at all levels: national, provincial and community;
 - Strengthens and build on current scientific research on loss and damage especially slow onset events to build the scientific knowledge and understanding of the impacts on each sector.
4. Develop on-going training programmes on loss and damage to initiate newcomers and deepen and update baseline knowledge gained during initial capacity building

activities set out in Recommendation 3, above. Among other things, these programmes should respond to expressed needs at the national and sub-national levels; be tailored to the audience concerned; take a cross-sectorial approach (where appropriate); and link into regional / international programmes, where relevant. Build lasting country-level expertise and scientific knowledge on loss and damage, especially on slow onset events.

5. Develop standardised and appropriate guidelines, methodologies and tools for risk assessment in each sector, including the assessment of slow onset events. This will include designing pilot projects to test the draft guidelines, methodologies and tools.

6. Modernise observation and monitoring systems.

7. Formulate plans and policies to clearly take into account loss and damage.

8. Identify and develop product diversification.

9. Prepare and periodically review long-term assessments of risks to loss and damage from extreme weather and slow onset events, especially those that have been identified as relevant by the different sectors. These assessments could be done sectorally; however, there should be a mechanism for analysing the assessments across sectors. The assessments would serve a number of uses, including the exploration of regional level risk transfer/insurance mechanisms and identifying where support is required for national-level initiatives.

10. Identify risk management approaches and tools, including risk transfer and risk sharing tools, such as insurance, appropriate for a variety of climate change impacts, including exploring of expanding current approaches such as the PCRAFI for slow onset events where possible and identifying the costs and benefits of using those tools, and including approaches to address permanent losses. Design pilot projects to demonstrate the use of these tools in different sectors, in order to test the approaches, identify best practices.

11. Means of implementation- Any additional work on loss and damage will require additional finance, capacity and technology to help Samoa address both rapid and slow onset events. Regional and international organisations should assist Samoa with identifying and facilitating access to the financial and technical support required for the implementation of policies, plans and programmes to put in place a country-wide approach to address loss and damage to the impacts of climate change, both from extreme weather events and slow onset processes.

6. REGIONAL CONCEPT PAPER FOR LOSS AND DAMAGE ACTIONS

This regional concept paper was drawn from the recommendations in each of the three country reports associated with this project. It was formulated with the assistance of representatives from the Government of Samoa and the Government of Kiribati, representatives from SPC, SPREP and UNESCO through a two-day workshop that was held in Apia, Samoa on the 24th - 25th July 2015. A representative from the Government of Vanuatu was not able to attend. However, countries will have the opportunity to make inputs into this paper as SPREP and GIZ conduct national and regional consultations on what should be included in a regional programme on loss and damage.

THEMES FOR REGIONAL ACTIONS ON LOSS AND DAMAGE	ACTIVITIES/PROJECTS/PROGRAMMES
Planning, establishment of activities	National and regional consultation to get buy-in and support
Definition- loss and damage, rapid onset events and slow onset events, non economic losses, permanent losses how do you differentiate between loss and damage and adaptation	<p>Literature review on existing definitions –practitioner’s definition/purpose of definition, who is defining for what purposes? (Possible collaboration with USP graduate school)</p> <p>Consultation</p> <p><i>Cross Cutting issues: need capacity building, and communication</i></p>
Awareness- loss and damage, rapid onset events and slow onset events, non economic losses	<p>Awareness campaign- policy makers, DRR, SRDP, politicians, CROP Agencies,</p> <p><i>Cross Cutting issues: need capacity building, and communication</i></p>
Baseline information: on observation and long term monitoring	<p>Case studies to establish baseline information on slow onset events on the following:</p> <ul style="list-style-type: none"> - Case studies on coast line monitoring - Case study on coral bleaching link to fisheries

	<ul style="list-style-type: none"> - Case study on salinization - Case study on drought - Case study on ocean acidification - Case study on sea surface temperature <p><i>Cross Cutting issues: need capacity building, and communication</i></p>
<p>Baseline information on impacts</p>	<p>Case studies to establish baseline information on slow onset events on the following:</p> <ul style="list-style-type: none"> - Documentation of impacts of the above listed climate change phenomena - Documentation and sharing of lessons learned from above (guidelines, methodologies) - Identify thresholds, tipping points related to the above climate change phenomena (permanent losses) - Migration (internal) <p><i>Cross Cutting issues: need capacity building, and communication</i></p>
<p>Knowledge management</p>	<p>Identifying options for information, management (collection, management, storing and sharing) ensure information is accessible:</p> <ul style="list-style-type: none"> - Documentation of impacts of the above listed climate change phenomena - Documentation and sharing of lessons learned from above (guidelines, methodologies) <p><i>Cross Cutting issues: need capacity building, and communication</i></p>

Governance	<p>Capacity building, Institutional strengthening (national level)- information management, capacity building, internal coordination and collaboration, plans and policies</p> <p>(Issues identified here are cross cutting across the different themes)</p>
Explore options on approaches, tools, methods to address Loss and Damage	<p>Review risk modelling (e.g. PCRAFI and others) to include those things above (Climate Change phenomena)</p> <ul style="list-style-type: none"> - Explore tools for risk transfer e.g. insurance, faalavelave, micro finance - Explore options to address permanent losses, e.g. Migration, Economic diversification, technology <p><i>Cross Cutting issues: need capacity building, and communication</i></p>
Means of Implementation	<p>Identify options to generate, facilitate access to finance and technology to address loss and damage</p> <p><i>Cross Cutting issues: need capacity building, and communication</i></p>
Scope out next phase of this project	SPREP

7. References

- AOSIS Insurance Scheme for Climate Change Convention, 1993. World Environmental Library. <http://www.nzdl.org/gsdmod?e=d-00000-00---off-0envl-00-0----0-10-0---0---0direct-10---4-----0-1l--11-en-50---20-about---00-0-1-00-0--4---0-0-11-10-0utfZz-8-10&a=d&cl=CL1.3&d=HASH0135a950495c115243e15a5d.5.3.9> (accessed 19.06.15)
- Building Resilience to Climate Change for Food Security in the Pacific Region. SPC-USAID. <http://www.spc.int/lrd/focus-areas/climate-change/34/building-resilience-to-climate-change-for-food-security-in-the-pacific-region> (Accessed 22.06.15)
- Climate change and health, World Health Organization, n.d. Available at <http://www.who.int/mediacentre/factsheets/fs266/en/> (accesses 12.05.15)
- IPCC, 2014. Climate Change 2014: Impacts, Adaptation and Vulnerability. IPCC Working Group II Contribution to AR5. Summary for Policymakers. Intergovernmental Panel for Climate Change. Available at <http://www.ipcc.ch/> (accessed 12.04.14).
- Kreft, S., Warner, K., Harmeling, S., 2012. Framing the Loss and Damage Debate: A Conversation Starter by the Loss and Damage in Vulnerable Countries Initiative. Germanwatch, Bonn.
- Kroeker, K. J., R. L. Kordas, R. Crim, I. E. Hendriks, L. Ramajo, G. S. Singh, C. M. Duarte, and J. P. Gattuso, 2013. Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming, *Global Change Biology*, 19(6), 1884-1896. Retrieved at <http://www.wmo.int/bulletin/en/content/monitoring-ocean-carbon-and-ocean-acidification#sthash.0kg9AbJH.dpuf>
- Ministry of Natural Resource and Environment Corporate Plan 2014-2018. Government of Samoa.
- Morrissey, J., Oliver-Smith, A., 2013. Perspective on Non-economic Loss and Damage: Understanding values at risk from climate change. International Centre for Climate Change and Development (ICCCAD), Dhaka, Bangladesh. <http://www.lossanddamage.net> (accessed 29.04.14)
- National Ocean and Atmospheric Administration, United States Department of Commerce. Ocean. Warm ocean temperatures may mean major coral bleaching, 2015. Available at

- <http://www.noaanews.noaa.gov/stories2015/20170211-noaa-warm-ocean-temperatures-may-mean-major-coral-bleaching.html>
- Ocean 21 Initiative. <http://www.talamua.com/samoa-to-chair-the-oceania-21-summit-2015/> (accessed 26.06.2015)
- Pacific Access Category Scheme. New Zealand Government.
<http://www.immigration.govt.nz/opsmanual/46618.htm> (Accesses 17.06.2015)
- Recognized Seasonal Employers Scheme. Ministry of Business, Innovation and Employment, New Zealand Government.
<http://www.dol.govt.nz/initiatives/strategy/rse/> (Accessed 24.06.2015)
- Samoa Post Disaster Needs Assessment Cyclone Evan 2012. Government of Samoa
- Samoa Water Management Act 2008
http://www.vertic.org/media/National%20Legislation/Samoa/WS_Water_Management_Act_2008.pdf
- Samoa National Disaster Management Plan 2012-2014. Government of Samoa.
- Strategy for the Development of Samoa 2012 – 2016. Ministry of Finance, Government of Samoa.
- Samoa Post-Disaster Needs Assessment: Following the Earthquake and Tsunami of 29th September 2009. Government of Samoa
- Seasonal Workers Programme. Australian Government.
<https://employment.gov.au/seasonal-worker-programme> (Accessed 24.06.2015)
- Siegele, L. 2012. Loss and Damage: The Theme of Slow Onset Impacts. Available at <https://germanwatch.org/en/download/6674.pdf> (accessed 24.05.15)
- SPREP, Pacific Adaptation to Climate Change Programme for Vanuatu, Country Consultation, cited in Climate Risk and Vulnerability Country Profile 2011. Retrieved at http://sdwebx.worldbank.org/climateportalb/doc/GFDRRCountryProfiles/wb_gfdr climate_change_country_profile_for_VUT.pdf (accesses 23.06.15)
- Technical Paper on Slow Onset Events, 2012. UNFCCC.
<http://unfccc.int/resource/docs/2012/tp/07.pdf> (accessed 15.05.15)
- Technical Paper on Non-economic Losses, 2013. UNFCCC. Available at <http://unfccc.int/resource/docs/2013/tp/02.pdf> (accessed 15.05.15)

- The Pacific Sea Level Monitoring & COSPPac Project.
Australia Bureau of meteorology. Available at
<http://www.bom.gov.au/pacific/projects/pslm/> (accessed 19.06.15)
- Toste Tanhua, James C. Orr, Laura Lorenzoni and Lina Hansson, 2015. Monitoring Ocean Carbon and Ocean Acidification. Vol 64 (1)
- Tourism Master Plan 2004-2010, Department of Tourism. Government of Vanuatu.
- United States Climate Change Science Program. 2009. *Thresholds of Climate Change in Ecosystems*. Available at
<<http://www.climatechange.gov/Library/sap/sap4-2/final-report/default.htm>>.
- United States Department of Health and Human sciences NIEHS-led Interagency Working Group on Climate Change and Health. Human health perspective on climate change. 2010. Report outlining the health research needs on the human health impacts of climate change. Available at
http://www.niehs.nih.gov/health/materials/a_human_health_perspective_on_climate_change_full_report_508.pdf (accesses 12.06.15)
- Verheyen, R., 2012. Tackling loss and damage: A new role for the climate regime? Germanwatch, Bonn. <http://www.lossanddamage.net> (accessed 12.04.14).
- Warner, K., van der Geest, K., Kreft, S., Huq, S., Harmeling, S., Kusters, K., De Sherbinin, A., 2012. 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 No. 9. United Nations University Institute for Environment and Human Security (UNU-EHS), Bonn. <http://www.ehs.unu.edu/> (accessed 12.04.14).
- Warner et al. (2012): Insurance solutions in the context of climate change-related loss and damage: Needs, gaps, and roles of the Convention in addressing loss and damage. Munich Climate Insurance Initiative (MCII). Submitted to the SBI Work Program on Loss and Damage, October 2012.
- Warsaw International Mechanism on Loss and Damage.
<http://unfccc.int/resource/docs/2013/cop19/eng/10a01.pdf>
(accessed 15.05.15)