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Gaps in existing institutional arrangements within and outside of the Convention to address loss and damage, including those related to slow onset events

Technical paper

Summary

This technical paper provides a review of existing institutional arrangements, within and outside of the Convention and at the transboundary, regional and global levels, carrying out activities relevant to addressing loss and damage associated with climate change impacts. On the basis of that review, it also provides a preliminary analysis of some of the general features of, and emerging trends and gaps in, such existing institutional arrangements.

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I. Introduction

A. Mandate

1. The Conference of the Parties (COP), at its eighteenth session, requested the secretariat,¹ in the context of the work programme on loss and damage, to prepare a technical paper on gaps in existing institutional arrangements within and outside of the Convention to address loss and damage, including those related to slow onset events.²

B. Objectives

2. The work programme on loss and damage was established to consider approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change.

3. In particular, the aims of this paper are:

(a) To map the current landscape of existing institutional arrangements, including networks and frameworks, at the transboundary, regional and international levels that are undertaking work relevant to addressing loss and damage associated with climate change impacts, including those related to extreme weather events and slow onset events;

(b) To synthesize the information on institutional arrangements resulting from that mapping exercise under the following broad themes:

(i) Policy and process;

(ii) Technical backstopping in relation to assessing and managing the risks of loss and damage;

(iii) Financial schemes and funds;

(iv) Data, information and knowledge exchange;

(v) Transboundary issues associated with climate-related loss and damage.

(c) To provide a preliminary analysis of gaps in existing institutional arrangements to address loss and damage associated with the adverse effects of climate change.

C. Methodology

4. The mapping and analysis of existing institutional arrangements was conducted through the synthesis of information contributed by relevant regional and international organizations in response to a call for inputs issued by the secretariat.³ Additional desk

¹ Decision 3/CP.18, paragraph 10(c).

² Slow onset events, as identified in decision 1/CP.16, include: sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification.

³ Forty organizations provided information during the summer of 2013 in response to the secretariat's call for inputs. The organizations' contributions, available at <<http://unfccc.int/7749>>, present a sample of the different ways in which organizations are currently responding to the increasingly challenging risks of loss and damage associated with the adverse effects of climate change.

research was also undertaken in each region as well as at the global level in order to complement the information contributed by organizations.

D. Scope

5. The process of mapping institutional arrangements provides an opportunity to look beyond individual organizations and examine the wider context in which they operate. The aim of the mapping exercise was to provide an overall understanding of existing institutional arrangements currently carrying out work relevant to addressing climate-related loss and damage and the environment in which they operate.

6. A total of 265 institutional arrangements were studied for the purpose of this paper, including 120 arrangements at the global level, 35 mapped for Africa, 43 for Asia, 28 mapped for the Caribbean, 16 for Latin America and 23 for the Pacific.⁴

7. Consistent with the work programme on loss and damage, the focus of the mapping exercise was on institutional arrangements operating in developing countries that are particularly vulnerable to the adverse effects of climate change. For each institutional arrangement, information was collected, where available, on the following aspects:

- (a) Geographical coverage;⁵
- (b) Scope of relevant work (e.g. types of climate-related loss and damage targeted, approaches being applied, etc.);
- (c) Relevant institutional mandates and operational frameworks;
- (d) Sources of funding and technical support;
- (e) Implementation modality, approaches used and delivery mechanisms;
- (f) Relevant stakeholders and targeted beneficiaries;
- (g) Timescales and results to date.

8. Existing institutional arrangements fall under a variety of categories in terms of scope, as many work on a number of overlapping themes and areas. In order to ensure a uniform approach to the identification of existing institutional arrangements, only arrangements meeting the following criteria were mapped for the purpose of this paper:

- (a) Compatible with a working definition, for the purpose of this paper (see para. 14 below), of an institutional arrangement;
- (b) With a work focus related to assessing and/or managing the risks of loss and damage associated with the adverse effects of climate change, including those related to extreme events and slow onset events.

9. The mapping did not extend to institutional arrangements at the national and subnational levels. In addition, the purpose of the mapping exercise was not to assess the needs or capacity of regions to assess or manage the risks of loss and damage associated with climate change impacts. Nor was the mapping exercise intended to judge the ability or capacity of institutional arrangements and related institutions in that regard. Furthermore, the exercise was not a mapping of adaptation initiatives in general, but some adaptation initiatives were included, if they met the above-mentioned criteria.

⁴ Given the non-exhaustive nature of the mapping of institutional arrangements in this paper, the numbers of arrangements mapped for different regions do not necessarily reflect the full extent of relevant activities across the regions.

⁵ Relevant information was collected at the global level as well as for the following regions: Africa, Asia, the Caribbean, Latin America and the Pacific.

10. It is important to clarify the difference in scope between institutional arrangements and organizations. There is a plethora of organizations and projects focusing on assessing and managing the risks of climate change impacts as well as on sharing knowledge relating to adaptation and building climate resilience.⁶

Box 1

Different types of institutional arrangements and an example

Institutional arrangements may be top down, bottom up or lateral (collaborative). Top-down arrangements generally refer to a decision-making process that starts at the constitutional-choice level (national) and goes through the collective-choice level (regional/national) to the operational level (local) (Boateng,2006). Bottom-up arrangements may be led by local stakeholders and communities, with a focus on intervention, problem identification, strategy formulation and implementation.

Source: Boateng, I. (2006). Institutional Frameworks in the Administration of Coastal and Marine Space in Africa; In, Administering Marine Spaces: International Issues. Frederiksberg: The International Federation of Surveyors (publication No. 36 Available at <http://www.fig.net/pub/figpub/pub36/chapters/chapter_7.pdf>).

11. Ostrom (1999) argues that the terms institutional arrangement, institution and organization are often used interchangeably and in different ways. Institutional arrangements can be viewed as the collective rules, norms and shared strategies that define or guide stakeholder behaviour. They may be formally described in the form of a law, policy or procedure, or they may emerge informally as norms, standard operating practices or habits. Institutional arrangements can also facilitate cooperation among divergent stakeholders, define subsequent roles and responsibilities for action and act as a catalyst for implementation, including by channelling resources effectively. Box 1 summarizes different types of institutional arrangements.

12. For the purpose of this paper, the term institutional arrangements refers to formal provisions that involve some form of organizational structure, such as regulatory frameworks, systems, processes and frameworks for action, that govern assessing and managing the risks of, and sharing knowledge on loss and damage .

E. Structure

13. This paper is structured as follows:

(a) Chapter II provides an overview of some of the general features of and trends in existing institutional arrangements that emerged during the mapping exercise;

(b) Chapter III outlines some of the findings arising from the preliminary analysis of the regional coverage and focus of, and gaps in, existing institutional arrangements.

14. A more detailed synthesis of information, presented by region, is contained in annexes I–VI. A list of institutional arrangements mapped for this paper is provided in annex VII. A list of the acronyms used in this paper is contained in annex VIII.

⁶ Some organizations, particularly at the global level, were included in the mapping exercise. This is because, owing to their scale of implementation and/or original mandate, such organizations met the criteria of an institutional arrangement for the purpose of the exercise.

15. In view of the volume of the paper, it does not include contextual information on each region in terms of climate-related risks, vulnerabilities, specific needs and circumstances.

16. The analysis contained in this paper relates solely to the information collected on the institutional arrangements mapped for the purpose of the paper.

II. Summary of general features of and emerging trends in existing institutional arrangements

17. In total, 265 institutional arrangements and related institutions were mapped during the exercise, representing a vast amount of detailed data and information on existing institutional arrangements relevant to addressing loss and damage associated with climate change impacts.

18. On the basis of the information on institutional arrangements summarized under the different broad categories referred to in paragraph 3(b) above, this chapter presents an overview of some of the general features of and trends in existing institutional arrangements that emerged during the mapping exercise, in terms of:

- (a) Scale of implementation (chapter II.A);
- (b) Primary roles and implementation models (chapter II.B).

A. Scale of implementation

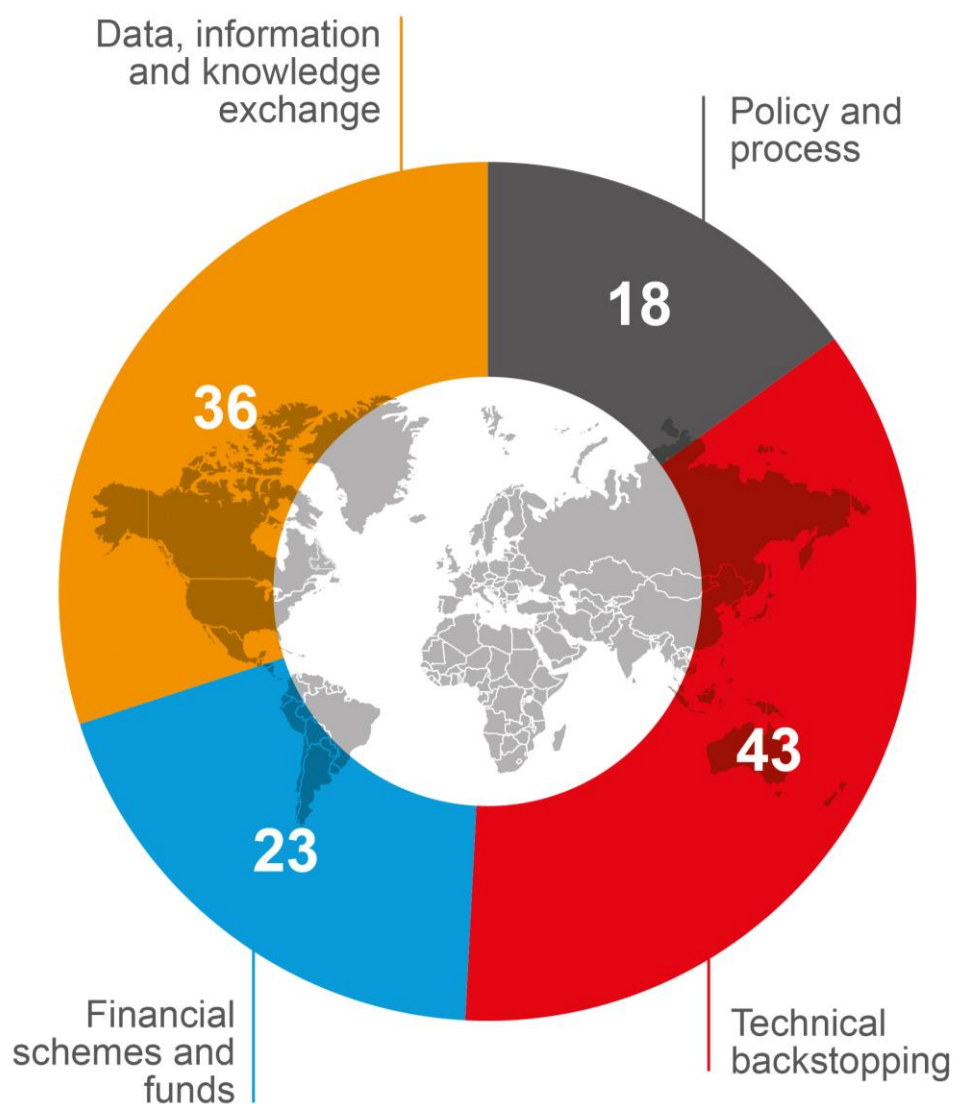
19. It was evident from the mapping process that the scale of implementation, not only in terms of geographical coverage but also in terms of sectoral scope (sector-specific or multi-sector), stakeholders, type of structure and coordination systems, varied greatly among the numerous institutional arrangements mapped.

1. Distribution of institutional arrangements across regions

20. As noted in paragraph 3(b) above, the existing institutional arrangements were mapped under five broad categories: policy and process; technical backstopping (for assessing and managing the risks of loss and damage); financial schemes and funds; data, information and knowledge exchange; and transboundary issues associated with assessing and managing the risks of loss and damage.

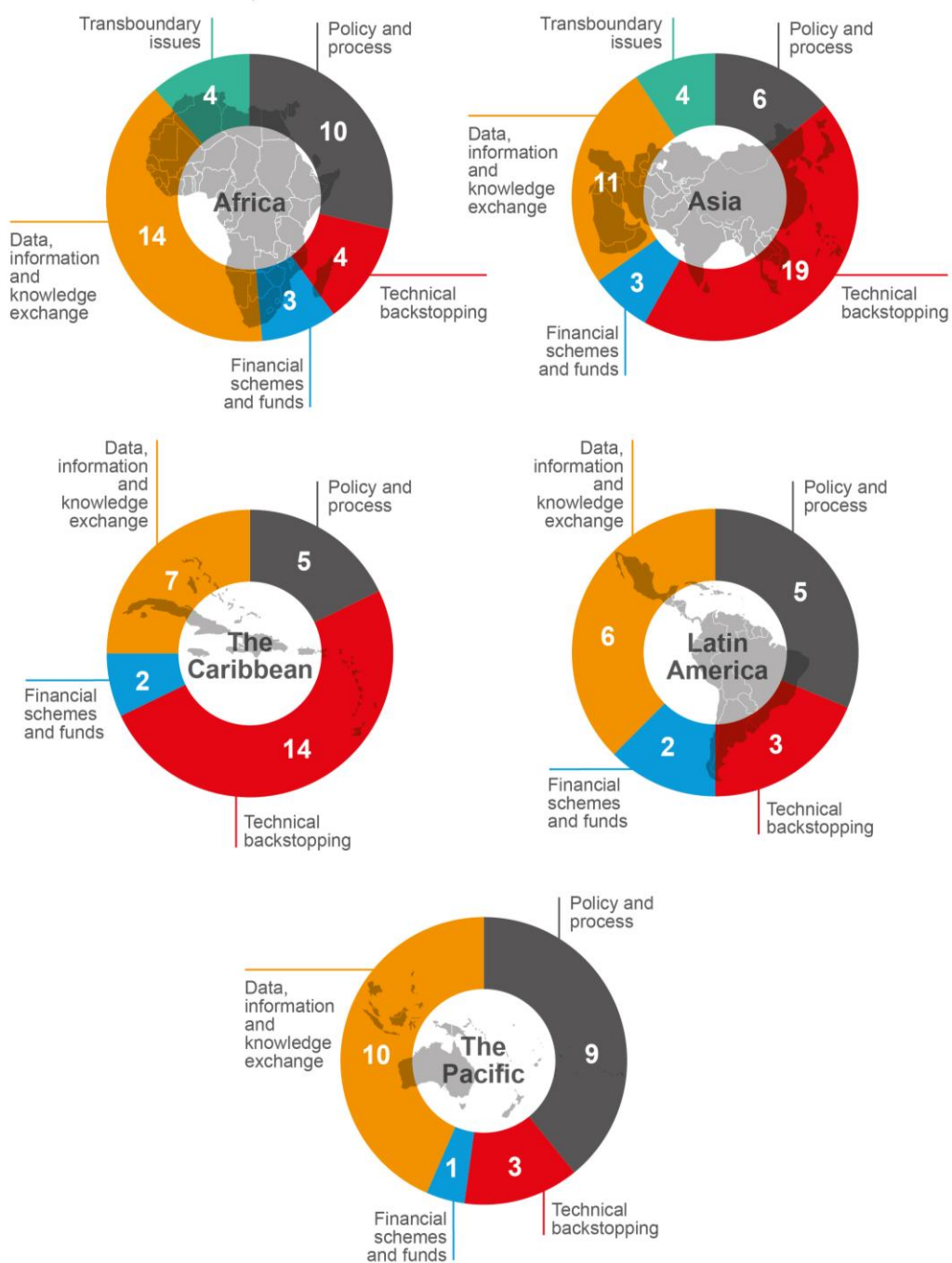
21. The mapping process did not reveal any institutional arrangements that address all aspects of loss and damage. Most of the arrangements mapped were found to be focusing on addressing particular aspects of climate risk. Areas of focus varied from region to region; however, across all regions there was a significant focus by institutional arrangements on assessing and managing extreme weather events. Figure 1 shows the mapping of 120 institutional arrangements across all of the above-mentioned categories at the global level.

Figure 1
Global institutional arrangements by category



22. At the regional level, 35 institutional arrangements were mapped for Africa, 43 for Asia, 28 for the Caribbean, 16 for Latin America and 23 for the Pacific. Figure 2 presents an overview of the institutional arrangements across and within regions.

Figure 2
Regional institutional arrangements by category



23. General features and trends arising from the mapping of existing institutional arrangements include the following:

- (a) Across the categories of policy and process, technical backstopping, and data and knowledge exchange, there is a significant number of institutional arrangements active at both the global and regional levels;

(b) There is a relatively large number of loss and damage related institutional arrangements in subregional economic and political communities and blocks in Africa, Asia and Latin America. As smaller regions with scarce resources, the Caribbean and the Pacific are comparatively more centrally coordinated and their loss and damage related institutional arrangements tend to have a wider regional scale of implementation;

(c) In most regions there are more institutional arrangements with a focus on extreme weather events than on slow onset events;⁷

(d) No institutional arrangements working specifically or solely on the non-economic climate-related loss and damage were identified.⁸ However, at the global level, a range of non-economic assessment areas, such as displacement and human mobility, climate change and human rights and loss of cultural heritage, is starting to emerge;

(e) The institutional arrangements for addressing transboundary loss and damage issues are few and mostly based on a regional or subregional set-up. The few that exist are focused on river basins (primarily in Africa and Asia) and forests (primarily in Africa);

(f) Financial schemes and funds remain almost entirely global in nature, with a few regional-level risk financing schemes and funds for issues of regional importance.⁹ Information was not readily available to provide a full breakdown of how all of the global funds are regionally distributed. However, the core funding sources for work related to loss and damage were found to be the global adaptation financing arrangements.

2. Nature of arrangements

24. The mapping exercise revealed a wide range of arrangement types, such as agreements and action plans, intergovernmental forums, centres, networks, forums, financial schemes and frameworks. General features and trends regarding the nature of arrangements include:

(a) There was no one dominant or specific type of arrangement. Instead, the type of arrangement established tended to be guided by the issue being addressed or the approach being taken;

(b) For the policy and process aspect of addressing loss and damage, the nature of institutional arrangements set up at the global level vary, including economic and political communities,¹⁰ industry groups¹¹ and multilateral environmental agreements (MEAs).¹² At the regional level, the majority of the institutional arrangements are initiated by regional intergovernmental entities,¹³ through which many of the strategic plans have been formulated and much of the funding sourced;

⁷ However, this should not be taken as a definitive reflection of the actual work being carried out on slow onset events (as the mapping of institutional arrangements for the purpose of this paper was limited in scope).

⁸ However, the mapping showed that there is a range of institutional arrangements carrying out the assessment and valuation of non-economic impacts of human development and natural phenomena, including environmental impact assessment of local infrastructure projects, and climate change impact, adaptation and vulnerability assessments on the global scale.

⁹ For example, the International Fund for saving the Aral Sea.

¹⁰ For example, the Organisation for Economic Co-operation and Development.

¹¹ For example, the Geneva Association.

¹² For example, the Convention on Biological Diversity and the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

¹³ For example, the Caribbean Community in the case of the Caribbean, and the African Union in the case of Africa.

(c) For the data, information and knowledge exchange aspect of addressing loss and damage, the arrangements tended to focus on regional data management and to take the forms of research centres, knowledge-sharing platforms and online information-sharing mechanisms;

(d) For managing the risk of slow onset events at the global level, the arrangements were found to be mostly regulatory frameworks under the auspices of United Nations agencies or MEAs.¹⁴

3. Primary stakeholders

25. The mapping exercise revealed that a variety of stakeholder groups are involved in a variety of institutional arrangements, ranging from United Nations organizations and secretariats of multilateral agreements to groups initiated by national governments, civil society, the research community and the private sector. The types of stakeholder group involved were diverse and often linked to the specific regional or sectoral context.

26. General features and trends in terms of the primary stakeholders in the institutional arrangements mapped in this paper include:

(a) National governments play multiple roles, including as a central body (e.g. in the case of policy- and process-related institutional arrangements) and as a targeted beneficiary (e.g. in the case of arrangements for technical backstopping) of an arrangement. National governments engage in institutional arrangements for data, information and knowledge dissemination and sharing through their technical agencies (e.g. national meteorological agencies or other national-level climate services) and such arrangements are often used most by practitioners and communities of practice;

(b) Most industry-led institutional arrangements are global in nature.¹⁵ Some are engaged through United Nations organizations;¹⁶

(c) At the regional level, there were comparatively more institutional arrangements related to addressing loss and damage mapped in Asia with industry stakeholders, particularly in the insurance sector. In the Pacific and the Caribbean, industry-related institutional arrangements focused on addressing loss and damage in relation to the tourism and fisheries industries.

4. Coordination

27. The mapping revealed that there is currently not a large amount of coordination between existing institutional arrangements, even though there is a lot of related work and overlap in mandates. General features and trends in terms of coordination based on the mapping include:

(a) Limited formal links between MEAs and other bodies under the category of policy and process exist at the global level;¹⁷

¹⁴ For example, the Convention on Biological Diversity and the United Nations Convention on the Law of the Sea.

¹⁵ For example, the Geneva Association, which is made up of senior representatives of leading insurance companies.

¹⁶ For example, the United Nations Environment Programme (UNEP) Finance Initiative, which, under its umbrella, gathered insurance companies around an agreed set of principles for sustainable insurance.

¹⁷ One example of coordinating mechanism between MEAs is the Joint Liaison Group for the Rio Conventions. The Group has occasional meetings and task forces have been set up to discuss interlinking issues, such as the Ad Hoc Technical Expert Group on Biodiversity and Climate Change of the Convention on Biological Diversity (CBD), which provides scientific and technical advice on how biodiversity considerations can best be integrated into the UNFCCC process.

(b) For data, information and knowledge exchange at the global level, there was little evidence of formal coordination, although many of the institutional arrangements have the primary purpose and function of collating and sharing data, information and knowledge;

(c) At the regional level, many of the relevant institutional arrangements are implemented under the same economic communities, creating potential for a more coordinated approach.¹⁸ In addition, an extensive network for the governance of loss and damage is being developed by key subregional bodies¹⁹ within the framework of the Central American Integration System in Central America, and in the Pacific there is an emergence of high-level forums to bring together the main frameworks on adaptation and disaster risk reduction (DRR);

(d) There was evidence of regional coordination for the implementation of global agreements such as the Hyogo Framework for Action (HFA)²⁰ and the CBD.

B. Primary roles and implementation models

1. Primary roles of institutional arrangements

28. The mapping exercise suggested that existing institutional arrangements play a variety of roles related to assessing and managing the risks of loss and damage associated with climate change impacts, including:

- (a) Providing scientific advice;
- (b) Providing policy guidance;
- (c) Generating research;
- (d) Sharing research and best practices;
- (e) Generating data, observations and monitoring;
- (f) Sharing data, observations and monitoring;
- (g) Coordinating responses to natural disasters;
- (h) Governing natural resources;
- (i) Providing funding or financial tools;
- (j) Mainstreaming the consideration of climate change related loss and damage into existing policies and processes.

2. Implementation models

29. Given what is involved in the implementation of the full spectrum of approaches to risk assessment and management for loss and damage, the implementation models used by the institutional arrangements mapped in this paper are widely varied. General features and emerging trends regarding implementation models include:

- (a) For institutional arrangements focusing on policy and process, at the global level they tend to operate through political and legal agreements and frameworks, while

¹⁸ For instance, Asian institutional arrangements tend to operate through the core economic communities in the region as coordinating and catalysing institutions and have various policy and governance arrangements beneath them.

¹⁹ The Central American Commission for Environment and Development, the Central American Coordination Center for the Prevention of Natural Disaster and the Comité Regional de Recursos Hidráulicos.

²⁰ See <<http://www.unisdr.org/eng/hfa/hfa.htm>>.

regional arrangements are more in the form of regional forums, dialogues and implementation bodies for global agreements;²¹

(b) Regional agreements and frameworks arise more commonly in the context of geographically specific issues, such as human migration,²² migration of endangered species,²³ specific ecosystems and seas;

(c) At the global level, the bulk of the work under the category of policy and process is being implemented through the development of technical documents, ad hoc working groups and task forces, experts and advisory groups and reporting mechanisms. Such implementation models reflect the focus on mainstreaming climate change impacts into the work of institutional arrangements and the recognition of the serious consequences for the development, conservation or environmental agenda that they are pursuing. At the regional level, the focus seems to be on actual implementation measures;²⁴

(d) Institutional arrangements focusing on technical backstopping for assessing the risk of loss and damage use a variety of implementation models, including payment for ecosystem services, climate services and the costing of loss and damage incurred, including industry losses and rebuild costs;

(e) The implementation focus of institutional arrangements for technical backstopping for managing loss and damage resulting from extreme weather events appears to be mainly on risk reduction with some arrangements focusing on other risk management options, such as social safety nets and direct disaster relief;

(f) For managing the risk of loss and damage resulting from slow onset events, the main model of implementation, according to the institutional arrangements mapped, appears to be natural resource management, through sustainable resource management practices, quotas and regulated usage, and behavioural change of local stakeholders. While some institutional arrangements are exploring financial incentives for conservation,²⁵ others are focusing on rehabilitation, particularly for land degradation and restoration, in particular for ecosystem-based adaptation;

(g) In terms of financial schemes and funds, the vast majority of the institutional arrangements mapped use grants (mainly funding time-bound projects) for financing relevant work for addressing loss and damage, though there are some schemes for loans, co-financing and support to mobilize other funding sources available, particularly through the multilateral development banks;

(h) For arrangements with a focus on data, information and knowledge exchange, the mapping suggests that main implementation models are monitoring and observation centres, research partnerships and knowledge platforms. Such platforms and databases have been set up in response to both national and regional needs and also in response to the sense in the international climate community that reliable and accurate data are lacking, as is the subsequent availability of funding. While there are a large amount of databases to collate information, there appears to be a lack of inventories, stocktaking exercises and assessment of how current work is filling knowledge needs and gaps;

(i) The implementation approach used by institutional arrangements with a focus on transboundary issues tends to be integrated natural resource management. There are also

²¹ For example, regional platforms for the HFA and the UNEP Regional Seas Programme.

²² For example, the International Certificate of Transhumance.

²³ For example, the Agreement on the Conservation of African-Eurasian Migratory Waterbirds.

²⁴ For example, in the Caribbean and the Pacific there seems to be a comparatively greater focus on pilot programmes and action plans.

²⁵ For example, Mangroves for the Future.

some examples of early warning systems, as well as planning for glacial lake outburst floods, particularly in Asia.

III. Summary of the regional coverage and gaps in existing institutional arrangements

30. Building on the information on institutional arrangements summarized under the different broad categories referred to in paragraph 3(b) above, this chapter presents the key findings arising from a preliminary analysis of the regional coverage and focus of, and gaps in, existing institutional arrangements. More detailed synthesis information on global and regional institutional arrangements is presented in annexes I–VI.

A. Africa

31. The majority of the African institutional arrangements (see annex II for further details) that focus on policy and process are strategies and action plans for implementation, or formal and binding pan-African agreements being implemented domestically by national governments. United Nations agencies or African Union bodies, mandated by national governments, support the implementation of such agreements at the subregional level through administrative agencies.

32. According to the existing institutional arrangements mapped for the African region, current arrangements tend to focus on particular climatic events or specific aspects of risk management, such as reduction or transfer, rather than offering a comprehensive suite of risk-management options. Similarly, the mapping exercise did not identify any institutional arrangements in the region catering to enhancing knowledge and understanding of comprehensive risk management approaches, including causal links between events.²⁶

33. According to the mapping, regional institutional arrangements that are engaged in assessing economic loss and damage are limited in number in Africa,²⁷ and there is little evidence of arrangements that provide broad coverage of the non-economic losses associated with climate change.²⁸ In terms of transferring the risks of loss and damage, the region has a single emerging pan-African arrangement,²⁹ which pulls together governments and the private sector (e.g. the Africa Risk Capacity, see box 2).³⁰

²⁶ The R4 Rural Resilience Initiative is facilitating the implementation of a comprehensive risk-management framework at the village level, but not at the macro level. The United Nations Office for Disaster Reduction provides significant support to countries implementing the HFA; however, the emphasis of those efforts is on DRR.

²⁷ For example, Africa Risk Capacity (ARC).

²⁸ The mapping identified regional legislation called the International Certificate of Transhumance, which governs the movement of pastoralist communities between national boundaries and seeks to protect and support pastoralism as a way of life in Africa. It may help the region address the potential cultural losses resulting from climate change by minimizing damage to the important traditional pastoralist way of life in both West and East Africa.

²⁹ ARC, which will start providing index-based insurance coverage in 2014 to its member countries.

³⁰ Although outside of the scope of the mapping exercise, a number of initiatives also exist, set up by civil society, governments and the private sector, which operate currently mostly at the household and community levels in focus districts.

Box 2

The Africa Risk Capacity

The African Risk Capacity (ARC) was established as an African Union (AU) Specialized Agency by a Conference of Plenipotentiaries in July 2012. It assists AU member states to reduce the risk of loss and damage caused by extreme weather events and natural disasters affecting Africa’s populations by providing targeted responses, such as an insurance scheme against drought, in a more timely, cost-effective, objective and transparent manner.

ARC is governed by a Conference of the Parties (COP), a Governing Board and supported by a Secretariat. The ARC financial affiliate, the African Risk Capacity Insurance Company Limited (ARC Ltd) will handle ARC’s insurance and other financial functions, including managing a portfolio of risk and transferring risk to the markets.

ARC Ltd will be capitalized initially by external donors and investors. In order for ARC Ltd to operate with an acceptable level of sustainability and generate significant risk pool savings for member states to make risk pooling financially efficient, ARC Ltd requires an initial capitalization of at least USD 100 million. Thereafter, premium payments from ARC member states and ARC Ltd’s investment income will provide sufficient resources to ensure the continued solvency and sustainability of the facility.

The ARC uses Africa RiskView, an advanced satellite weather surveillance and software – developed by the United Nations World Food Programme – to estimate and trigger readily available funds to African countries hit by severe drought. Because such droughts do not happen in the same year in all parts of the continent, pan-African solidarity in the creation of a disaster risk pool like ARC is financially effective. Pooling risk across the continent could significantly reduce the cost to countries of emergency contingency funds, while decreasing reliance on external aid.

Both the ARC Agency and its financial affiliate are expected to be operational by the end of 2013, and the latter is expected to engage in insurance transactions with ARC member states in the first months of 2014.

34. Similarly, few organizations, bodies or arrangements in Africa provide access to technology to assess and address loss and damage. The majority of the funds in Africa that have relevance to loss and damage currently seem to come from the UNFCCC process, with implementation led by other United Nations agencies. Significant investment is being made on the continent, however, with regard to risk reduction, including that under the United Nations Office for Disaster Risk Reduction.

35. The majority of the work related to data, information and knowledge sharing is implemented by regional bodies, which produce data, information and advice and bring national stakeholders together. The larger arrangements, with support from global meteorological and scientific organizations through data provision and other technical assistance, and help countries in the subregions to analyse and use such data and information. Much work is being done to strengthen data collection and management at the subregional level; however, the mapping exercise found little evidence of communication or links between the institutions involved.³¹

³¹ The Global Framework for Climate Services, a global-level institutional arrangement, is currently implementing pilot projects in six countries in the region to strengthen the collection, management and availability of data through its efforts to build capacity in the provision of climate services information.

36. All of the subregional arrangements mapped that focus on data and knowledge management offer capacity-building for national government partners. The subregional climate centres support States in generating, using and communicating climate data and establish connections with pan-African support centres and schemes. It is difficult to assess how integrated the arrangements are; however, many are interconnected with data and information institutions outside of Africa.

37. All of the institutional arrangements mapped that cover transboundary issues related to addressing loss and damage are resource-management bodies, mainly commissions, partnerships or authorities, focusing on river basins and forests. They are all intergovernmental, with arrangements for delivery and coordination through their permanent bodies, and have a strong focus on and infrastructure for information exchange.

38. Although some arrangements are emerging,³² few institutional arrangements exist in the region to strengthen dialogue, coordination, coherence and synergies among stakeholders at the regional level in assessing and addressing loss and damage.³³

B. Asia

39. The mapping exercise and broader literature confirmed the diversity of the sectors at risk and challenges in terms of addressing loss and damage in the region. The regional mapping of institutional arrangements (see annex III) showed that Asia has a comparatively large number of relevant institutional arrangements. The focus of their work in relation to loss and damage is mostly on disaster management, from risk reduction to coordinated responses. Almost all Asian countries host regional centres and are covered by networks³⁴ focusing on DRR, the primary role of which is to provide policy guidance and scientific advice and to generate and share research and best practices.

40. In addition, since the Indian Ocean tsunami in 2004, an unprecedented amount of work has been done on disaster relief, which has given rise to new institutional arrangements, including a large number of regional dialogues. The key findings arising from the mapping exercise for the Asian region is summarized below.

41. Institutional arrangements mapped for the region use a range of implementation models, including climate risk management, community-based DRR, public health risk management, emergency preparedness and response system development, geological hazard risk management, end-to-end multi-hazard early warning systems, mainstreaming DRR into development, post-disaster recovery and reconstruction risk assessment, and technological hazard risk management.

42. Institutional arrangements focusing on assessing and addressing non-economic losses in the region are predominantly communities of practice and multilateral development banks.³⁵ A few of them also exist at the subregional level.³⁶ Such institutions

³² For example, the Climate for Development in Africa Initiative.

³³ The World Health Organization (WHO) has established a dialogue between environment and health ministers to coordinate efforts to address health-related impacts of climate change. However, efforts are limited in enhancing coordination among those working on all aspects of loss and damage.

³⁴ For example, the Asia Flood Network is a flood-mitigation initiative that works to strengthen the capacity of regional and national institutions in climate, weather and hydrological forecasting to reduce vulnerability to hydrometeorological hazards. Another example of a regional network is the Asia Pacific Migration Research Network.

³⁵ For instance, the Asian Development Bank (ADB) has been evaluating national-level work on payment for ecosystem services and eco-compensation.

³⁶ For example, the Greater Mekong Subregion Environment Operations Center and the International Centre for Integrated Mountain Development (ICIMOD) are working on assessing, costing and valuing non-economic loss and damage.

are exploring a range of issues, such as the economic analysis of migration and valuing ecosystem services, including ecosystems solely for mountainous regions.

43. Emerging risk transfer mechanisms are led mainly by a mixture of national and international insurance companies, economic communities³⁷ and research partnerships, providing frameworks and arrangements for catastrophe insurance and transferring risk in the agriculture sector.³⁸

44. Although the Asian Development Bank (ADB) is the only regional institutional arrangement working on economic loss and damage in the region (see box 3 for a recent example of work carried out by the ADB), some economic costing of loss and damage for the region is also being undertaken by international agencies,³⁹ international insurance companies and some governments.⁴⁰

Box 3

Economics of climate change in East Asia

This recently concluded study by the Asian Development Bank examined how strategies for adapting to embedded climate change over the next 40 years can be combined with measures to lower and reverse the growth in CO₂ in East Asia (including the People's Republic of China - PRC, Japan, the Republic of Korea, and Mongolia). It noted that while climate adaptation investments can be large, the aggregate cost to protect the most vulnerable sectors - infrastructure, coastal protection, and agriculture - would be less than 0.3% of East Asia's gross domestic product every year between 2010 and 2050.

The study recommended that the four countries together to invest an annual average of USD 22.9 billion for climate-proofing in the infrastructure sector, USD 4.2 billion for coastal protection, and USD 9.5 billion for the agriculture sector.

45. In terms of addressing loss and damage resulting from slow onset events, the focus of institutional arrangements in this region, according to the mapping exercise, is largely on oceans, glaciers and biodiversity. There are also a growing number of river basin organizations and coordinating mechanisms in the region,⁴¹ which use integrated water resource management as the main tool for managing climate-related risks. All institutional arrangements mapped that focus on transboundary aspects of addressing loss and damage are intergovernmental, with arrangements for delivery and coordination through their permanent bodies. Their implementation models include inter-State agreements, policy harmonization, regional adaptation strategies and resource allocation.

46. One of the sectoral gaps in the regional institutional arrangements for addressing slow onset events is mechanisms to respond to loss and damage concerning Asia's extensive mountainous areas and at-risk mountain ecosystems. This is particularly the case for glaciers and glacial lake outburst floods, which are being addressed mainly at the

³⁷ For example, the Association of Southeast Asian Nations and ADB.

³⁸ National-level institutional arrangements fall beyond the scope of the mapping exercise. Most of the domestic risk transfer and insurance work is supported and bolstered by regional institutional arrangements.

³⁹ For example, the World Bank and the United Nations Development Programme (UNDP).

⁴⁰ For example, the Indonesian Government.

⁴¹ For example, the Network of Asian River Basin Organizations, which are key institutional arrangements for responding to loss and damage due to land degradation, desertification and other water-stress issues.

national level by affected countries⁴² and, to date, the focus has been primarily on research rather than on measures to address loss and damage.

47. Despite Asia accounting for a large number of megacities, there are only a handful of regional institutional arrangements in place that address the issue of loss and damage in the context of urbanization.⁴³ The rapid urbanization of the continent is currently taking place with little integration of the necessary processes for addressing loss and damage into city planning and infrastructure.

48. Although a large number of institutional arrangements exist in Asia whose primary role is generating and sharing data and knowledge for adaptation or disaster risk management (DRM), including research partnerships and monitoring centres, there is little available information on how they have addressed knowledge gaps and needs for data and climate science in developing responses to loss and damage.

C. Caribbean

49. Similar to in the other regions, existing institutional arrangements in the Caribbean (see annex IV for further details) have a tendency to concentrate more heavily on extreme weather events than on slow onset events, focusing on enhancing resilience to climate variability; and donor agencies and regional and international organizations⁴⁴ are the prevailing responsible entities.

50. Policy and regulatory institutional arrangements in the region are focused on establishing synergy between sustainable development and climate change, building technical and institutional capacity, managing and adapting to climate change and associated climate risk (extreme weather conditions and slow onset events) and DRR, and the dissemination of climate-relevant information. Such institutions tend to work collaboratively, as resources, expertise and information often do not reside in one location or institution.

51. There is a small number of institutional arrangements for managing risk in the Caribbean, partly because DRR and DRM are almost entirely coordinated through one well-established agency, namely the Caribbean Disaster Emergency Management Agency (CDEMA). Regional institutional arrangements for addressing slow onset events are sparse. Given the small size of Caribbean countries and their high exposure to natural disasters, they have pioneered the development of risk transfer schemes as part of their risk management strategies, including by pooling their catastrophe risks through joint institutional arrangements at the regional level (e.g. the Caribbean Catastrophe Risk Insurance Facility and Windward Islands Crop Insurance) (see box 4). However, none of the risk transfer arrangements currently deal with slow onset events.

52. Regional institutional arrangements for data, information and knowledge sharing identified in the mapping exercise incorporate modalities and mechanisms for the assessment of non-economic losses and relate specifically to climate and natural resources and environmental management. The arrangements are mostly hosted by or part of intergovernmental institutions, including agencies within the United Nations operating at

⁴² Notable exceptions include the efforts of ICIMOD and the project-based work of the World Wildlife Fund and UNDP.

⁴³ A few notable exceptions to this are the Asian Cities Climate Change Resilience Network and ADB, and, globally, International Council for Local Environmental Initiatives and the C40 Cities Climate Leadership Group.

⁴⁴ For example, the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC).

the regional and subregional levels,⁴⁵ regional and subregional institutions,⁴⁶ and international and regional non-governmental, not-for-profit organizations that specialize in the assessment of non-economic losses.⁴⁷

53. The trends in the implementation models for such institutional arrangements vary, but are mainly programmes and services that provide guidance and expertise in awareness-raising, climate change, environmental management systems and best practices, as well as in the use of computational models to derive data.

54. More recently, greater focus and priority has been placed on the execution of pre-impact assessments of potential loss across multiple scenarios in order to facilitate informed planning and risk-reduction efforts, with some institutional arrangements focusing more on potential impacts of and losses resulting from slow onset events, in particular sea level rise given the unique vulnerability of the region's States thereto, on infrastructure and settlements, vulnerable and affected populations, marine and terrestrial (natural) resources, public health, water and sanitation, and energy systems.

55. In terms of Caribbean-specific arrangements, the Caribbean Development Bank is the main financial mechanism.⁴⁸ It works towards the systematic reduction of poverty in the Caribbean through social and economic development. It has been financing post-disaster rehabilitation since 1974 and uses disaster management strategy and operational guidelines, which provide a comprehensive approach to DRM and adaptation.

Box 4

The Caribbean Catastrophe Risk Insurance Facility and Windward Islands Crop Insurance

The Caribbean Catastrophe Risk Insurance Facility was established in 2007 in response to the devastating impacts of hurricanes and the challenge Caribbean Community governments faced in raising the finances necessary to restore their economies. It is the only working model of a multinational and parametric-based catastrophe risk pool and is considered a viable template for expansion and/or replication globally. In the region, risk transfer is particularly important for the agriculture sector.

Windward Islands Crop Insurance is an example of a successful institutional arrangement for risk transfer in the banana industry in the eastern Caribbean. It has demonstrated sustained success in responding to farmers' claims immediately after the devastating storms and hurricanes that have affected the region since its inception in 1987.

D. Latin America

56. According to the institutional arrangements mapped for the Latin American region (see annex V for further details), the majority of the existing practices addressing loss and damage seem to have been developed in connection with DRR, in particular risk retention and risk reduction through land-use planning, preparedness and building resilience initiatives, with the exception of Mexico and Peru, which have explored risk transfer

⁴⁵ For example, UNDP and UNECLAC.

⁴⁶ For example, the Caribbean Community Climate Change Centre, CDEMA and the Organization of Eastern Caribbean States.

⁴⁷ For example, the Caribsave Partnership and the Pan American Health Organization (PAHO).

⁴⁸ In addition, to serve the Latin American region, the Inter-American Development Bank also provides financial resources to the Caribbean.

mechanisms.⁴⁹ Central America is exploring institutional arrangements for risk-sharing through a solidarity fund⁵⁰ for risk transfer under the guidance of the Inter-American Development Bank⁵¹ and with private-sector involvement (see box 5).

Box 5

Innovative approaches for risk-financing arrangements undertaken in Central America

Innovative approaches for risk transfer exist and are promoted by financial institutions. Central America is exploring insurance schemes for risk transfer in a joint venture of the Inter-American Development Bank and Swiss Re, a global reinsurer. Under the Regional Insurance Facility for Central America (RIFCA) scheme, those financial institutions deliver technical guidance at the national level and facilitate access to international disaster insurance markets to promote climate risk transfer solutions in seven countries. RIFCA delivers technical assistance and some seed-funding at the country level, but its development and impact at the national level is still subject to support from donors and private actors.

The Central American Fund for Integrated Risk Management (FOCEGIR) established by the Central American Coordination Center for the Prevention of Natural Disaster in 2011 is a disaster risk reduction solidarity fund. The fund provides support to member countries of the Central American Integration System (SICA) (Belize, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama) to address priorities in their national disaster risk management and vulnerability reduction plans and to coordinate the implementation of regional activities. Under the guidance of the Central America Commission for Environment and Development, SICA countries are also exploring the establishment of a regional Mesoamerican Fund for the Payment of Environmental Services. If developed, it could help to address losses of biological diversity resulting from slow onset events.

57. There is a large amount of work being done on the development of methodologies to capture, measure and account for the cost of economic loss and damage resulting from climate variability in the region (see box 6), including a high level of coordination in methodology development activities and a focus on roll-out at the country level. However, the number of institutional arrangements for actually assessing the cost of loss and damage in Latin America is small.

⁴⁹ At the national level, permanent bodies for DRR-related policy and action have been set up, many of which have become worldwide references in disaster risk prevention, management, response and recovery (especially in the overexposed Central American subregion including through budgetary efforts to address loss and damage associated with extreme weather events. Hence, most DRR-related action in Latin America takes place at the national and subnational levels, with increasing attention been paid to the community level. However, the mapping of institutional arrangements at the national and subnational levels is not within the scope of this paper.

⁵⁰ The Central American Fund for Integrated Risk Management.

⁵¹ The Regional Insurance Facility for Central America.

Box 6

Methodologies for assessing economic loss and damage developed and piloted in Latin America

Tools such as Damage and Loss Assessments (DALA), the Disaster Inventory System (DesInventar) and the Central America Probabilistic Risk Assessment (CAPRA) were designed and piloted in the Latin American region and have been broadly replicated worldwide. In the region, the United Nations Economic Commission for Latin America and the Caribbean has taken the lead in assessing economic loss and damage through DALA, a methodology that it developed that effectively captures the impacts of natural and other hazards in a consistent and coherent way. The DALA methodology targets the macroeconomic level and hence does not capture the socioeconomic impacts of loss and damage at the local or community level. The development and piloting of tools such as DALA, DesInventar and CAPRA is a highlight of Latin America's efforts to date in relation to loss and damage. Their development was triggered by international seed-funding support (mostly from the United Nations Office for Disaster Reduction, the Global Facility for Disaster Reduction and Recovery and the World Bank), which proves the importance of financial support from donors at critical stages in the development of institutional arrangements and innovations.

58. Beyond the Regional Strategy for Biological Diversity in Mesoamerica, other impacts of slow onset events (e.g. land degradation, coral reef degradation, salinization and desertification) do not seem to be prioritized at the institutional level,⁵² although some coordinating bodies and policy frameworks in the region are emerging.⁵³ Mapping did not identify a single institutional arrangement at the regional level that specifically seeks to assess and manage non-economic loss and damage.

59. While climate risk, impact and vulnerability assessments, including some sector-specific ones, exist or are under way at the national and subregional levels in Latin America, United Nations regional bodies have played an important role in facilitating policy action through targeted studies including those on agriculture and water resources⁵⁴ and guidance to support the development of vulnerability assessment, for example in the health sector,⁵⁵ in the region.

60. Regional data management and research centres, knowledge-sharing platforms and information-sharing mechanisms related to loss and damage proliferate in Latin America. Most of the data and knowledge management networks are well established and have permanent ambitions, and climate monitoring in Latin America is significantly more complete and consistent than in the other regions. However, systematization efforts seem to be rarely coordinated, as several institutions in the region producing valuable data and knowledge have overlapping mandates and activities.

61. The mapping also showed that institutional arrangements in Latin America have formed around subregional geopolitical realities, ecosystem resource use and livelihoods, and that subregional bodies are generally taking the lead in the development of policy and regulatory frameworks in the region. The role of subregional and regional institutions is

⁵² That said, in the Andean subregion a number of vulnerability assessments related to slow onset events have been developed, including on loss of biodiversity, water availability, land degradation and forest cover in the tropical Andes.

⁵³ For example, the Council of Environment Ministries, the Biodiversity in Tropical Andes and the Integrated Water Management strategies.

⁵⁴ For example, the country-specific vulnerability assessments led by the UNEP Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean.

⁵⁵ For example, guidance deployed by PAHO/WHO.

mostly promoting policy coordination, facilitating data and information sharing and enhancing the exchange of best practices. However, coordination mechanisms to facilitate cooperation, synergies and exchange across Latin America appear to be scarce in comparison to in Africa, Asia and the Pacific.

E. Pacific

62. According to the mapping for the Pacific region (see annex VI for further details), institutional arrangements are focused largely on adaptation options for extreme weather events (such as storm surges and cyclones) and sea level rise. Institutional arrangements for loss and damage related governance in the Pacific include geopolitical and economic communities and negotiating blocks, regional joint agencies, environmental dialogues and frameworks and an industry group. Climate-related migration and displacement is being integrated into the workplan of several institutional arrangements in the region; however, beyond that, migration falls under the umbrella of broader economic migration and schemes.⁵⁶

63. Beyond the arrangements in the Asia-Pacific region, there is a single Pacific-only arrangement that is focused primarily on economic costing, namely the Pacific Catastrophe Risk Assessment and Financing Initiative (see box 7). Regional institutional arrangements for disaster risk transfer are emerging,⁵⁷ which aim to provide governments with immediate funding when a major natural disaster occurs.

⁵⁶ Such as the Pacific Seasonal Worker Pilot Scheme with Australia and similar cooperation with New Zealand.

⁵⁷ For example, the Pacific Catastrophe Risk Insurance Pilot was launched in January 2013.

Box 7

The Pacific Catastrophe Risk Assessment and Financing Initiative

The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) is a joint initiative of the Applied Geoscience and Technology Division of the Secretariat of the Pacific Community, the World Bank and the Asian Development Bank. The Government of Japan and the Global Facility for Disaster Reduction and Recovery (GFDRR) are donors, and AIR Worldwide, New Zealand GNS Science, Geoscience Australia, the Pacific Disaster Centre, OpenGeo and GFDRR Labs provide technical support. As well as risk-management tools and assessments, PCRAFI is engaging in a dialogue with Pacific Island countries on integrated financial solutions for the reduction of their financial vulnerability to natural disasters and climate change, and on an integrated disaster risk financing strategy for governments. PCRAFI launched the Pacific Catastrophe Risk Insurance Pilot in January 2013. The development objective is to reduce the financial vulnerability of Pacific Island States to natural disasters by improving their financial response capacity in the aftermath of natural disasters while protecting their long-term fiscal balance. The pilot includes both supporting integrated disaster risk financing strategies for governments and the development of private catastrophe risk insurance markets. It aims to test the credibility of Pacific catastrophe risk models and the appetite of international reinsurers for Pacific catastrophe risks. It uses parametric triggers, linking immediate post-disaster insurance payouts to specific hazard events, which, in terms of climate-related loss and damage, includes typhoons. The countries covered are Samoa, Solomon Islands, Tonga and Vanuatu. The World Bank currently serves as the intermediary.

As part of the deliverable, PCRAFI also made available a comprehensive regional historical hazard catalogue and historical loss database for major disasters – the Pacific Risk Information System, containing country-specific information on assets, population, hazards, and risk maps showing the geographic distribution of potential losses for each country.

64. There were no institutional arrangements identified in the Pacific that met the mapping criteria for the category of assessing non-economic loss and damage. However, there were other Asia-Pacific institutional arrangements, which cover the Pacific in regional scope.⁵⁸

65. Many of the institutional arrangements focusing on data, information and knowledge exchange aspect of addressing loss and damage follow a partnership approach or are networks of similar arrangements.⁵⁹ Training and capacity-building in the development and application of data, information and knowledge have also been provided by regional institutional arrangements.

66. Much of the work to address slow onset events comes in the form of donor projects, given that bilateral aid is a major source of funding in the region;⁶⁰ however, time-bound projects are outside of the scope of this paper, and work being undertaken by international

⁵⁸ Such as the Asia Pacific Migration Research Network and, in some cases, ADB.

⁵⁹ For example, the Pacific Islands Ocean Observing System partners with the 11 other regional observing programmes and the University of Hawaii's School of Ocean and Earth Science Technology.

⁶⁰ Such as a domestic project on the impacts of climate on health in Fiji, supported by WHO and the Global Environment Facility.

entities is captured in the details on the existing institutional arrangements at the global level (see annex I for further details).⁶¹

67. There is a notable gap in the Pacific's regional institutional arrangements to address loss and damage, according to the mapping, in relation to water resources, coral reefs, biodiversity, agriculture and forests, which are under increasing strain and threat in the region. Similar to in the other regions, a coordination gap remains, especially in terms of synergizing DRR frameworks and adaptation arrangements, although work has started in the region to address that gap.⁶²

F. Cross-cutting issues

68. Following the summary on regional perspectives, this section presents some of the trends and gaps in existing institutional arrangements in relation to a set of following key cross-cutting issues:

- (a) Coordination, coherence and synergies among stakeholders;
- (b) Risk management continuum;
- (c) Financial institutional arrangements;
- (d) Data and knowledge sharing.

1. Coordination, coherence and synergies among stakeholders

69. While effective responses, measures and implementation models for adaptation and addressing loss and damage are widely recognized to be cross-sectoral in character, many of the related governance structures and institutional arrangements that oversee them remain sectoral in nature. This can create fragmentation and overlap in coverage in terms of implementation of relevant action.

70. The majority of the global institutional arrangements mapped under the category of policy and process were MEAs.⁶³ The current approach of most of the MEAs mapped is to mainstream adaptation into their work programmes, policy decisions and commitments. As loss and damage associated with the adverse effects of climate change is an emerging perspective, integrating loss and damage considerations and responses into the current work and mandates of existing environmental management systems, including MEAs, poses new challenges.

71. It will be important to consider the loss and damage related knowledge needs of those MEAs and what their current access is to the latest climate data, science and robust advice on response measures.

72. The mapping exercise identified the overlap in mandate, function and work programmes of the MEAs as a key institutional challenge. Given the complex nature of environmental and developmental issues, overlaps cannot be avoided; however, coordination offers a key opportunity, in the context of environmental treaty obligations, to

⁶¹ Such as the Coral Triangle work of WWF and the work of the Food and Agriculture Organization of the United Nations on aquacultures and fisheries.

⁶² For example, the Joint National Action Plans process, which is helping countries in the region to develop action plans that coordinate assessment, planning and implementation for both disaster risk and climate change adaptation. In addition, the Pacific Centre for Environment and Sustainable Development has developed an integrated methodology for climate change, disaster risk management and sustainable development, which is being piloted regionally.

⁶³ It is important to note that the MEAs mapped are those that meet the mapping criteria and are already working on loss and damage to some degree.

avoid complications in the national implementation of agreements and to improve efficiency across implementation efforts.

73. Furthermore, there are several organizations, such as the United Nations Environment Programme, the United Nations Development Programme, the United Nations University and the International Union for the Conservation of Nature, addressing interlinkages and synergies among, and the clustering of, MEAs. However, a significant institutional gap remains, which calls for mechanisms or arrangements to coordinate the vast body of loss and damage related work already going on at the global level. A lack of space, provision and opportunities for relevant MEAs to jointly consider coordination needs hinders a more systematic approach to coordination, particularly around funding sources and diverging reporting, monitoring, enforcement regimes and scientific background.

74. This calls for strong arrangements for coordination between the institutions and agreements at the global level. However, very few formal coordination arrangements or mechanisms were found between the mapped MEAs. Current coordination on loss and damage related issues between the MEAs appears to be limited to shared online platforms, infrequent coordination meetings and ad hoc activities, workshops and working groups.

75. For instance, within the UNFCCC process, there have been workshops and expert meetings held⁶⁴ as well as documents prepared (e.g. UNFCCC, 2009; UNFCCC, 2010a; UNFCCC, 2010b) in order to explore synergies in climate-related risk management in the context of adaptation, such as the technical paper on synergy among MEAs in the context of national adaptation programmes of action (UNFCCC, 2005). In addition, the Adaptation Committee (see box 8),⁶⁵ as part of the Cancun Adaptation Framework, was set up to, among other things, promote synergy and strengthen engagement with national, regional and international organizations, centres and networks.

⁶⁴ These include technical workshops on: collaboration among regional centres and networks (Apia, Samoa, 2–5 March 2010), advancing the integration of approaches to adaptation planning (Bangkok, Thailand, 12–14 October 2009); integrating practices, tools and systems for climate risk assessment and management and disaster risk reduction strategies into national policies and programmes (Havana, Cuba, 10–12 March 2009).

⁶⁵ For details on the Adaptation Committee and its work, see <<http://www.unfccc.int/6053>>.

Box 8

The Adaptation Committee

A key function of the Adaptation Committee (AC) is to promote synergy and strengthen engagement with national, regional and international organizations, centres and networks, in order to enhance the implementation of adaptation actions, in particular in developing country Parties.

The AC, which recently completed its first year of operation, has embarked on the implementation of several activities in this context.^a For example, the AC invited regional institutions and United Nations agencies to communicate their current support for adaptation in developing countries, including in relation to capacity building, including of national institutions. Information received from these institutions and agencies will facilitate further consideration by the Committee, aimed at strengthening the roles of regional institutions and United Nations agencies in supporting enhanced adaptation action in developing countries. The first call for submissions concluded on 5 August 2013, with a second call to be issued shortly. An analysis of responses received will be made available in an information paper in early 2014.

Furthermore, as a first step towards strengthening the role of regional centres and networks working on adaptation, the AC will compile a list of such centres and networks, including their activities and capacities, make this information available online and ensure it is updated regularly.^b The AC also plans to develop a strategy to address relevant gaps and opportunities identified, including potentially by establishing an expert group to address those gaps and opportunities.

^a These activities are contained in its three-year work plan which was adopted by COP 18.

^b This activity is scheduled to be implemented in the first half of 2014.

2. The risk management continuum

76. A number of the institutional arrangements mapped are undertaking or using risk assessments as the basis for their management measures, rather than focusing solely on assessments. The mapping showed that all aspects of the risk management continuum for weather-related disasters are generally covered by existing institutional arrangements (from assessment to response options, such as reduction, retention and transfer).

77. However, climate-related risk reduction at the operational level is often viewed as being synonymous with either adaptation or DRR. Therefore, further development and crystallization of what constitutes effective approaches to addressing loss and damage, above and beyond what is necessary for adaptation, is essential before an evaluation of coverage will be possible.

78. On the other hand, institutional arrangements to address the actual incurred loss and damage resulting from slow onset events were generally less salient. For institutional arrangements working on restoration and rehabilitation measures, it proved difficult to ascertain the direct link to loss and damage resulting from climate impacts outside of the programme or project level. Therefore, the major gaps and challenges in this regard relate to current knowledge and thinking on the specific needs for addressing loss and damage, which are different and unique from those for adaptation. There is also a notable gap in institutional arrangements at the global, regional or national level to help countries to build their understanding of the scale of the loss and damage challenge. Gaps also exist in institutional arrangements that seek to acknowledge, account for and address non-economic loss and damage.

3. Financial institutional arrangements

79. Whilst there are a notable number and variety of funding sources and schemes that can be leveraged and mobilized to address different aspects of loss and damage, a key challenge during the mapping of finance-related institutional arrangements was tracking actual funding allocated and disbursed to loss and damage related work. This poses a challenge in assessing the level of gaps in the current finance for work related to addressing loss and damage. But there are tools being developed to address this challenge, for example the “Rio Markers” (see box 9)

Box 9

The Rio markers

The Rio markers, developed by the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development, provide an estimate of financial flows targeting the objectives of the Rio Conventions, based on statistics on aid and other resource flows to developing countries from bilateral and multilateral donor agencies. Since 1998 the DAC has monitored aid targeting the objectives of the Rio Conventions using the Rio markers. Loss and damage relevant markers include adaptation, biodiversity and land degradation and desertification. The climate markers indicate donors’ policy objectives in relation to each aid activity funded. They can be marked as either principal or significant objectives. The markers allow an approximate quantification of aid flows that target those objectives.

80. In the case of Latin America, where the majority of nations are middle-income countries, donors have gradually redirected assistance to regions that they consider more vulnerable, despite a pressing need in low-income countries within the region for adaptation measures. Similarly, many States in the Caribbean, also classified as middle-income countries, have little or no access to concessional financing. This results in a lack of fiscal ability to support regional institutional arrangements. The relatively low level of international arrangements for financial support limits regional institutions in the development and execution of policies, strategies and programmes to address climate-related risks.

4. Data and knowledge sharing

81. A large number of institutional arrangements exist and are currently addressing the data- and knowledge-sharing aspect of addressing loss and damage. The mapping exercise revealed an absence of the assessment of knowledge needs for addressing loss and damage that focuses on the specific data and knowledge requirements for serving particular aspects of loss and damage. In this context, and given the functional and operational overlap, there is also a lack of information on how the current arrangements for adaptation are meeting the data and knowledge needs for addressing loss and damage. In this regard, taking stock of current data- and knowledge-sharing arrangements for adaptation may guide how to address loss and damage through data and knowledge sharing and fill any identified gaps, as well as avoid duplication of efforts.

82. According to the mapping conducted for this paper, there is no overarching system, arrangement, institution or process for collecting, exchanging or disseminating relevant knowledge among stakeholder groups or between those working on other relevant areas. However, the Nairobi work programme on impacts, vulnerability and adaptation to climate change (see box 10) could potentially play a role in facilitating such knowledge exchange among different stakeholder groups.

Box 10

The Nairobi work programme on impacts, vulnerability and adaptation to climate change

The Nairobi work programme on impacts, vulnerability and adaptation to climate change (NWP) was adopted by the Conference of the Parties at its eleventh session^a under the Subsidiary Body for Scientific and Technological Advice (SBSTA). The objective of the NWP has been to assist all Parties, in particular developing country Parties, including the least developed countries and small island developing States:

(a) To improve their understanding and assessment of impacts, vulnerability and adaptation to climate change;

(b) To make informed decisions on practical adaptation actions and measures to respond to climate change on a sound scientific, technical and socioeconomic basis, taking into account current and future climate change and variability.

The implementation of the NWP is structured around two broad themes: impacts and vulnerability; and adaptation planning, measures and actions. The NWP was designed to facilitate knowledge sharing and learning and to catalyse actions in relation to adaptation to climate change by engaging a wide range of stakeholders.

The SBSTA mandates the organization of a series of knowledge-sharing events under the NWP and encourages the broad participation of all adaptation stakeholder groups and the development and dissemination of a diverse range of knowledge products.

In the course of its implementation, the NWP has provided a principal platform within the UNFCCC process for dialogue between Parties and organizations on the scientific, technical and socioeconomic aspects of adaptation to climate change.

^a Decision 2/CP.11.

G. Concluding notes

83. The mapping exercise conducted for this paper has initiated the work on developing an overview of existing institutional arrangements in relation to addressing a full spectrum of loss and damage associated with climate change impacts. Owing to the absence of a set of definitive boundaries for defining institutional arrangements relevant to addressing loss and damage, and the extensive and diverse nature of these arrangements, the information summarized in this paper should not, therefore, be considered as definitive or exhaustive in representing the landscape of relevant existing institutional arrangements, although efforts have been made to achieve the greatest possible coverage within the constraints of time and resources available for developing this paper.

84. Despite the caveat of the mapping exercise noted above and the challenge of developing an overview of a vastly diverse and numerous relevant institutional arrangements, a number of trends emerge from the preliminary analysis. Across all regions, a significantly larger number of relevant institutional arrangements focus on addressing loss and damage associated with extreme weather events than those with slow onset events; no institutional arrangement working specifically or solely on addressing the non-economic loss and damage associated with climate change impacts was identified; relatively fewer numbers of institutional arrangements are in place to address transboundary loss and damage; institutionalized provisions for financial support for addressing loss and damage

are mostly centrally placed at the global level; and despite the large number of relevant institutional arrangements at both global and regional level, coordination and collaboration is currently insufficient.

85. The mapping exercise conducted for this paper, albeit non-exhaustive, suggested that there is a significant number of institutional arrangements at both the global and regional level focusing on different aspects of efforts to address loss and damage: technical backstopping, as well as data and knowledge sharing. The mapping also identified many institutional arrangements at international, regional and subregional levels that are directly supporting countries in the policy and process aspects of addressing loss and damage. All these existing arrangements provide a good basis and further opportunities for enhancing action and support for addressing loss and damage. In this regard, further stocktaking of existing mandates of arrangements from thematic perspectives, in terms of climate hazards, as well as at the national or subnational level, may further assist Parties in understanding the gaps and opportunities for addressing them in ways that will increase synergy and coherence and avoid duplication of efforts.

86. In accordance with the mandate, Parties may use the information contained in this technical paper in their general consideration of the establishment of institutional arrangements, such as an international mechanism, including functions and modalities, elaborated in accordance with the role of the Convention as defined in decision 3/CP.18, paragraph 5.

Annex I

Global institutional arrangements addressing loss and damage associated with climate change impacts

1. As indicated in paragraph 6 above, 120 global institutional arrangements are included in the mapping exercise. A list of these institutional arrangements is provided in annex VII and a summary is presented in this annex.

A. Policy and process

2. Eighteen global institutional arrangements are identified as focusing on loss and damage relevant policy and process. These IAs have different models to perform their respective roles, and with different key player(s).

3. This group of global level IAs have diverse thematic focuses, including economic development and cooperation (the Organisation for Economic Co-operation and Development–OECD), industry such as the World Tourism Organization (UNWTO), and multilateral environmental agreements such as the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD), and the Convention on International Trade in Endangered Species (CITES). In addition, the Adaptation Committee (AC) under the UNFCCC was established to provide global level coordination, particularly with relation to the means of implementation as well as knowledge management on adaptation.

4. The institutional arrangements under the multilateral environment agreements, including the Rio Conventions, have a range of implementation models, such as the development of knowledge products, technical meetings and workshops, expert groups, national reporting, as well as specific work programmes etc. Three of these IAs use regulations, ranging from general commitments (e.g. United Nations Convention on the Laws of the Sea (UNCLOS)) to specific commitments (e.g. CITES) and guiding principles (e.g. the Hyogo Framework for Action (HFA)).

5. In relation to key stakeholders, about half of the IAs are mandated by governments, while others are networks of local governments (e.g. C40 Cities Climate Leadership Group, International Council for Local Environmental Initiatives (ICLEI)), networks of industry (e.g. the Geneva Association, Carbon Disclosure Project, Forest Stewardship Council), arrangements operating under United Nations agencies/processes (e.g. the AC, the United Nations Finance Initiative, UNWTO) and intergovernmental organizations (IGOs), or led by investors and insurers (e.g. Climate Wise, the Global Framework for Climate Risk Disclosure). All industry institutional arrangements gather industry heads and leaders around a shared set of principles to promote action.

B. Technical backstopping for assessing and managing risks of loss and damage

6. A total of 43 institutional arrangements are identified as engaged primarily in the provision of technical backstopping for assessing and/or managing risks of loss and damage associated with climate change impacts.

Assessing the risks of loss and damage

7. Many independent studies¹ provide assessments and analyses of the economic aspects of climate change. They cover such areas as ecosystems, biodiversity and land degradation. The Economics of Ecosystems and Biodiversity (TEEB) is a global institutional arrangement² focusing on valuation of ecosystems and biodiversity. TEEB works with decision-makers to recognize, demonstrate and capture the values of ecosystems and biodiversity, including how to incorporate these values into decision-making. The results of their work have been widely shared.³

8. A number of institutions have developed methodologies for assessing economic loss at the macro level, particularly in relation to damage and losses due to disasters. Building on work initially carried out by the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC), a consortium of institutions including the World Health Organization (WHO), the World Bank, the Inter-American Development Bank, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Labour Organization, have developed the Damage and Loss Assessment (DALA) methodology. Another institution, the Centre for Research on the Epidemiology of Disasters, is a WHO Collaborating Centre.⁴ In relation to climate related loss and damage, the Centre carries out research on the environmental and socio-economic impacts of natural disasters.

9. The Economics of Land Degradation (ELD)⁵ highlights the value of sustainable land management and aims to make the economics of land degradation an integral part of policy strategies and decision-making by increasing the political and public awareness of the costs and benefits of land and land-based ecosystems.⁶

10. In addition, there is a range of institutional arrangements carrying out assessment and valuation of non-economic impacts of 'human development and natural phenomena, ranging from environmental impact assessment of local infrastructure projects, to climate change impacts, adaptation and vulnerability assessments at the global scale (UNFCCC, 2013). For example, the following global level IAs have been carrying out assessment relating to the non-economic loss and damage associated with climate change:

- (a) Norwegian Refugee Council (NRC), on refugees;
- (b) Office of the United Nations High Commissioner for Refugees (UNHCR), on human rights;

¹ Such as Stern (2007).

² TEEB was the outcome of discussions at the 2007, G8+5 environment ministers meeting where ministers agreed the need to analyze the global economic benefit of biological diversity, the costs of the loss of biodiversity and the failure to take protective measures versus the costs of effective conservation, and to start the process and costing this.

³ Findings of this study were presented in an interim report at a High-Level Segment of the CBD COP 9. Since then, TEEB has produced a series of papers on a country level and on thematic areas such as Water and Wetlands (initiated by the Ramsar Convention Secretariat), TEEB Manual for Cities, the TEEB Climate Issues Update, TEEB Oceans discussion paper and a Rio+20 focus paper, Nature and its Role in the Green Economy.

⁴ CRED works in collaboration with the European Union Humanitarian Office, the International Federation of Red Cross and Red Crescent Societies and a wide range of United Nations agencies.

⁵ Partners include UNCCD, European Union, German and Korean Governments, IFPRI, Stockholm Environment Institute and the Global Mechanism. United Nations University–Institute for Water, Environment and Health UNU-INWEH) is responsible for the scientific coordination in partnership with the Center for Development Research (ZEF) of the University of Bonn.

⁶ In September 2013, the ELD launched its first report for decision-makers at the UNCCD COP 11, detailing why land is chronically undervalued and why investment in sustainable land management pays off.

- (c) International Labour Organization (ILO), on workers rights;
- (d) International Organization for Migration (IOM) and Nansen Initiative, on displacement and human mobility;
- (e) WHO, on human health;
- (f) UNESCO on, loss of cultural heritage;
- (g) UNCLOS, on loss of territory.

11. Institutional arrangements such as the Office of the United Nations High Commissioner for Refugees are working on population displacement and mobility induced by climate change and adapting its environment-related planning to address climate change. The NRC focuses on assessing displacement caused by sudden and slow onset natural disasters. It also has an advocacy function and works with governments and international bodies such as the United Nations Leadership Forum to recognize a more holistic approach to displacement. This is because many displacement cases have interrelated causes and climate change is often a major driver. The NRC is also part of the Nansen Initiative, which focuses on those displaced by extreme weather.

12. The IOM has 151 member states and offices in 100 countries.⁷ It focuses on reducing the “vulnerability of populations exposed to environment risk factors, assisting populations on the move as a result of environmental causes, and building capacities of governments and other stakeholders to face the challenge of environmental migration”. Since the early 1990s, IMO has been working on these issues. Its implementation modalities include carrying out research,⁸ convening policy dialogue forums for key stakeholders, and humanitarian responses to displacements caused by natural disaster.

13. At the policy level, IMO has taken the lead in building partnerships with other relevant agencies and institutes. For example, it established the Climate Change, Environment, and Migration Alliance (CEEMA) in partnership with the United Nations Environment Programme, United Nations University, OCHA, SEI, WWF International and the Munich Re Foundation. In partnership with the IFRC, UNHCR and the Representative of the Secretary-General on Human Rights of Internally Displaced People, IMO has taken an active role incorporating climate change on the humanitarian agenda, including through participation in the Interagency Standing Committee (IASC).

14. The Nansen Initiative was set up in October 2012, funded by the European Commission, Switzerland and Norway. It aims to create a “protection agenda” to address the needs of those displaced by extreme weather, including the adverse effects of climate change. The work of the Nansen Initiative has only just begun but it is to lead, in 2013–2014, five regional consultations⁹ in areas most affected by extreme weather and climate change. The objective of this initiative is to compile enough information for a global consultative meeting, to be held in 2015, where it is hoped a protection agenda will be created for those effected by extreme weather and climate-change displacement.

15. Organizations such as UNHCR,¹⁰ ILO¹¹ and the WHO are developing policy guidance and advocacy in relation to assessing the impacts of climate change on human rights, the rights of workers and health, respectively. In 2008, UNHCR began a study on

⁷ 12 States holding observer status.

⁸ IMO published a landmark study called ‘Addressing the Issues of Migration and the Environment (1992).

⁹ Primary stakeholders include states, academic institutions, civil society, and affected people.

¹⁰ OHCHR has the unique mandate to promote and protect all human rights internationally.

¹¹ ILO promotes the rights of the worker by encouraging good employment opportunities, better social protection, and increasing the dialogues on work-related issues.

connection of climate change and human rights. The study concluded that growing challenges of climate change will affect human rights directly, in particular the rights to life, food, water, health, housing and self-determination. This study brought the issue of climate change and human rights to the international community and highlighted the responsibility of nations to safeguard the human rights of those who will be adversely affected by climate change.

16. Anticipating that climate change will have a significant effect on the average worker, ILO carries out research and provides policy guidance. For example, in the Philippines, ILO is monitoring severe weather events in order to help protect farmers. It also has published numerous studies, including “Climate Change and Labour: The Need for a ‘Just Transition’ ”. Much of the work of ILO on climate change is carried out by Bureau for Employers’ Activities (ACT/EMP). In 2007, the ACT/EMP created Sustainable Enterprises Programme of ILO, which states that sustainable enterprise can only exist when socio-economic development is accompanied by environmental protection.¹²

17. WHO plays a major role in supporting member states in the protection of human health from climate change. WHO provides policy guidance, assessment of global health trends, and technical support to help strengthen the health sector’s response to climate change.¹³

Managing the risks of loss and damage

18. A notable number of global level arrangements were identified as engaged in providing technical backstopping for managing risks of climate related loss and damage. Their activities primarily focus on risk transfer and disaster risk reduction (DRR).

19. IAs engaged in risk transfer activities have differing roles, ranging from providing technical expertise, guidelines and training for local banks and insurance companies, to the development of pilot schemes in developing countries offering a range of insurance models, from microinsurance to formal insurance managed by private sector firms.

20. The World Bank is particularly active in work on risk transfer. The Bank’s Social Resilience unit recently carried out pilot work on index-based weather insurance and other market-based instruments in a number of countries in Africa, Asia and Central America. The Social Resilience unit is also leading the initiative on Financial Innovations for Social and Climate Resilience (FISCR). The initiative assesses the affects of index insurance on the welfare and risk-management strategies of poor households (World Bank, 2012). FISCR is also looking at how to make market-based risk-financing schemes affordable and accessible to the poorest and how to scale up market-based schemes, as well as gathering evidence on livelihood transformation, poverty reduction and long-term resilience-building in the face of disaster risk.

21. In addition to FISCR, the Commodity Risk Management Group (CRMG) of the World Bank’s Agricultural and Rural Development Department (ARD) is focused on improving developing countries’ ability to manage risk related to agriculture. ARD/CRMG currently works in 18 countries.¹⁴ In 2007/08 ARD/CRMG created a conceptual framework and a set of detailed guidelines for conducting more system-wide assessments of risk and vulnerability within agricultural supply chains (World Bank, 2008).

¹² ILO states that any measures, including tax incentives and regulations, to encourage enterprises toward reasonable consumption should be taken.

¹³ Two projects currently under way are the Climate Change Adaptation to Protect Human Health and Protecting Health from Climate Change.

¹⁴ Ethiopia, India, Kenya, Malawi, United Republic of Tanzania, Thailand, Ukraine and a number of countries in Central Asia.

22. The World Bank is also working with the European Commission on the Global Index Insurance Facility (GIIF). This is a multi-donor trust fund that supports the development and growth of local markets for weather and catastrophic index-based insurance such as catastrophe bonds and weather derivatives in developing countries, primarily Sub-Saharan Africa, Latin America and the Caribbean and South Asia. The GIIF has provided grants to five implementing partners to create index insurance markets in Kenya, Mozambique and Rwanda in East and Southern Africa, and Benin, Burkina Faso, Mali and Senegal in West Africa. In addition, the World Bank is working on regulatory and policy issues to support index insurance markets in 18 countries in Sub-Saharan Africa.

23. The Food and Agriculture Organization of the United Nations (FAO) has a number of field projects focusing on country-driven risk-management strategies and approaches, including risk reduction, risk transfer and risk sharing.¹⁵

24. Foundations such as the Bill & Melinda Gates Foundation also support work in this area. In 2002, the Bill and Melinda Gates Foundation supported the establishment of MicroEnsure - the world's first and largest organization whose exclusive focus is to address the mass market's need to mitigate risk.¹⁶ MicroEnsure provides, among others, crop and health insurance. It partners with a range of microfinance organizations (MFIs), global non-governmental organizations (NGOs), faith-based networks and mobile phone companies. MicroEnsure provides more than four million people around the world with insurance, 80 per cent of whom have never before been insured.¹⁷

25. Several of the arrangements mapped are index based schemes. The International Fund for Agricultural Development (IFAD) has been working on index insurance. With a grant from the Bill and Melinda Gates Foundation, IFAD and the World Food Programme (WFP) launched the Weather Risk Management Facility (WRMF).¹⁸ Other examples of index insurance arrangements include GlobalAgRisk, which focuses on agricultural insurance, natural disaster risk and rural finance. GlobalAgRisk works with governments, donors, the private sector, NGOs and local communities to develop and implement solutions for catastrophic weather risk. It has national programmes with Bulgaria, Ethiopia, Ghana, India, Indonesia, Peru, Mali, Mexico, Mongolia, Morocco, Nicaragua, Romania, Turkey, Ukraine, the United States of America and Viet Nam.

26. The United Nations Office for Disaster Risk Reduction (UNISDR) is the focal point in the United Nations system for the coordination of DRR. It also functions to ensure synergies on DRR work among the United Nations system, regional organizations, socio-economic and humanitarian organizations. In addition, work of the UNISDR on DRR seeks to minimize the impact of disasters on vulnerable communities. Most institutional arrangements have multiple roles, such as mainstreaming climate change into disaster risk management. For example, the UNISDR's primary focus of work in relation to loss and damage can include the development of specific policies at the international level on the linkages between reducing disaster risk and responding to climate change, guiding national and regional action to integrate policies and practices, and strengthening capacities to support the integration of disaster reduction and climate change by all actors. The

¹⁵ Relevant activities carried out by FAO also include location specific crop and livestock management practices aimed at reducing loss and damage. Good practices and improved technologies are also being implemented through field demonstrations. Scaling up and replication of good practices is also ongoing. Several member countries have prepared risk management plans in agriculture sector through technical assistance provided by FAO.

¹⁶ See <<http://www.microensure.com/resources-aboutus.asp>> for further details.

¹⁷ It currently operates in Ghana, Grenada, India, Jamaica, Kenya, Saint Lucia, Malawi, Malaysia, Mozambique, Philippines, Rwanda, United Republic of Tanzania and Zambia.

¹⁸ WRMF has conducted global research in government and donor best practice in weather index-based insurance (WII), while supporting WII pilots in China and Ethiopia (IFAD and WFP 2010).

Partnership for Environment and Disaster Risk Reduction advocates for ecosystem-based DRR.

27. The implementation models employed by institutional arrangements focusing on supporting risk management are diverse. The DRR community has developed various frameworks for vulnerability and risk assessment, which are coordinated through organizations such as the International Committee of the Red Cross and the International Federation of Red Cross and Red Crescent Societies. WFP works through food assistance programmes, social protection programmes and safety nets, risk finance schemes, insurance for food security, capacity-building and policy dialogue, support to national and regional food security, and DRR policies and strategies.

28. Generally, these institutional arrangements work with a diverse range of partners: donors, governments at all levels, other United Nations agencies, non-governmental organizations, community-based organizations, institutions for higher learning and research, and private sector entities, among others.

C. Data, information and knowledge exchange

29. At the global level, 36 institutional arrangements have been identified as having a focus on data and knowledge sharing, consisting of networks or platforms, research institutes or partnerships, monitoring centres or groups of monitoring centres, international organizations, technology transfer or reporting mechanisms, along with a number of early warning systems. The majority of these arrangements have a primary focus on a wider range of environmental issues, though many of them have knowledge management and sharing platforms relevant to loss and damage as part of their mandate. The identified institutional arrangements cover topics such as climate impacts, adaptation to climate change, and generating and sharing data and information on extreme weather events and slow onset events.

30. Among the institutional arrangements specifically focusing on loss and damage is the United Nations University (UNU). UNU contributes through partnerships in research and education, and the Loss and Damage in Vulnerable Countries Initiative which aims to build common understanding and momentum to act on loss and damage. UNISDR coordinates for and supports countries establish national disaster loss accounting systems that capture historical human, infrastructure and economic losses and damages of disasters with disaggregated data at provincial level. Under the UNFCCC, the Climate Technology Centre and Network (CTCN) focuses on providing overview of relevant technological needs and data analysis.

31. Other institutional arrangements focus on loss and damage in respect of their specific areas of activity, such as adaptation, disasters, biodiversity and forests, land degradation, glacial retreat, sea level rise, ocean acidification, salt water inundation.

32. A number of arrangements also address loss and damage through their work on climate science and adaptation. The periodic assessment reports of the Intergovernmental Panel on Climate Change (IPCC) provide comprehensive assessment of the current state of knowledge on the physical scientific basis of climate change, its potential environmental and socio-economic impacts, and adaptation and mitigation responses. The Data Distribution Centre (DDC) of the IPCC provides climate, socio-economic and environmental data based on historical observations and projections for the future. It also provides technical guidelines for the use of such data and scenarios in climate impacts research and assessments. The World Meteorological Organization (WMO) plays a leading role in facilitating the international efforts to monitor and research hydrometeorological systems through its wide ranging programmes and initiatives, such as the Global Framework

for Climate Services, and provides vital meteorological data. Other relevant adaptation-specific programmes are the Programme of Research on Climate Change Vulnerability, Impacts and Adaptation, and the Nairobi Work Programme on impacts, vulnerability and adaptation to climate change under the UNFCCC, which provides a global platform for knowledge sharing and learning on adaptation (see box 10).

33. The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) is the leading intergovernmental body for assessing the state of the planet's biodiversity, its ecosystems and essential services. The Climate Change and Biodiversity Programme of UNEP World Conservation Monitoring Centre (UNEP-WCMC) provides decision makers with policy-relevant information on biodiversity and ecosystems. The International Union for Conservation of Nature (IUCN) also addresses biodiversity conservation and sustainability work through science, action and influence, contributes to the documentation and understanding of non-economic losses, particularly impacts on essential ecosystem services. Organizations working on forests and forest-related issues include the Center for International Forestry Research (CIFOR), the DIVERSITAS. The CGIAR Research Programme on Climate Change, Agriculture and Food Security (CCAFS) is a collaboration effort among 15 research centers to address challenges in agriculture, land degradation and food security.

34. In the area of sea level rise, ocean acidification, salt water inundation, the Intergovernmental Oceanographic Commission (IOC) of UNESCO is the main body for ocean science, ocean observatories, ocean data and information exchange, and ocean services such as Tsunami warning systems. The exchange of oceanographic data and information is facilitated by its International Oceanographic Data and Information Exchange (IODE) programme. The Joint Technical Commission for Oceanography and Marine Meteorology (JCOMM) is a mechanism for international coordination of oceanographic and marine meteorological observing, data management and services. Other arrangements working on ocean issues include the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, the Global Ocean Observing System, the International Oceans Institute, and the International Council for the Exploration of the Sea (ICES). Internationally coordinated monitoring of glaciers and ice caps through the Global Terrestrial Network for Glaciers (GTN) is a system of networks that provides an umbrella for existing and operational monitoring services. A body providing authoritative, clear and user-friendly data, information, and analyses on the past, current and future state of the cryosphere to support science, decision-making and environmental policy is the Global Cryosphere Watch (GCW) of WMO.

35. The identified institutional arrangements use a wide variety of implementation models for data, information and knowledge sharing. The IPCC, UNEP-WCMS and IPBES review and assess existing information and knowledge. Other institutional arrangements generate and share data through a network of monitoring centres. For example, the IODE has a network of 80 oceanographic centres, and IOC-UNESCO runs a Global Sea Level Observing System (GLOSS) with 290 sea level stations. Others draw on pools of experts, such as the 11,000 experts with whom IUCN works, the 4000 scientists who are part of the ICES network and the 15 CGIAR research centres that the research programme CCAFS can draw upon.

36. At the global level there are a number of early warning systems in place with a focus on hydrometeorological hazards, such as floods, mudflows, tropical cyclones, droughts and mass movements including landslides. In addition, there are also a number of arrangements that addresses degradation processes that contribute to an increase in vulnerability and frequency and intensity of natural hazards, such as desertification.

37. At the global level the mapping revealed that capacities to monitor and predict hydrometeorological hazards are relatively more developed than for other types of

hazards.¹⁹ WMO plays a significant role in this area and is one of the primary coordinating mechanisms. It works through its network of 187 National Members, its 10 Scientific and Technical Programmes, three World Meteorological Centres and 40 Regional Specialised Meteorological Centres (all operated or supported by national meteorological centres). This global network supports observing, monitoring, detecting and forecasting hazards and the issuing of early warnings for weather-, climate- and water- related hazards, such as extreme temperature, severe storms, tropical cyclones, floods and droughts.²⁰

38. WMO's Global Data Processing and Forecasting System (GDPFS) provides technical support, analysis, forecasts, alerts and bulletins to the national agencies of all countries. However, the forecasting system for certain climate and weather related hazards is limited. In addition, the WMO Global Tropical Cyclone Warning System is a global network for observations, data exchange and regional forecasting and analysis capabilities, operated by national and regional specialized meteorological centres. The network provides forecasts, alerts and bulletins on the intensity and path of cyclones.

39. UNESCO is also working with institutions such as WMO to coordinate operational flood warning system with many national agencies for river flooding. For example, the International Flood Network Initiative Programme is a joint programme of UNESCO and WMO and operated by the International Centre on Water Hazard and Risk Management (ICHARM). The International Flood Network, through the Global Flood Alert System, provides information on precipitation based on satellite data to global subscribers for free of charge.

40. Most flash flood monitoring takes place at the national level. However, at the global level, warning systems have been developed covering several international rivers, such as the Mekong, Indus and Ganges–Brahmaputra–Meghna basins in Asia and the Zambezi in Southern Africa. Globally, the Dartmouth Flood Observatory in the United States detects, maps, measures and analyses extreme flood events worldwide.

41. In terms of food security, the Global Information and Early Warning System on Food and Agriculture of FAO (FAO/GIEWS) is the most complete global system for early warning systems focusing on food security. FAO/GIEWS and WFP also carry out joint crop and food security assessment missions to vulnerable regions.

42. The International Consortium on Landslides (ICL) was created in 2002 with support from UNESCO, WMO, FAO, UNISDR and the Government of Japan, as well as Kyoto University. It aims to coordinate international actions towards landslide risk reduction through project implementation. The mapping exercise did not reveal global arrangements specifically focused on loss and damage due to desertification. However, most of the related work currently being undertaken in this area is coordinated through the WMO and UNCCD.

D. Financial schemes and funds

43. The mapping exercise identified 23 global funding and financing schemes related to assessing and addressing loss and damage.

¹⁹ Global Survey of Early Warning Systems: An assessment of capacities, gaps and opportunities toward building a comprehensive global early warning system for all natural hazards, A report prepared at the request of the Secretary-General of the United Nations. September, 2006.

²⁰ The integrated Global Observing System (GOS) of the WMO enables the systematic observation and collection of weather, climate and water information from around the globe, while the Global Telecommunications System (GTS) provides a network of continuously operating telecommunication facilities and centres connecting countries through their national agencies.

44. The Adaptation Fund supports particularly vulnerable developing countries in implementation of adaptation projects and programmes. Two other funds under the UNFCCC, the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF) finance long-term and short-term adaptation activities. The LDCF has had the specific focus of financing the preparation and implementation of National Adaptation Programmes of Action in LDCs. The Green Climate Fund, though still not fully operational, is expected to become the main multilateral financing mechanism to support climate action in developing countries.

45. Another major financial institutional arrangement focusing on support for adaptation is the Pilot Programme for Climate Resilience (PPCR) under the Climate Investment Fund (CIF). PPCR finances technical assistance and investments to support countries' efforts to integrate climate risk and resilience into core development planning and implementation. Development projects are being financed by the multilateral development banks and the World Bank.²¹

46. The Global Environment Facility (GEF) serves as an operating entity of the UNFCCC. It has provided grants and co-financing for over 3,000 projects in more than 165 countries. The GEF's Small Grants Programme provides financial and technical assistance to projects directly to the local communities.

47. A number of financial institutional arrangements provide targeted funding for projects on biodiversity, land degradation, forest issues and DRR. IFAD focuses exclusively on rural poverty reduction, working with poor rural populations in developing countries. It also houses the Global Mechanism, under the UNCCD, which provides direct funding toward sustainable land management to help reverse and prevent specifically the effects of desertification, land degradation, and drought. The Benefit-sharing Fund of the International Treaty on Plant Genetic Resources for Food and Agriculture supports farmers in developing countries conserve crop diversity and also has an adaptation focus. The Rainforest Trust Fund supports projects for reforestation and forest degradation. A partnership whose primary aim is to support developing countries as they implement the Hyogo Framework for Action, the Global Facility for Disaster Reduction and Recovery, addresses DRR and recovery.

48. Almost all of the identified financial institutional arrangements provide funding only to developing countries. The European Investment Bank is the one exception, since European Union members are also eligible for lending and blending services.

49. The implementation models for the financial institutional arrangements are primarily grants, but concessional loans and the provision of financial strategy, advice and leveraging are also used.

²¹ Such as the Development Marketplace which aims to create jobs and deliver a range of social and public services to low-income groups.

Annex II

Institutional arrangements addressing loss and damage associated with climate change impacts in Africa

1. As indicated in paragraph 6 above, 35 institutional arrangements are included in the mapping exercise. A list of these institutional arrangements is provided in annex VII and a summary is presented in this annex.

A. Policy and process

2. Ten institutional arrangements in Africa with a policy and process focus were included in the mapping for this paper, with half of them formal and binding pan-Africa agreements being implemented domestically by national governments. The vast majority of the 10 institutional arrangements are the result of groups of Governments in Africa working together to further national development

3. The African Union is central in these arrangements and has established the New Partnership for Africa's Development (NEPAD) which leads in many of the arrangements. NEPAD has climate change adaptation and mitigation as a thematic priority, along with agriculture and food security, among others. NEPAD has also developed the Africa Regional Strategy on Disaster Risk Reduction in partnership with United Nations Office for Disaster Risk Reduction (UNISDR) to increase the effectiveness of African disaster policies. In partnership with the United Nations Economic Commission for Africa, the African Union also supports the African Climate Policy Centre (ACPC).

4. The implementation models across the arrangements vary, although most of them are agreements coupled with strategies and/or action plans. United Nations agencies or African Union bodies support the implementation of the agreements at the sub-regional level through administrative agencies. Another implementation model is using legal instruments to provide vulnerable communities with legal protection. Most of the institutional arrangements focus on non-economic losses.

B. Technical backstopping

5. The mapping exercise identified four institutional arrangements in Africa with a focus on providing technical backstopping for the assessment and management of risks of loss and damage associated with climate change impacts.

6. The Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) was the only existing institutional arrangement mapped as providing technical backstopping for assessing risks of loss and damage in the continent. It seeks to transform agriculture in the sub-regions and runs programmes addressing biodiversity, livestock, fisheries and crops as well as up-scaling solutions. It has been carrying out assessment of climate resilient crops. The 'upscaling' programme has particular relevance to loss and damage and provides a mechanism for supporting decision-makers and communities with new technologies and innovative ways to assess and address loss and damage, for example, through remote sensing and index insurance.

7. The most substantial pan-Africa arrangement for managing climate related risks of loss and damage is the African Risk Capacity (ARC). It is mandated by Governments through the African Union to pool risk, and is delivered by a secretariat and registered private sector company. In addition, the 4Rs Rural Resilience Initiative (R4) and the

African Climate and Development Initiative (ACDI) also provide technical support for the management of climate related risks. The R4, initiated in 2010, aims to increase the resilience of poor farmers and improve their income and food security through risk transfer, risk retention, prudent risk taking and risk reserves. The intended beneficiaries of sub-regional initiatives are communities, normally those affected by drought, and the beneficiaries of the pan-Africa initiative are national Governments. Similar to those arrangements focusing on assessing the risk, the trends in implementation models of these arrangements also include the use of remote sensing and index insurance schemes which are based on climate and scientific data. Risk reduction is incentivized in all of the arrangements.

C. Data, information and knowledge exchange

8. Some 14 institutional arrangements were identified as having been undertaking activities relating to data, information and knowledge exchange.

9. About half of these institutional arrangements have a focus on disaster risk reduction (DRR) and the other half on slow onset processes. There are five subregional climate data and service centres which provide support to national policy and decision-making with climate data in the short, medium and long term. Three of these centres run Regional Climate Outlook Forums.¹ These are globally-linked forums which provide regular outlook communications on climate data.

10. National governments are the main beneficiaries of twelve of the arrangements mapped under this category, and civil society organizations are the main beneficiaries of the online platforms serviced by these arrangements. The majority of the work in this field is implemented by regional bodies, which produce data, information and advice and bring national stakeholders together.

11. In Africa sub-regional centres are the most advanced form of modality to facilitate the exchange of data, information and knowledge. Larger arrangements are supported by global meteorological and scientific organizations providing data to the centres, who then in turn support countries in the sub-regions to analyse and use the data and information. All the sub-regional arrangements which focus on data and knowledge management offer capacity-building for national Government partners. The sub-regional climate centres support states in generating, using and communicating climate data. Regular meetings are held, for example, by the Intergovernmental Authority for Development (IGAD) Climate Prediction and Applications Centre (ICPAC) in East Africa and the Horn of Africa to develop regional forecasts. Several of the centres also run training and capacity-building, whereby connections are established with pan African support centres and schemes.

12. Most of the economic communities in Africa are served by the various climate data and service centres, most of which focus on meteorology and provide predictive climate data for decision making.

D. Financial schemes and funds

13. Three financial schemes and/or funds were identified for addressing climate related loss and damage in Africa: ARC, the ClimDev Special Fund, and the African Development Bank (AfDB) administered Pilot Programme for Climate Resilience (PPCR).

¹ For more information see
<http://www.wmo.int/pages/prog/wcp/wcasp/clips/outlooks/climate_forecasts.html>.

14. ARC is a risk pool designed to reduce the risk management costs of member countries. The fund requires an initial capitalization of USD100 million. ARC has the potential to significantly help countries in the region to address loss and damage through supporting risk transfer and risk retention.

15. The ClimDev Special Fund was established by the AfDB and became operational in 2013. It aims to raise USD 800 million to reduce poverty and climate risks through enhanced knowledge generation and dissemination, capacity-building and pilot programmes, by 2020.²

16. PPCR, an adaptation funding window under the Climate Investment Fund is aimed at inspiring transformational change and contributing to climate resilient sustainable development through the promotion of building resilience into national development policies and plans. Currently, three PPCR pilot countries are in Africa: Mozambique, Niger and Zambia. These countries have approved finance of USD 86 million, USD 110 million and USD 115 million, respectively, in grants and near zero interest credits to implement climate resilience activities.

17. The majority of the funds in Africa that have relevance to loss and damage currently seem to be associated with the UNFCCC processes, with supported activities implemented by United Nations agencies. Significant investment, however, is being made on the continent in regards to risk reduction.

E. Transboundary issues

18. The mapping exercise identified four institutional arrangements in Africa which have a main focus on transboundary issues associated with assessing and addressing risks of climate change related loss and damage. All the arrangements focus on river basins and forests, and are mostly commissions, partnerships or sub-regional authorities. They are all intergovernmental, with arrangements for delivery and coordination through their permanent bodies. Implementation models include interstate agreements, policy harmonization, regional adaptation strategies and resource allocation. All the institutional arrangements have a strong focus and infrastructure for information exchange. Practical assistance is also offered through pilot projects.

² Africa Development Bank. Press release: *ACP Grants €20 million to AfDB, AU and ECA in the Fight Against Climate Change*. 19/02/2013. Available at <<http://www.afdb.org/en/news-and-events/article/acc-grants-eur20-million-to-afdb-au-and-eca-in-the-fight-against-climate-change-11501/>>.

Annex III

Institutional arrangements addressing loss and damage associated with climate change impacts in Asia

1. As indicated in paragraph 6 above, 43 institutional arrangements are included in the mapping exercise. A list of these institutional arrangements is provided in annex VII and a summary is presented in this annex.

A. Policy and process

2. The six institutional arrangements mapped in the policy and process category in Asia are mandated by governments through regional bodies, with governments being the primary stakeholders. Policy and regulation is unsurprisingly a common implementation model in this category. The focus of their work in relation to loss and damage is almost entirely on disaster management, from risk reduction to coordinated responses.

3. Given the focus of these arrangements on disaster management, the primary role of the arrangements is to coordinate responses in the event of a disaster or emergency.

4. All the arrangements mapped under this category have joint agreements on disaster management, whether strategies, action plans, frameworks or, in the case of Association of Southeast Asian Nations (ASEAN), a legally binding regional framework.

B. Technical backstopping in relation to assessing and managing the risks of loss and damage

5. There are 19 institutional arrangements in Asia involved in providing technical backstopping relating to the assessing and managing the risks of loss and damage.

Assessing the risks of loss and damage

6. Though some work on economic assessment of loss and damage is being undertaken by international entities such as the World Bank and the United Nations Development Programme (UNDP), international insurance companies and some governments (e.g. Indonesia), there is only one regional institutional arrangement engaged in work relating to the economic loss and damage in Asia, the Asian Development Bank (ADB).¹

7. The mapping identified a number of regional institutional arrangements working on assessing, costing and valuing non-economic loss and damage of migration and ecosystems and biodiversity.

8. The focus of the Greater Mekong Sub-Region Environment Operation Centre (GMS-EOC), and the partnership between ASEAN and the Economics of Ecosystems and Biodiversity (TEEB), is that of quantifying and valuing ecosystem services. The International Centre for Integrated Mountain Development (ICIMOD) addresses at valuing ecosystems in mountainous regions.

¹ In addition to the recent study on the economics of climate change in East Asia (see box 3), the ADB, in 2009, also published a study, “The Economics of Climate Change in Southeast Asia: A Regional Review”, which projects the total economic cost of climate change threats could equal between 6 per cent and 7 per cent of Asian countries’ gross domestic product (GDP) by the end of the century. It also projects that investments of around 0.2 per cent of GDP could protect coastal and urban infrastructure from the greatest impacts of climate change.

Managing the risks of loss and damage

9. A number of institutional arrangements are mapped for their work on risk management for climate related loss and damage, primarily through risk transfer and disaster risk reduction (DRR).

10. The majority of work on risk transfer is delivered through national institutional arrangements and through national and international insurance companies, both of which fall beyond the scope of this mapping exercise. As the market share of state-owned enterprises has decreased in recent years, along with government restrictions on foreign ownership of domestic operators, international insurers and reinsurers are increasing their presence in the region.² Most of the work on domestic risk transfer including insurance, and is supported and bolstered by regional institutional arrangements such as the ADB and CGIAR Research Program on Climate Change, Agriculture and Food Security. The two groups support the development of risk insurance and micro-insurance at a national level through capacity building and technical assistance.

11. Almost all Asian countries are covered by DRR-focused networks and alliances. The primary role of these regional networks is to provide policy guidance, scientific advice, and to generate and share research and good practice. For example, the South Asia Association of Regional Cooperation (SAARC) Disaster Management Centre provides policy guidance on disaster risk to the eight members of the SAARC: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The Centre's work is implemented through the National Focal Points of the member countries. The Asian Disaster Preparedness Centre (ADPC) also implements regional programmes and develops relevant regional mechanisms.

12. Most of the institutional arrangements provide technical and/or scientific advice. For example, the Asia-Pacific Gateway for Disaster Risk Management and Development, a network of 22 member country governments and scientific and academic partners, promotes research on global change, and strengthens interactions between the science community and policymakers. The Asian Cities Climate Change Resilience Network, whose primary stakeholders are municipal governments, aims to raise awareness, funding and action on building climate change resilience for poor and vulnerable people. It creates robust models and methodologies for assessing and addressing risk through active engagement with and analysis of cities. The network includes India, Indonesia, Thailand, and Viet Nam.

13. There is also a number of centres whose primary role is to disseminate information and provide technical assistance. These include the Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM) and the Programme for Enhancement of Emergency Response (PEER), which provide capacity building, training and technical assistance for healthcare facilities in 10 Asian countries. The ADPC delivers its work through an annual conference for information sharing and the IDentifier (Global Unique Disaster Identifier GLIDE) system. It also shares risk information through satellite images, including for GLOFs, or Glacial Lake Outburst Floods in Bhutan.

14. The Asian Disaster Reduction Centre (ADRC) has 30 member countries across the region and works with five advisory countries (Australia, France, New Zealand, Switzerland, and the United States of America). Institutional arrangements such as the Asia Pacific Alliance for Disaster Management take a transnational disaster aid approach, operating through an alliance framework to facilitate cooperation and understanding between governments, private companies and non-governmental organizations in the Asia Pacific region. Countries covered include Indonesia, Japan, the Philippines, the Republic of Korea and Sri Lanka.

² Available at:

<[https://www.gfdr.org/sites/gfdr.org/files/DRFI_ASEAN_DRFI_draft_report\(October%2030,%202011\).pdf](https://www.gfdr.org/sites/gfdr.org/files/DRFI_ASEAN_DRFI_draft_report(October%2030,%202011).pdf)>.

15. Institutional arrangements use a range of implementation models. These include climate risk management, community-based DRR, public health risk management, emergency preparedness and response system development, geological hazard risk management, end-to-end multi-hazard early warning systems, mainstreaming DRR into development, post-disaster recovery and reconstruction risk assessment, and technological hazard risk management.

C. Data, information and knowledge exchange

16. Some 11 institutional arrangements in Asia were identified as having a primary focus on data, information and knowledge exchange, though many more of the region's institutional arrangements mapped in this exercise also have information exchange and knowledge sharing within their mandates. Institutional profile of the arrangements ranges from networks, monitoring centres, coordination mechanisms and academic institutions. Specific themes being covered include water, agriculture, disaster risk, and meteorological information and services. Data, information and knowledge exchange activities range from knowledge sharing, methodology development, data (including real-time data) provision, and training and capacity building.

D. Financial schemes and funds

17. Three financial schemes and funds were identified in Asia: the Water Financing Partnership Facility (WFPF),³ the Asia Pacific Disaster Response Fund (APDRF) and the International Fund for the Aral Sea.

18. In general, these arrangements were found to leverage disaster-aid budgets. For example, the APDRF provides incremental grant resources to developing member countries affected by a major natural disaster. The APDRF disburses grants quickly to developing country members of the ADB to assist in meeting the immediate costs of restoring life-saving services to affected populations after a declared disaster. The International Fund for the Aral Sea provides financial support for the Aral Sea Basin Program (ASBP).

19. However, the WFPF, established in 2006, has a wider remit, including provision of grants, concessional loans and technical assistance. Funding for the WFPF is provided by the governments of Australia, Austria, Netherlands, Norway, Spain and Switzerland. As of December 2012, the WFPF had received USD 72.34 million and 37 projects had been approved for funding.

E. Transboundary issues

20. The mapping exercise identified four institutional arrangements in Asia which have a focus on transboundary issues relevant to addressing climate change related loss and damage. All the four institutional arrangements mapped focus on river basins, although the Lower Mekong Initiative focuses on a broad range of transboundary issues, including agriculture and food security, connectivity, education, energy security, environment and water, and health. The main function of transboundary institutional arrangements is to govern shared resources and protect or conserve the commons.

21. All institutional arrangements mapped under this category are intergovernmental, with arrangements for delivery and coordination through their permanent bodies. Implementation models include interstate agreements, policy harmonisation, regional adaptation strategies and resource allocation. All the institutional arrangements have a strong focus and infrastructure for information exchange, such as the Lower Mekong Initiative's Coordination Hub.

³ Financed through the Asian Development Bank.

Annex IV

Institutional arrangements addressing loss and damage associated with climate change impacts in the Caribbean

1. As indicated in paragraph 6 above, 28 institutional arrangements are included in the mapping exercise. A list of these institutional arrangements is provided in annex VII and a summary is presented in this annex.

A. Policy and process

2. Five institutional arrangements have been identified in the Caribbean. These institutional arrangements are focussed on establishing synergy between sustainable development and climate change, building technical and institutional capacity, managing and adapting to climate change and associated climate risk (including those arising from extreme weather conditions and slow onset events) and disaster risk reduction (DRR) and the dissemination of climate-relevant information. All these institutional arrangements are regulatory in nature. The institutional arrangements provide a range of functions, including providing policy guidance and facilitating political dialogue, enhancing coordination and collaboration and promoting action. Implementation models include pilot projects and programmes, assessment and use of tools and technology, and action plans for implementation. Key stakeholder groups include international and regional entities and groups, government ministries, statutory bodies and special committees, from both the private sector and civil society.

3. Policy and process focused institutional arrangements in the Caribbean have mainstreamed adaptation into development plans and policies through the implementation of key projects.¹

B. Technical backstopping

4. Fourteen institutional arrangements have been mapped for undertaking work relating to the provision of technical backstopping in the region for assessing and/or managing risks of loss and damage associated with climate change impacts.

Assessing the risks of loss and damage

5. Several IAs in the region contribute to estimates and reports of economic loss across the Caribbean, mostly via donor agencies and regional organizations, with governments being the main users of the results. Some methodologies have been employed to assess what could be lost under a range of scenarios, and others to assess actual damage.

6. The United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) has developed its own in-house methodology, “The Handbook for Estimating the Socio-economic and Environmental Effects of Disasters 2003”,² for assessing economic loss and damage using a consistent and coherent approach. The methodology requires comprehensive assessments covering the complete range of disaster impacts and their cross-implications for economic and social sectors, physical infrastructure and

¹ These include: the Caribbean Planning for Adaptation to Climate Change; the Adaptation to Climate Change in the Caribbean Project; the Mainstreaming Adaptation to Climate Change Project; the Special Programme for Adaptation to Climate Change: Implementation of Adaptation Measures in Coastal Zones Project; and the Reducing Risk to Human and Natural Assets Resulting from Climate Change Project.

² Available at <http://www.preventionweb.net/files/1099_eclachandbook.pdf>.

environmental assets. Due to its comprehensiveness, this methodology has been included in the global Damage and Loss Assessments (DALA) undertaken by the United Nations, the World Bank and others. At the request of member governments, UNECLAC assessed the economic impact of natural disasters on selected Caribbean countries from 1980 to 2004. The CARIBSAVE Partnership, supported by United Nations Development Programme (UNDP), currently provides the most detailed analysis of the damage and costs associated with sea level rise for the Caribbean Community (CARICOM) nations.³ The Caribbean Catastrophe Risk Insurance Facility (CCRIF) and Windward Islands Crop Insurance (WINCROP) are closely involved in estimating economic loss and damage in the Caribbean based on assessments after an actual event.

7. Most data and assessments on economic losses are associated with extreme weather events and natural hazards, due to the design of prevailing assessment methodologies and risk-transfer schemes. Economic loss and damage associated with slow onset events is not well documented.

8. In addition, institutional arrangements under this category primarily focus on impacts of extreme weather events (e.g. heavy rainfall and high wind events, coastal and inland flooding), and to a much less extent of slow onset events. Arrangements are hosted by or part of intergovernmental institutions, including agencies within the United Nations operating at the regional and sub-regional level (e.g. UNDP, UNECLAC); regional and sub-regional institutions (e.g. the Caribbean Community Climate Change Centre, the Caribbean Disaster Emergency Management Agency (CDEMA) and the Organization of Eastern Caribbean States); and international and regional non-governmental, not-for-profit organizations that specialize in non-economic loss assessments (e.g. CARIBSAVE).

9. Financial support to undertake loss assessments is received via regional and international aid mechanisms. Some arrangements have dedicated donor resources to allow for rapid assessment work to be conducted in the aftermath of a crisis.

10. Assessment of non-economic losses is generally carried out after impacts have taken place to measure actual loss. More recently, greater focus and priority has been given to the implementation of pre-impact assessments of potential loss across multiple scenarios to facilitate informed planning and risk-reduction efforts, with some arrangements focussing more on potential impacts and losses from slow onset events, in particular sea level rise, given the unique vulnerability of the region to sea level rise. Various methodologies and tools, both individually and combined, are employed across institutional arrangements at the community, national and regional levels.

11. Institutional arrangements providing technical backstopping for risk management in the Caribbean focus on two broad areas of work: risk transfer and DRR.

12. Given the small size of countries in the Caribbean and their high exposure to natural disasters, Caribbean nations have benefited from pooling their insurance risks in joint institutional arrangements. The regional schemes of note are CCRIF⁴ (see box 4) and WINCROP (see box 4).⁵

13. CCRIF is the world's first multi-country risk pool and offers unique parametric hurricane and earthquake insurance coverage to 16 participating governments in the Caribbean region. Its development was financed by the World Bank and CARICOM after

³ These are included in the report "Quantification and Magnitude of Losses and Damages Resulting from the Impacts of Climate Change: Modelling the Transformational Impacts and Costs of Sea Level Rise (SLR) in the Caribbean", available at <<http://intasave-caribsave.org/wp-content/uploads/sites/2/2013/10/Full-Report-Jan-2011-Final-sml.pdf>>.

⁴ Member countries: Anguilla, Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, and the Turks and Caicos Islands.

⁵ Member countries: Dominica, Grenada, Saint Lucia, and Saint Vincent and the Grenadines.

the devastating 2004 hurricane season. The facility is owned, operated and registered in the Caribbean for Caribbean governments. It is designed to limit the financial impact of catastrophic hurricanes and earthquakes on Caribbean governments through risk transfer by providing short-term liquidity (within one month of a catastrophic event) when a policy is triggered. Since the launch of CCRIF in early 2007, Caribbean Risk Managers Ltd (CaribRM) has been the facility supervisor, providing full operational, financial and risk management services. CaribRM's insurance services also extend to the commercial and industrial sectors, where the risk assessment team provides rapid and independent assessments of catastrophe events from both a hazard and loss perspective. CaribRM builds bespoke catastrophe risk models on a client-specific basis, with particular regional knowledge and strong technical experience in the hospitality sector. To keep the public up to date, it distributes a quarterly bulletin describing natural hazard events across the broader Caribbean basin as well as individual post-event bulletins. Client-focused real-time updates are also provided via secure client login to online servers. Since the only parametric currently used to measure hurricane damage is wind speed, payouts are often not triggered during tropical depressions, in which wind speeds do not reach hurricane level. Yet in milder tropical storm conditions excessive damage can still result from heavy and sustained rainfall. However, one limitation of the CCRIF is that it does not account for excessive rainfall events. In direct response to the interest expressed by many of the member governments and those considering joining, the CCRIF is developing an excess rainfall parametric for the region with the goal of making coverage available for tropical depressions and heavy rainfall events.

14. WINCROP is an example of an institutional arrangement for risk transfer in the banana industry in the eastern Caribbean.⁶ It has demonstrated sustained success in responding to farmers' claims immediately after the devastating storms and hurricanes that have affected the region since its inception in 1987. Part of WINCROP's success is explained by the use of on-call assessors to carry out assessments.

15. Each of these risk transfer institutional arrangements has helped to assist some farmers and governments in the Caribbean from having to absorb all of the costs of loss and damage associated with natural hazards. However, none of the risk transfer arrangements currently deals with slow onset events. Furthermore, the agriculture and public sectors are the primary recipients of this assistance, while risks in other sectors such as infrastructure are yet to be addressed.

16. The CDEMA is the main regional entity providing the region's response to extreme weather events and DRR. It provides policy frameworks, including at the industry level, such as tourism, and technical resources, to fulfil its mandate. To perform its functions, CDEMA works closely with the national agencies, which often possess the organizational capacity and ability to manage the situation before and after a natural disaster and therefore are better able to coordinate the efforts at the grassroots level, hence reducing time and effort in responding to the disaster and its effects on the lives and livelihoods of individuals, businesses and organizations. Results achieved to date through CDEMA include: capacity-building in disaster management and institutional strengthening for disaster management organizations; development of model disaster legislation for adaptation and application by participating states; development of model policies and guidelines for use in emergencies; improving emergency telecommunications and warning systems; development of disaster information and communication systems; and conducting vulnerability and capacity assessments that complement national and sub-national mapping of risks and hazards.

⁶ Risk transfer is particularly important for the banana industry, or more generally the agriculture sector in the Caribbean. Even though agriculture has declined in recent years as tourism and the service sector developed, it is still one of the most significant sources of income for Caribbean countries and remains a significant employer, representing approximately 20 per cent of total employment in the region.

C. Data, information and knowledge exchange

17. Seven institutional arrangements have been identified in the mapping exercise, with most of them focusing on building capacity, training and research, developing the skills of technical personnel, advocacy, disaster management, environmental management and certification. All these institutional arrangements also work on non-economic losses and have a specific focus on climate and natural resources/environmental management. Entities in charge of the institutional arrangements are a mix of non-governmental organizations, and regional and international institutions. The beneficiaries of the institutional arrangements are primarily local governments in the region and in some cases specific vulnerable communities.

18. The trends in implementation models vary but are mainly programmes and services that provide guidance and expertise in awareness-raising, climate change, environmental management systems and best practices, as well as the use of computational models for data analysis. In most cases, activities are carried out by the organization's secretariat or experts who work for the particular institution.

D. Financial schemes and funds

19. In addition to serving the Latin America region, the Inter-American Development Bank (IDB), also provides financial resources for the Caribbean. In terms of Caribbean-specific arrangements, the Caribbean Development Bank (CDB) is the main financial institution.

20. The CDB works towards the systematic reduction of poverty in the Caribbean through social and economic development. The CDB has been financing post-disaster rehabilitation since 1974. It uses Disaster Management Strategy and Operational Guidelines, which provide a comprehensive approach to disaster risk management and climate change adaptation. It supported the establishment of an information clearinghouse at the Caribbean Community Climate Change Centre in 2008. Related projects approved in 2012 were the Micro Insurance Catastrophe Risk Organisation (Haiti) Fund and Hurricane Tomas Recovery Programme.

21. CCRIF also has an important role to play in financing, though for the purposes of this mapping exercise has been categorized as a risk transfer institutional arrangement (see chapter B above).

Annex V

Institutional arrangements addressing loss and damage associated with climate change impacts in Latin America

1. As indicated in paragraph 6 above, 16 institutional arrangements are included in the mapping exercise. A list of these institutional arrangements is provided in annex VII and a summary of information on these arrangements is presented in this annex.

A. Policy and process

2. In Latin America, sub-regional bodies are generally taking the lead in the development of policy and regulatory frameworks. National governments seem to be the main drivers and beneficiaries of the institutional arrangements. Relatively less attention so far has been given to the subnational and community levels. Institutional arrangements have formed around sub-regional geopolitical entities, ecosystem resource management and livelihoods. Coordination mechanisms to facilitate cooperation, synergies and exchange across Latin America are scarce.

3. A geographical divide exists on priorities for addressing climate change impacts within Latin America. Central America focuses on management of extreme weather events, while the Andean Community is more concerned with slow onset events. They are the two most active sub-regions in policy dialogue and action related to addressing loss and damage.

4. The United Nations Economic Commission for Latin America and the Caribbean (UNECLAC), the Ibero-American Network of Climate Change Offices (RIOCC) and the Department for Sustainable Development of the Organization of American States (OAS) have a broad coverage for policy dialogue. However, these arrangements tend to be less active in the pursuit of cross-regional priorities specific to loss and damage.

5. On the other hand, more substantial activity is found at sub-regional level, especially in relation to extreme weather events. Central America, in particular, is developing an extensive network for governance of loss and damage-related matters due to extreme weather events. At least three sub-regional bodies have developed around the Central American Integration System (SICA). They are the Comisión Centroamericana para el Ambiente y el Desarrollo (CCAD), Centro de Coordinación para la Prevención de los Desastres Naturales en América Central (CEPREDENAC) and the Comité Regional de Recursos Hidráulicos (CRRH), as well as three associated policy frameworks which directly or indirectly address loss and damage, in particular that due to extreme weather events: Estrategia Regional de Cambio Climático (ERCC), the Regional Policy for Integrated Risk Management in Central America (PCGIR) and Marco Estratégico para la Gestión Integral de Riesgos Climáticos (MEGIRC).

6. In the category of policy and process, the mapping revealed an absence of arrangements in Central America specifically concerned with slow onset events. The Mesoamerica sub-region has a biodiversity conservation strategy, however, the absence of other institutional arrangements would suggest that slow onset events in this sub-region are also not seen as a priority. Only one initiative at sub-regional level is engaged in the assessment of some types of slow onset events in a systematic manner, the Economics of Climate Change Study Series, led by the sub-regional office of the UNECLAC in Mexico.

7. The Andean Community of Nations (CAN) is institutionally mandated to facilitate sustainable management of natural resources and address slow onset events, with three associated sub-regional bodies and policy frameworks: the Andean Environmental Agenda,

the Regional Strategy for Biodiversity in Andean Tropical Countries and a Regional Strategy on Integrated Water Management. Only one Andean institutional arrangement, the Andean Committee for Prevention and Attention to Disasters (CAPRADE), specifically addresses natural disasters and extreme weather events. It does so through the implementation of the Regional Strategy on Disaster Risk Reduction.

B. Technical backstopping in relation to assessing and managing the risks of loss and damage

8. There are three institutional arrangements in Latin America involved in providing technical backstopping relating to the assessing and managing the risks of loss and damage.

Assessing the risks of loss and damage

9. Work on the development of methodologies to capture, measure and account for the cost of economic loss and damage resulting from climate variability is relatively advanced in Latin America. Tools such as Damage and Loss Assessments (DALA), the Disaster Inventory System (DesInventar) and the Central America Probabilistic Risk Assessment (CAPRA) were designed and piloted in the region and have been broadly replicated worldwide.

10. UNECLAC has taken the lead in assessing economic loss and damage through DALA. DALA has become a key component of the post-disaster needs assessments (PDNA) methodology used at global level by the United Nations, European Commission and the World Bank Group. UNECLAC has further broadened its assessments with a series of studies on the economic impacts of climate change in South and Central America.¹ However, since the DALA methodology uses macroeconomic approach, it does not capture the socio-economic impacts of loss and damage at local or community levels.

11. The development and piloting of tools such as DALA, DesInventar and CAPRA, can be considered to be a Latin America's good practices on loss and damage. Their development was triggered with international seed funding support (mostly from the United Nations Office for Disaster Risk Reduction (UNISDR), the Global Facility for Disaster Reduction and Recovery, and the World Bank), highlighting the importance of financial support from donors at critical stages of development of institutional arrangements and innovations.

12. No institutional arrangement exists at regional or national level that specifically seeks to assess and manage non-economic loss and damage in the region. Arguably, adaptation and risk management are being mainstreamed into national development planning across the region, and policies and programmes are in place to strengthen social safety nets, reduce vulnerability and enhance resilience.

13. However, these measures are not sufficient to adequately assess the human, cultural and development opportunity costs that should be counted as non-economic loss and damage. The gap in assessing and addressing slow onset events in Latin America could be some of the inherent challenges common in all regions: developing quantifiable approaches and widespread understanding of non-economic loss and damage; addressing non-economic loss and damage through market-based schemes; and the use of management model approaches in addressing climate-related challenges.

14. As an example of assessing the non-economic losses and damages in a particular sector, the Pan-American Health Organization (PAHO) leads an effort to assess the adverse

¹ These studies also cover the Caribbean.

effects of climate change on the health sector. One of its goal is to protect health from climate change, vulnerability and adaptation assessments, and it has drafted technical guidelines, which include for:

- (a) Assisting researchers in conducting assessments of the vulnerability of populations to climate change;
- (b) Gathering evidence on the health impacts of climate change (with a focus on socioeconomic and gender inequities and vulnerable groups);
- (c) Incorporating indicators for climate and environmental health in national surveillance systems.

Managing the risks of loss and damage

15. Innovative approaches for risk transfer exist and are promoted by financial institutions. Inspired by the Caribbean Catastrophe Risk Insurance Facility, Central America is exploring insurance schemes for risk transfer under a joint-venture with the Inter-American Development Bank (IDB) and Swiss Re. Under the Regional Insurance Facility for Central America (RIFCA) scheme, these financial institutions deliver technical guidance at national level and facilitate access to international disaster insurance markets to promote climate risk transfer solutions in seven countries. RIFCA provides technical assistance and some seed funding at the national level. However its work is subject to support from donors and the private sector.

16. In addition to risk insurance, the IDB is also promoting other climate-related financial risk management tools. A number of countries across the region, including Costa Rica, Dominican Republic, Ecuador, Honduras, Panama and Peru, have so far benefited from the contingent loans for natural disaster emergencies provided by the IDB. These loans act as a mechanism to buffer the impact of natural disasters in national economies and budgets.

17. Most disaster risk reduction action in Latin America takes place at national and sub-national level, with increasing attention being given to community level. Policy work concentrates on reducing risk through preventive regulation (e.g. land use management, building codes enhancement etc) and mainstreaming disaster risk reduction and adaptation to climate change into development planning. Witin this context, a major role of sub-regional and regional institutions is to promote policy coordination, facilitate data and information sharing including on good practices.

18. United Nations agencies and programmes, such as UNISDR Americas and the United Nations Development Programme/Climate Risk Management Technical Assistance Support Project (UNDP/CRM-TASP), and regional institutions, such as the Risk Management and Adaptation to Climate Change (RISK-MACC) of the OAS, work at downscaling climate projections and promoting mainstreaming of climate scenarios, adaptation options and risk management into national and local development planning in order to strengthen resilience by building on efforts at the regional and international levels. Through enhanced access to relevant technical resources available at the regional level as well as the provision of information on available funds, the United Nations Environment Programme Regional Office for Latin America and the Caribbean (UNEP-ROLAC)² provides technical assistance for assessing and managing climate related risks.

² Through its Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean (REGATTA).

C. Data, information and knowledge exchange

19. Regional data management and research centres, knowledge-sharing platforms and information-sharing mechanisms related to loss and damage proliferate in Latin America. Six institutional arrangements in Latin America are mapped under this category. At the continental level, REGATTA, the UNEP-ROLAC led initiative, provides an online knowledge management platform and a gateway to develop regional capacities through sharing of climate-change technologies, information on experts and experiences in adaptation and mitigation.

20. Research and systematic observation of meteorological data and scientific assessments to produce climate scenarios and projections of impacts and risks are delivered by the International Research Centre on El Niño and the Inter-American Institute for Global Change Research, with the support of United Nations agencies and others.

21. More sector-oriented research and data sharing also occurs at sub-regional level through institutions such as the Water Centre for the Humid Tropics of Latin America and the Caribbean and the Comité Regional de Recursos Hidráulico. Extreme weather events are also the focus of at least two regional specialized disaster risk reduction platforms (RIMD under OAS and CRIDLAC promoted by UNISDR-LAC, PAHO, CEPREDENAC and others). At sub-regional level knowledge management is strengthened by at least two observatories working as repositories of good environmental practice (e.g. Regional Environment Observatory of SICA and Andean Environmental Information System of CAN).

22. Most of the data and knowledge management networks are well-established and have long-term plans, and climate monitoring in Latin America is more complete and consistent than in other regions. However, systematization efforts are rarely coordinated and potential for synergies remain significant. Several institutions in the region producing valuable data and knowledge lack coordination, resulting in overlapping mandates and activities.

D. Financial schemes and funds

23. Two financial schemes and funds were identified for supporting work relating to addressing loss and damage associated with climate change impacts in Latin America.

24. The IDB plays a key role in funding climate action in the region. IDB offers grants, concessional loans, technical assistance, and undertakes relevant research. In 2009, IDB created the Sustainable Energy and Climate Change Initiative (SECCI) funded by Austria, Germany, Finland, Italy, Japan, Korea, Spain, and the United Kingdom of Great Britain and Northern Ireland. Priority areas of SECCI include adaptation to climate change.

25. Central America is developing innovative finance schemes in support of the sub-region's strategies to address loss and damage. The Central American Fund for Integrated Risk Management (FOCECIR) established by CEPREDENAC in 2011, is a solidarity fund for disaster risk reduction. The fund provides support to SICA countries (Belize, Dominican Republic, El Salvador, Honduras, Guatemala, Nicaragua and Panama) to address priorities in their national disaster risk management and vulnerability reduction plans and to coordinate the implementation of the regional activities. The Fund was expected to mobilize USD 24 million between 2012 and 2015. However, to date FOCECIR has only managed to channel start-up funds from the World Bank, the Central American Bank for Economic Integration, and the Government of Switzerland. Under the guidance of CCAD, SICA countries are also exploring the establishment of a regional Mesoamerican Fund for the Payment of Environmental Services. When fully operationalized, this fund could help address losses of biodiversity associated with slow onset events.

Annex VI

Institutional arrangements addressing loss and damage associated with climate change impacts in the Pacific

1. As indicated in paragraph 6 above, 23 institutional arrangements are included in the mapping exercise. A summary of information on these arrangements is presented in this annex.

A. Policy and process

2. Nine institutional arrangements in the Pacific were identified as having a primary focus on loss and damage related policy and process, ranging from geopolitical, economic communities, regional joint agencies, environmental dialogues and frameworks.

3. The Madang Framework is found to be the overarching framework for disaster risk management in the Region and the Pacific Islands Framework for Action on Climate Change (PIFACC) is the one for climate change, including adaptation and loss and damage. The Joint National Action Plan Process supports countries to develop national action plans which integrate planning for the two, coordinating domestic efforts to adaptation and disaster risk reduction (DRR).

4. The Secretariat of the Pacific Community (SPC) runs the Oceanic Fisheries Programme and the Coral Reef Initiative for the South Pacific. Under the Pacific Islands Forum Secretariat (PIFS), the Pacific Oceanscape Framework and the Pacific Islands Regional Oceans Policy (PIROP) focus on good governance of the oceans, sustainable development and adaptation. The Pacific Adaptation to Climate Change Project of the Secretariat of the Pacific Regional Environment Programme (SPREP) is developing capacity for coastal management and strengthening water resource management in relation to addressing damage to and building the resilience of coastal zones to the impacts of climate change.

5. Consideration for climate-induced migration and displacement is being integrated into the work plan of several institutional arrangements. PIFS and SPREP have both supported, instigated and taken part in related workshops. Beyond this, migration sits under the umbrella of broader economic schemes such as the Pacific Seasonal Workers Scheme with Australia and similar cooperation with New Zealand.

6. The South Pacific Tourism Organization, SPREP and the PIF cover disaster risk within their mandate and work programme. SPREP and the SPC also focus on biodiversity issues, particularly relating to coral reefs.

7. These institutional arrangements are implemented through projects and programmes, permanent arrangements for monitoring climate impacts, joint agreements or policy guidance, roundtables, forums or dialogues, as well as research activities.

B. Technical backstopping

8. Three regional institutional arrangements were identified as playing a role in providing technical backstopping for the assessment and/or management of risks associated with climate related loss and damage: The Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI), the Pacific Disaster Risk Management partnership Network (PDRMPN) and the Pacific Platform for Disaster Risk Management (PPDRM).

9. Beyond those arrangements in the Asia-Pacific region, the single Pacific-only institutional arrangement focusing on assessing economic losses is PCRAFI. It is a joint

initiative of the Applied Geoscience and Technology Division of the SPC, the World Bank and the Asian Development Bank (ADB), with financial support from the Government of Japan and the Global Facility for Disaster Reduction and Recovery. The initiative has produced 15 country risk profiles to date, each of which project, in both financial terms and casualties, the losses expected to be incurred for buildings, infrastructure and crops. The projections include the cost of rebuilding, repairing and replacing damaged assets as well as the financial implications of loss, such as emergency response and relief efforts.

10. There were no institutional arrangements in the Pacific which met the mapping criteria for the category of assessing non-economic loss and damage. However, there were other Asia Pacific institutional arrangements which cover the Pacific in regional scope, such as the Asia Pacific Migration Research Network and, in some cases, the ADB.

11. In addition, PDRMPN supports the development of national action plans, with 12 developed to date. The PPDRM focuses on facilitating the harmonization of existing regional mechanisms for disaster risk management in the Pacific.

C. Data, information and knowledge exchange

12. In the Pacific, 10 institutional arrangements were identified under this category. These arrangements cover a range of focus areas, play a number of roles and provide a range of services related to loss and damage: Pacific-Australia Climate Change Science Adaptation Planning Programme (PACCSAP), Pacific Islands Global Ocean Observing System (PacIOOS), Pacific Islands Applied GeoScience Commission (SOPAC), Pacific Climate Impacts Consortium (PCIC) are involved in observation, forecasting and monitoring, while PCIC, PacIOOS, SOPAC also focus on climate scenarios development and modelling.

13. Training and capacity building on the development and application of data, information and knowledge have also been provided by the regional institutional arrangements. To date, 215 people have received training provided by the University of the South Pacific (USP) Global Climate Change Alliance, on tropical cyclones, coral reef health, climate data sets and sea level rise. Pacific Meteorological Council of SPREP assesses the needs and priorities of its member countries and territories concerning meteorology and related fields.

14. The PCIC and the USP also focus on developing methodologies and assessment approaches. The PCIC, USP Global Climate Change Alliance project, and the Pacific Centre for Environment and Sustainable Development (PACE-SD) are undertaking and supporting risk, vulnerability assessment and adaptation plans. PACE-SD has been piloting on a regional scale an integrated methodology for climate change, disaster risk management and sustainable development.

15. Many of the institutional arrangements follow a partnership approach or are networks of similar arrangements. For example, PacIOOS partners with the 11 other regional observing programmes and the University of Hawaii's School of Ocean and Earth Science Technology. In addition, PACCSAP and the Pacific Climate Change Portal use online portals as a major pillar of its work.

D. Financial mechanism and funds

16. The only regional institutional arrangement for financing related to loss and damage is PCRAFI (see chapter B above). In addition to the development of risk management tools and assessments, PCRAFI is engaging in a dialogue with countries in the region on integrated financial solutions for the reduction of their financial vulnerability to natural

disasters and climate change, and on integrated disaster risk financing strategy for governments.

17. PCRAFI launched the Pacific Catastrophe Risk Insurance Pilot in January 2013, which aims to provide governments with immediate funding if a major (natural) disaster occurs. It includes both supporting integrated disaster risk financing strategies for governments and the development of private catastrophe risk insurance markets. It also aims to test the credibility of Pacific catastrophe risk models and the appetite of international reinsurers for Pacific catastrophe risks. The development objective is to reduce the financial vulnerability of Pacific island states to natural disasters by improving their financial response capacity in the aftermath of natural disasters while protecting their long-term fiscal balance. It uses parametric triggers, linking immediate post-disaster insurance payouts to specific hazard events, which in terms of climate-related loss and damage includes typhoons. The countries covered are Samoa, Vanuatu, Tonga and Solomon Islands. The World Bank currently serves as the intermediary.

Annex VII

List of institutional arrangements mapped for the paper¹

Global-level institutional arrangements addressing loss and damage associated with climate change impacts

Adaptation Committee of the United Framework Convention on Climate Change (UNFCCC)

Adaptation Fund

Benefit-sharing Fund of the International Treaty on Plant Genetic Resources for Food and Agriculture

Carbon Disclosure Project

Centre for International Earth Science Information Network

Centre for International Forestry Research

CGIAR Research Programme on Climate Change, Agriculture and Food Security

Climate and Development Knowledge Network

Climate Investment Fund

Climate Technology Centre and Network

ClimateWise Initiative

Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention of UNFCCC

Convention on the Conservation of Migratory Species

Convention on the International Trade in Endangered Species of Wild Fauna and Flora

Danone Fund for Nature

Dartmouth Flood Observatory

DIVERSITAS

Economics of Land Degradation

Ecosystem Marketplace

European Development Bank for Reconstruction and Development

European Investment Bank

Food and Agriculture Organization of the United Nations

Geneva Association

Global Alliance for Disaster Risk Reduction

GlobalAgRisk

Global Climate change Alliance

Global Environment Facility

Global Facility for Disaster Reduction and Recovery

Global Framework for Climate Risk Disclosure

Global Framework for Climate Services

¹ As the mapping of institutional arrangements for the purpose of this paper is non-exhaustive in nature, the list of institutional arrangements contained in this annex should not be taken as a definitive reflection of the actual work being carried out in addressing loss and damage associated with climate change impacts. For the same reason, the numbers of arrangements mapped for different regions do not necessarily reflect the level of relevant activities across the regions.

Global Index Insurance Facility
Global Mechanism
Global Ocean Observing System
Global Terrestrial Network for Glaciers
Global Water Partnership Organization
Green Climate Fund
Hyogo Framework for Action 2005–2015
Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (UNESCO)
International Council for Local Environmental Initiatives
International Food Policy Research Institute
Intergovernmental Panel on Climate Change
Intergovernmental Platform on Biodiversity
International Atomic Energy Agency/ United Nations Convention to Combat Desertification Partnership
International Consortium on Landslides
International Council for the Exploration of the Sea
International Federation of Red Cross and Red Crescent Societies
International Fund for Agricultural Development
International Labour Organization
International Livestock Research Institute
International Ocean Institute
International Oceanographic Data and Information Exchange
International Organization for Migration
International Union for Conservation of Nature
Joint Technical Commission for Oceanography and Marine Meteorology
Least Developed Countries Expert Group of the UNFCCC
Least Developed Countries Fund of the UNFCCC
Loss and Damage in Vulnerable Countries Initiative
MicroEnsure
Nairobi Work Programme on impacts, vulnerability and adaptation of the UNFCCC
Nansen Initiative
Natural Resources Defence Council
Non-Legally Binding Instrument on All Types of Forests
Nordic Development Fund
Norwegian Refugee Council
Oceans Advisory Group
Oceans Compact
Office of the United Nations High Commissioner for Refugees
Organisation for Economic Cooperation and Development
Partnership for Environment and Disaster Risk Reduction
PreventionWeb
Programme of Research on Climate Change Vulnerability, Impacts and Adaptation

Programme on Forests
 Rainforest Trust Fund
 Ramsar Convention on Wetlands
 REDD-net
 Regular Process for Global Reporting and Assessment of the State of the
 Marine Environment
 Solution Exchange – Climate and Disaster Risk Reduction
 Special Climate Change Fund of the UNFCCC
 Standing Committee on Finance of the UNFCCC
 Surging Seas
 Technology Executive Committee of the UNFCCC
 The Economics of Ecosystems and Biodiversity
 The Nature Conservancy
 United Nations Children's Fund
 United Nations Convention on the Law of the Sea
 United Nations Convention on Biological Diversity
 United Nations Convention to Combat Desertification
 United Nations Development Programme
 UNESCO
 United National Environment Programme (UNEP)
 UNEP Finance Initiative
 UNEP World Conservation Monitoring Centre
 United Nations Human Settlements Programme
 United Nations Office for Disaster Reduction
 United Nations Office of the High Commissioner for Human Rights
 United Nations University
 World Food Programme
 World Health Organization
 World Meteorological Organization
 World Resources Institute
 World Tourism Organization
 World Wildlife Organization

**Institutional arrangements addressing loss and damage associated with
climate change impacts in Africa**

Africa Climate and Development Initiative
 Africa Regional Strategy on Disaster Risk Reduction
 Africa Risk Capacity
 African Union
 African Climate Policy Centre of the United Nations Economic Commission for Africa
 African Centre of Meteorological Application for Development
 African Convention on the Conservation of Nature and Natural Resources
 African Development Bank

African Ministerial Conference on the Environment
African Network of Basin Organisations
Agreement on the Conservation of African-Eurasian Migratory Waterbirds
Agriculture, Hydrology, Meteorology Regional Centre
Association for Strengthening Agricultural Research in Eastern and Central Africa
Climate Prediction and Applications Centre
Climate System Analysis Group, University of Cape Town
ClimDev Special Fund
Comprehensive Africa Agriculture Development Programme
Congo Basin Forest Partnership
Famine Emergency Warning System Network
Indian Ocean Commission
International Certificate of Transhumance
Observatory for the Forests of Central Africa
Observatory for the Sahara and Sahel
Robert S. Strauss Centre
Southern African Development Community
Treaty on the Conservation and the Sustainable Management of Forest Ecosystems in Central Africa
United Nations Economic Commission for Africa
Views from the Frontline
West African Science Service Centre on Climate Change and Adapted Land Use
4Rs Rural Resilience Initiative

Institutional arrangements addressing loss and damage associated with climate change impacts in Asia

Association of Southeast Asian Nations (ASEAN)
Regional Resource Centre for Asia and the Pacific
ASEAN Partnership with the Economics of Ecosystems and Biodiversity
Asia Catastrophe Pool
Asia Flood Network
Asia Insurance Review
Asia Pacific Disaster Response Fund
Asia Pacific Migration Research Network
Asia-Pacific Network on Climate Change
Asia-Pacific Water Forum
Asian Cities Climate Change Resilience Network
Asian Development Bank
Asian Disaster Preparedness Centre
Asian Disaster Reduction Center
Asia-Pacific Economic Cooperation
Asia-Pacific Gateway for Disaster Risk Management and Development
Asia-Pacific Network for Global Change Research
Asian Partnership on Disaster Reduction

Central Asia Regional Economic Cooperation
 Central Asia Climate Knowledge Forum
 Central Asia Regional Risk Assessment
 Coordinating Body on the Seas of East Asia
 Disaster Management Centre
 Greater Mekong Subregion Environment Operations Centre
 Incheon Regional Roadmap and Action Plan on Disaster Risk Reduction
 Indian Ocean Rim Association for Regional Co-operation
 International Centre for Climate Change and Development
 International Centre for Integrated Mountain Development
 International Fund for the Aral Sea
 Interstate Commission for Water Coordination of Central Asia
 Lower Mekong Initiative
 Mangroves for the Future
 Mekong River Commission for Sustainable Development
 Network of Asian River Basin Organizations
 Partnerships in Environmental Management for the Seas of East Asia
 Shanghai Cooperation Organization
 South Asian Association for Regional Cooperation
 South Asian Seas Action Plan
 South East Asian Regional Center for Graduate Study and Research in Agriculture
 Southeast Asian Fisheries Development Center
 Water Financing Partnership Facility

Institutional arrangements addressing loss and damage associated with climate change impacts in the Caribbean

Association of Caribbean States
 Caribbean Action for Sustainable Tourism
 Caribbean Agricultural Research and Development Institute
 Caribbean Catastrophe Risk Insurance Facility
 Caribbean Community Secretariat
 Caribbean Community Climate Change Centre
 Caribbean Development Bank
 Caribbean Disaster Emergency Management Agency
 Caribbean Electric Utility Service Corporation
 Caribbean Forum of African, Caribbean and Pacific States
 Caribbean Institute for Meteorology and Hydrology
 Caribbean Meteorological Organization
 Caribbean Natural Resources Institute
 Caribbean Public Health Agency
 Caribbean Regional Fisheries Mechanism
 Caribbean Tourism Organisation
 CARIBSAVE Partnership

Climate Modelling Group
Institute for Meteorology in Cuba
Inter-American Development Bank
Organisation of Eastern Caribbean States
United Nations Economic Commission for Latin America and the Caribbean
United Nations Development Programme Sub-regional office for Barbados and the Organisation of Eastern Caribbean States
United Nations Pan-American Health Organisation
University of the West Indies
Windward Islands Crop Insurance

Institutional arrangements addressing loss and damage associated with climate change impacts in Latin America

Andean Committee for Prevention and Attention to Disasters
Andean Environmental Agenda
Central American Fund for Integrated Risk Management
Central American Integration System
Central American Commission for Environment and Development
Coordination Centre for Natural Disaster Prevention in Central America
Disaster Risk Mitigation Network
Inter-American Development Bank
Inter-American Institute for Global Change Research
International Research Centre on El Niño
Organization of American States
Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean
Regional Insurance Facility for Central America
Risk Management and Adaptation to Climate Change section
United Nations Economic Commission for Latin America
United Nations Pan American Health Organization
Water Centre for the Humid Tropics of Latin America and the Caribbean

Institutional arrangements addressing loss and damage associated with climate change impacts in the Pacific

Joint National Action Plan Process
Madang Framework
Pacific Catastrophe Risk Assessment and Financing Initiative
Pacific Centre for Environment and Sustainable Development
Pacific Climate Change Portal
Pacific Climate Change Roundtable
Pacific Climate Impacts Consortium
Pacific Conference of Churches
Pacific Disaster Center
Pacific Disaster Risk Management Partnership Network
Pacific Islands Applied GeoScience Commission

Pacific Islands Forum
Pacific Islands Framework for Action on Climate Change
Pacific Islands Global Ocean Observing System
Pacific Meteorological Council
Pacific Platform for Disaster Risk Management
Pacific-Australia Climate Change Science Adaptation Planning Program
Secretariat of the Pacific Community
Secretariat of the Pacific Regional Environment Programme
South Pacific Tourism Organisation
University of the South Pacific Global Climate Change Alliance

Annex VIII

Glossary of acronyms

AF	The Adaptation Fund
CBD	United Nations Convention on Biodiversity
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CDKN	The Climate and Development Knowledge Network
CDRR	Solution Exchange - Climate & Disaster Risk Reduction Community
CIESIN	Center for International Earth Science Information Network
CIF	Climate Investment Fund
CIFOR	Center for International Forestry Research
CITES	Convention on the International Trade in Endangered Species
CMS	Convention on the Conservation of Migratory Species
CPF	Collaborative Partnership on Forests
CRED	Center for Research on the Epidemiology of Disasters
CRMG	World Bank's Commodity Risk Management Group
CTCN	Climate Technology Centre and Network
DDC	IPCC Data Distribution Centre
EBRD	The European Development Bank for Reconstruction and Development
EIB	The European Investment Bank
ELD	Economics of Land Degradation
FAO	Food and Agriculture Organization of the United Nations
FISCR	World Bank's Financial Innovations for Social and Climate Resilience
FSC	Forest Stewardship Council
GADRR	The Global Alliance for Disaster Risk Reduction
GCCA	The Global Climate Change Alliance
GCW	World Meteorological Organization's Global Cryosphere Watch
GEF	Global Environment Fund
GFCRD	Global Framework for Climate Risk Disclosure
GFCS	The Global Framework for Climate Services
GFDRR	The Global Facility for Disaster Reduction and Recovery
GIIF	Global Index Insurance Facility
GM	The Global Mechanism
GOOS	Global Ocean Observing System
GTN-G	Global Terrestrial Network for Glaciers
GWP	The Global Water Partnership
HFA	Hyogo Framework for Action 2005–2015
IAEA	International Atomic Energy Agency
ICES	International Council for the Exploration of the Sea
ICL	The International Consortium on Landslides
ICLEI	International Council for Local Environmental Initiatives
ICWC	Interstate Commission for Water Coordination of Central Asia
IDA	The International Development Association
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
ILO	International Labour Organization
ILRI	International Livestock Research Institute
IOC	Intergovernmental Oceanographic Commission of UNESCO
IODE	International Oceanographic Data and Information Exchange
IOI	International Oceans Institute
IOM	International Organization for Migration
IPBES	Intergovernmental Platform on Biodiversity

IPCC	Intergovernmental Panel on Climate Change
IUCN	The International Union for Conservation of Nature
JCOMM	The Joint Technical Commission for Oceanography and Marine Meteorology
LDCF	The Least Developed Countries Fund
LMI	Lower Mekong Initiative
LULUCF	Land use, land-use change and forestry
MRC	Mekong River Commission for Sustainable Development
NARBO	Network of Asian River Basin Organizations
NDF	The Nordic Development Fund
NOAA	National Oceanographic & Atmospheric Administration
NRC	Norwegian Refugee Council
NRDC	Natural Resources Defense Council
NWP	Nairobi Work Programme
OECD	Organization for Economic Cooperation and Development
OHCHR	Office of the High Commissioner for Human Rights
PEDRR	The Partnership for Environment and Disaster Risk Reduction
PPCR	Pilot Programme for Climate Resilience
PROFOR	The Programme on Forests
PROVIA	Programme of Research on Climate Change Vulnerability, Impacts and Adaptation
Ramsar	Ramsar Convention on Wetlands
RFT	The Rainforest Trust Fund
SCCF	The Special Climate Change Fund
SCF	Strategic Climate Fund
SEI	Stockholm Environment Institute
SGP	The Small Grants Programme
TEC	Technology Executive Committee
TEEB	The Economics of Ecosystems and Biodiversity
TNC	The Nature Conservancy
UNCCD	United Nations Convention to Combat Desertification
UNCLOS	United Nations Convention on the Laws of the Sea
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNEP FI	UNEP Financial Initiative
UNEP-WCMC	UNEP World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	Office of the United Nations High Commissioner for Refugees
UN-HABITAT	The United Nations Human Settlements Programme
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction
UNU	United Nations University
WFP	The World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization
WRI	World Resources Institute
WTO	The World Tourism Organization
WWF	The World Wildlife Organization

AFRICA

AAP	Africa Adaptation Programme
ACDI	Africa Climate and Development Initiative
ACPC	African Climate Policy Centre

ACCRA	African Climate Change Resilience Alliance
AfDB	African Development Bank
AGRHYMET	Agriculture, Hydrology, Meteorology Regional Centre
ALM	Adaptation Learning Mechanism
ARC	Africa Risk Capacity
ASAP	Adaptation for Smallholder Agriculture Programme
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AUC	African Union Commission
CAADP	Comprehensive Africa Agriculture Development Programme
CCDU	Climate Change and Desertification Unit
CDM	Clean Development Mechanism
CDSF	Clim-Dev Special Fund
CEN-SAD	Community of Sahel-Saharan States
CHIESA	Climate Change Impacts on Ecosystem Services and Food Security in Eastern Africa
COI	Indian Ocean Commission
COJEA	Coalition of Journalists on Environment and Agriculture
COMESA	Common Market for Eastern and Southern Africa
COMIFAC	Central Africa Forests Commission
CPAC	Climate Prediction and Applications Centre
EAC	East African Community
ECCAS	Economic Community of Central African States
ENDA	Environmental Development Action in the Third World
FAO	Food and Agriculture Organization of the United Nations
FEWS	Famine Early Warning System
GAIF	Ghana Agricultural Insurance Program
GEF	Global Environment Facility
GFCS	Global Framework for Climate Services
GOC	Global Ocean Commission
HFA	Hyogo Framework for Action
ICLEI	Local Governments for Sustainability
IFAD	International Fund for Agricultural Development
IGAD	Intergovernmental Authority on Development
IIPACC	International Insurance Products for Adaptation to Climate Change
IPCC	Intergovernmental Panel on Climate Change
LDCF	Least Developed Countries Fund
LEAP	Livelihoods, Early Assessment and Protection
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NEPAD	New Partnership for Africa's Development
NFSP	National Food Security Programme
OFAC	Observatory for the Forests of Central Africa
OSS	Observatory of the Sahara and Sahel
PPCR	Pilot Program for Climate Resilience
PSNP	Productive Safety Net Programme
SADC	Southern African Development Community
VfL	Views from the Frontline
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization
UCAD	Université Cheikh Anta Diop
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNISDR	United Nations Office for Disaster Reduction

ASIA

ACP	The Asia Catastrophe Pool
ACCCRN	Asian Cities Climate Change Resilience Network
ADB	Asian Development Bank
ADPC	Asian Disaster Preparedness Centre
ADRC	Asian Disaster Reduction Centre
AFN	Asia Flood Network
APADM	Asia Pacific Alliance for Disaster Management
APEC	Asia-Pacific Economic Cooperation Forum
APDRF	The Asia Pacific Disaster Response Fund
AP-Net	The Asia-Pacific Network on Climate Change
APECCC	Asia-Pacific Economic Cooperation Climate Centre
APM	Asia Pacific Migration Research Network
APWF	Asia-Pacific Water Forum
ASEAN	Association of Southeast Asian Nations
CARRA	Central Asia Regional Risk Assessment
CACDRMI	Central Asia and Caucasus Disaster Risk Management Initiative
CAREC	Central Asia Regional Economic Cooperation Programme
COBSEA	Coordinating Body on the Seas of East Asia
GMS-EOC	Greater Mekong Sub-Region Environment Operation Centre
ICCCAD	International Centre for Climate Change and Development
ICIMOD	The International Centre for Integrated Mountain Development
IOR-ARC	Indian Ocean Rim Association for Regional Cooperation
MFF	Mangroves for the Future
NARBO	Network of Asian River Basin Organizations
PEMSEA	Partnerships in Environmental Management for the Seas of East Asia
RRC.AP	AIT-UNEP Regional Resource Centre for Asia and the Pacific
SEAFDEC	Southeast Asian Fisheries Development Center
SCO	Shanghai Cooperation Organization
SAARC	South Asian Association for Regional Cooperation
SASAP	South Asian Seas Action Plan
SDMC	SAARC Disaster Management Centre
SEARCA	The South East Asian Regional Center for Graduate Study and Research in Agriculture
SMRC	The SAARC Meteorological Research Centre
WFPF	The Water Financing Partnership Facility

CARIBBEAN

ACCC	Adaptation to Climate Change in the Caribbean
ACS	Association of Caribbean States
AusAID	Australian Agency for International Development
BVI	British Virgin Islands
CANARI	Caribbean Natural Resources Institute
CaribRM	Caribbean Risk Managers
CARIBSAVE	Caribbean Sectoral Approach to Vulnerability and Resilience
CARICOM	Caribbean Community
CARIFORUM	The Caribbean Forum
CARILEC	Caribbean Electric Utility Services Corporation
CCCCC	Caribbean Community Climate Change Centre
CCORAL	Climate Change Online Risk and Adaptation Tool
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDB	Caribbean Development Bank

CDC	Civil Defence Commission (Guyana)
CDEMA	Caribbean Disaster Emergency Management Agency
CDKN	Climate Development and Knowledge Network
CDM	Comprehensive Disaster Management
CDMHA	Center for Disaster Management and Humanitarian Assistance
CDRRF	Caribbean Disaster Risk Reduction Fund
CERMES	Centre for Resource Management and Environmental Studies
CHTA	Caribbean Hotel and Tourism Association (change in body of doc)
CIDA	Canadian International Development Agency
CIMH	Caribbean Institute for Meteorology and Hydrology
CMC	Caribbean Meteorological Council
COFCOR	The Council for Foreign and Community Relations
COSHOD	The Council for Human and Social Development
COTED	The Council for Trade and Economic Development
CPACC	Caribbean Planning for Adaptation to Climate Change
CREWS	Coral Reef Early Warning Stations
CRFM	Caribbean Regional Fisheries Mechanism
CSCDM	Climate Smart Community Disaster Management Programme
CSGM	Climate Studies Group Mona
CSO	Civil Society Organisation
DMFC	Disaster Management Facility for the Caribbean
DRR	Disaster Risk Reduction
ECA	Economics of Climate Adaptation
EU	European Union
GEF	Global Environment Facility
GCCA	Global Climate Change Alliance
GCOS	Global Climate Observing System
GDP	Gross Domestic Product
IA	Institutional Arrangement
IDB	Inter-American Development Bank
IMF	International Monetary Fund
INSMET	Institute of Meteorology of Cuba
IP	Implementation Plan
LCSDU	Latin American and Caribbean Disaster Risk and Urban Development team
MACC	Mainstreaming Adaptation to Climate Change Project
NDO	National Disaster Office
NEMO	National Emergency Management Organization
NGO	Non-Governmental Organization
NHC	National Hurricane Centre
NOAA	National Oceanic and Atmospheric Administration
NRECA	National Rural Electric Cooperative Association
ODK	Open Data Tool Kit
OECS	Organisation of Eastern Caribbean States
OSM	OpenStreetMap
RPIU	Regional Project Implementation Unit
RRACC	Reduce Risk to Human and Natural Assets resulting from Climate Change Project
RTFS	Real-Time Forecasting System
RWH	Rainwater Harvesting
SIDS	Small Island Developing State
SOE	Slow Onset Event
SPACC	Special Programme for Adaptation to Climate Change: Implementation of Adaptation Measures in Coastal Zones
SWRO	Salt water reverse osmosis

TNC	The Nature Conservancy
UK–DFID	United Kingdom Department for International Development
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNITAR	United Nations Institute for Training and Research
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation and Developing Countries
USAID	United States Agency for International Development
USGS	United States Geological Survey
UWI	University of the West Indies
UWI–DRC	University of the West Indies – Disaster Risk Reduction Centre
WB	World Bank
WINCROP	Windward Islands Crop Insurance
WSP	Water Safety Planning

LATIN AMERICA

CADENA	Atención a Desastres Naturales en el Sector Agropecuario y Pesquero
CAN	Comunidad Andina de Naciones
CAPRA	Central America Probabilistic Risk Assessment
CAPRADE	Andean Committee for Prevention and Attention to Disasters
CARICOM	Caribbean Community and Common Market
CATHALAC	Water Centre for the Humid Tropics of Latin America and the Caribbean
CCAD	Comisión Centroamericana para el Ambiente y el Desarrollo
CCCCC, 5C	Caribbean Community for Climate Change Centre
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CEPREDENAC	Centro de Coordinación para la Prevención de los Desastres Naturales en América Central
CIIFEN	International Research Centre on El Niño
COSEFIN	Council of Finance Ministries in Central American
CRIDLAC	Regional Disaster Information Centre for Latin America and the Caribbean
CRM–TASP	Climate Risk Management – Technical Assistance Support Programme
CRRH	Comité Regional de Recursos Hidráulicos
DALA	Damage and Loss Assessment
DESINVENTAR	Disaster Inventory System
DRR	Disaster Risk Reduction
EC	European Commission
ERCC	Estrategia Regional de Cambio Climático
EWE	Extreme Weather Events
FAO	Food and Agriculture Organization
FOCEGIR	Fondo Centroamericano de Fomento de la Gestión Integral de Riesgos de Desastres
FONDEN	Fondo de Desastres Naturales (México)
GEF	Global Environment Fund
GFDRR	Global Fund for Disaster Risk Reduction
IAI	Inter-American Institute for Global Change Research
IDB	Inter-American Development Bank
LAC	Latin America and the Caribbean
MEGIRC	Marco Estratégico para la Gestión Integral de Riesgos Climáticos
MIC	Middle Income Countries
OAS	Organization of American States
PAHO	Pan-American Health Organization
PCGIR	Regional Policy for Integrated Risk Management in Central America
PTI	Programa de Transferencias de Ingresos

REGATTA	Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean
RIFCA	Regional Insurance Facility for Central America
RIMD	Disaster Risk Mitigation Network (of the OAS/DSD)
RIOCC	Red Ibero-Americana de Oficinas de Cambio Climático
RISK-MACC	Risk Management and Adaptation to Climate Change section (of the OAS/DSD)
SERVIR	Sistema Regional de Visualización y Monitoreo de Mesoamérica
SIAMAZONIA	Sistema de Información de la Diversidad Biológica y Ambiental de la Amazonía Peruana
SICA	Sistema de Integración Centroamericana
SIDS	Small Island Developing States
SOE	Slow Onset Event
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNECLAC	United Nations Economic Commission for Latin America and the Caribbean
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations Office for Disaster Reduction
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization

PACIFIC

AOSIS	Alliance of Small Island States
FFA	Pacific Islands Forum Fisheries Agency
FSPI	The Foundation of the Peoples of the South Pacific International
JNAP	Joint National Action Plan
PCCR	Pacific Climate Change Roundtable
PIFS	Pacific Islands Forum Secretariat
SOPAC	Pacific Islands Applied GeoScience Commission
SPTO	South Pacific Tourism Organization
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Programme
PACCSAP	Pacific-Australia Climate Change Science Adaptation Planning Programme
PACE-SD	Pacific Centre for Environment and Sustainable Development
PacIOOS	Pacific Islands Global Ocean Observing System
PCC	Pacific Conference of Churches
PCCP	Pacific Climate Change Portal
PCIC	Pacific Climate Impacts Consortium
PCRAFI	Pacific Catastrophe Risk Assessment and Financing Initiative
PCRIP	Pacific Catastrophe Risk Insurance Pilot
PDC	The Pacific Disaster Center
PIFACC	Pacific Islands Framework for Action on Climate Change
PMC	Pacific Meteorological Council
SOPAC	Pacific Islands Applied GeoScience Commission

Annex IX

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