

**Acknowledgment:** The APN welcomes and appreciates the continuing opportunity to inform, and engage in a dialogue with SBSTA on issues of global change research, capacity development and science-policy interfacing mechanisms within the Asia-Pacific region that is relevant to the convention. The present brief<sup>1</sup> summarizes the current main activities undertaken by APN to address issues of relevance taking into account developments in research activities outlined in document **FCCC/SBSTA/2007/4, Paragraph 47 (a–f)**.

## Contents

### 1. What is the APN

#### 2. Completed APN Activities complementary to the IPCC AR5

a. *Published:* Springer Book: Climate in Asia and the Pacific: Security, Society and Sustainability.

#### 3. New Opportunities for Developing Countries in the Asia-Pacific Region under the APN's Climate Adaptation Framework

a. *Expert Workshop on Linking Climate Adaptation, Disaster Risk Reduction and Loss and Damage*

b. *Fourteen new Projects announced that link Climate Adaptation with Disaster Risk Reduction and Loss and Damage*

c. *Loss and Damage Forum*

### 1. What is the APN:

Established in 1996, the Asia-Pacific Network for Global Change Research (APN) is a network of twenty-two member governments in Asia and the Pacific whose vision is to enable countries in the region to successfully address global change (GC) challenges through science-based response strategies and measures, effective science and policy linkages, and scientific capacity development. As APN is an Inter-governmental network, a high priority goal is to produce sound scientific results that can be made available as a supportive tool for policy-making processes. Accordingly, the APN conducts regular synthesis and assessment activities of the projects its supports in order to identify important outcomes, research gaps and/or emerging issues that could be used to support policy development.

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At its recent 19<sup>th</sup> annual meeting in March 2014, the following topics were emphasised by its member governments to be of particular interest:

- Climate impacts on agriculture, livestock and forestry.
- Green economy and sustainable development.
- Coastal zone megacities and urban issues.

In addition to the above work, APN is now implementing activities under 3 Frameworks of: (1) Low Carbon Initiatives; (2) Biodiversity & Ecosystems Services; and (3) Climate Adaptation.

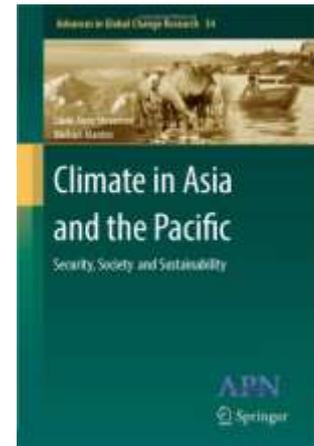
### 2. Completed APN Activities complementary to the IPCC AR5

#### a. Climate in Asia and the Pacific: Security, Society and Sustainability

- *Published 2014: Available at: DOI 10.1007/978-94-007-7338-7\_1*
- *Offers a broad perspective on the impacts of climate change on society in Asia and the Pacific*
- *Explores a many-layered mix of science, economics, politics and sociological concerns*
- *Provides a useful resource for scientists, policy makers and practitioners*

<sup>1</sup> Stevenson, L. A., Takemoto, A., Matthews, W. A. (2014). APN submission brief to the United Nations Framework Convention on Climate Change (UNFCCC) SBSTA 40 Research Dialogue. Asia-Pacific Network for Global Change Research (APN), Kobe, Japan.

Variations in climate in the Asia-Pacific region play a major role in the development of natural ecosystems and of human societies. Furthermore, human activities place additional stresses on natural and societal systems and climate change is now considered a significant factor in these increases. The book documents the climate of the region and interactions of the climate with both the environment and societies in the region. The book emphasizes the impacts of climate change as well as strategies to mitigate and adapt to those impacts. A number of aspects of climate in the region that capture interactions between climate and natural and human systems are considered and include climate variability and change, climate and urbanization, climate and security, climate and society, and climate and sustainability.



The book draws on published results in the scientific literature and the analysis presented highlights key climate-related issues for Asia and the Pacific. Subsequent chapters of the book include important issues such as: *Climate variability and change* – large-scale climate systems, trends in mean climate, trends in extreme climate events across Asia and the Pacific, challenges and opportunities for modeling the climate, current projections for future climate under climate change; *Society and urbanization* – trends in urbanization, interactions between urban areas and climate, climate hazards and vulnerabilities for urban areas, climate change mitigation and adaptation strategies for urban areas; *Food, water and energy security* – meeting future needs for rice and wheat across Asia, food from fisheries, water security, and balancing energy demands with reduced GHG emissions; *Governance and sustainability* – institutional arrangements to address the impacts of climate change, prospects for remote communities under climate change, effects of climate change on human health, low carbon development pathways, and ecosystem services to enhance the adaptive capacity of communities.

***As J. Scott Hauger, of the Asia Pacific Center for Security Studies writes in his foreword, this book “represents an opportunity to share knowledge and to collaborate across . . . groups and perspectives to manage the complex problems of climate related global change, to ensure a secure and sustainable environment for our children and posterity.”***

The book closes by noting some future directions for climate change research in the future. In particular it outlines that there are clear trends of increasing temperature in the Asia-Pacific region. There are observed trends in extreme climate events and evidence of changes in large-scale climate systems including the monsoon and the associated Hadley circulation. Modeling the climate of the region provides opportunities for improved understanding and prediction, but there remain challenges especially for mountainous terrain and small islands. Current projections for future climate indicate that existing stresses are likely to be exacerbated.

Urbanization is expected to continue and better understanding of the interactions between climate and urban areas is essential. Further work is needed to improve our understanding of adaptation and mitigation both in urban areas and in small communities. Significant challenges exacerbated by climate variability and change need to be overcome so that future needs for rice and wheat can be met. Management strategies need to be implemented globally so that fisheries will be able to provide necessary food for the region. Local management strategies are also needed to ensure water security.

Regional and international cooperation is providing initial support for integrated assessments that can investigate pathways towards low carbon development (LCD) across the region. Natural ecosystem services support substantial components of economies across the region and new strategies are being developed to enhance the resilience of natural ecosystems impacted by climate change. Natural ecosystems in Asia and the Pacific can contribute significantly to the mitigation of climate change.

Communities, particularly poor and remote communities, are vulnerable to climate change and there is a need for capacity building in research, policy development and implementation to reduce these vulnerabilities. International cooperation exists in the development of mechanisms to promote systematic observations of geophysical variables. Further cooperation is needed to ensure that consistent high-quality socio-economic data are collected, archived and accessible. Continuous monitoring of the geophysical environment and associated socio-economic variables, and developing and analyzing indicators of climate interactions with natural ecosystems and human societies is needed to fully interpret and respond to the complex socio-economic interactions with the Earth's climate.

### 3. New Opportunities for Developing Countries in the Asia-Pacific Region under its Climate Adaptation Framework

Under APN's new **Climate Adaptation Framework**, started in April 2013, a number of new and exciting opportunities were presented to scientists, decision-makers and practitioners aiming to address the gaps, status quo and future directions for bringing together "*Climate Change Adaptation (CCA)*", "*Disaster Risk Reduction (DRR)*" and "*Loss and Damage (L+D)*". These are outlined below:

#### a. **Expert Workshop on Climate Adaptation, Disaster Risk Reduction and Loss+Damage.**

A workshop on linking Climate change adaptation, disaster risk reduction and loss and damage (CCA-DRR-L+D) was conducted in Kobe from 21-23 August 2013 and focused on the **linkages, priorities and limitations** and the challenges and opportunities presented. Clear was the manifestation of extreme and slow onset events in the face disasters, and disaster risk management (DRM) and the climate adaptation practices being planned and/or incorporated or at local, national, sub-regional and regional levels in Asia and the Pacific. Some of the challenges presented at the recent workshop were so-called disaster amnesia; cultural practices and traditional knowledge; lack of financial capacity; lack of availability of information/data; lack of consultation in project designing (leading to maladaptation); and insufficient education to deal with adverse impacts of weather events, among others.

APN believes that it is important to learn from past risks by focusing on climate impacts, both weather and slow-onset events, and adopting strategies to cope with them. To do this, building on the knowledge, institutional structure and communities of practice developed by Disaster Risk Management strategies may be a good point of entry, rather than starting at a point zero. There is also a need to learn from smaller events (smaller-scale disasters such as annual flooding events, etc.) and not just larger extreme events (like large cyclones/ typhoon disasters). Addressing these might also help with making extreme events less extreme, which is especially important as they happen more frequently.

#### b. **Selected High Priority Themes for the Call for Focussed Activities on CCA-DRR-L+D and 14 new projects Awarded**

Following the workshop, the APN launched a call for Focussed Activities under the theme: *Climate Adaptation, Disaster Risk Reduction and Loss + Damage*. This year we receive a record **85 expressions of interest of which 14 were selected on 30<sup>th</sup> April 2014 (9 research proposals and 5 capacity development proposals**. Themes of particular interest, which were drawn from the expert workshop, are outlined below and are of high priority to the APN in this focused call for activities.

#### *Regional-based multi-disciplinary research*

- i. **Integrated Modelling that reduces vulnerability and improves resilience to Loss & Damage by looking at a combination of:**
  - Climate vulnerability, impacts and adaptation
  - Economics
  - Social and human dimension
- ii. **Regional Downscaling**
  - Downscaling knowledge for adaptation, risk and loss & damage that could be transferred to the local level (including remote communities, districts, cities, etc.)
  - Scientific community needs to downscale as much as possible to help impact assessment at the local level
  - Gap analysis (including best practices) in knowledge and understanding of loss and damage at the local level
- iii. **Multi-trans disciplinary research and assessment of:**
  - Impacts of extreme weather events and slow onset events at regional, sub-regional and local levels (what are the gaps; what is the status quo?)
  - Reducing loss by revisiting current aspects of Disaster Risk Management strategies across local, national and regional (including transboundary) scales.
  - Non-economic/non-insurable losses due to climate - extreme and slow onset events (cultural, health, psychological, social, etc.)

- Integrating the risks identified through Climate Change Adaptation, Disaster Risk Reduction and Loss & Damage into regional planning: What is the present scientific understanding on adaptation, disaster risk reduction, and loss & damage? Is more needed? Are there sufficient science-policy linkages?
- Methodology, terminology and other concepts that might effectively link climate change adaptation, loss and damage, and disaster risk reduction (for example, developing methodologies for quantifying non-economic losses)

### **Capacity Building (including dissemination, awareness-raising)**

- i.** Enhancing **capacity for assessment** to plan and implement Loss and Damage activities related to Disaster Risk Reduction and Climate Change Adaptation, both by government authorities and civil society that would also document successful practices of local, experiential and indigenous knowledge
- ii.** **Training, awareness-raising; strengthening partnerships** that will link CCA, DRR and L+D for:
  - local communities and local governments to enable bottom-up planning and mechanisms
  - Increasing the knowledge-base of CCA-DRR-L+D and how it might impact future generations
  - Strengthening linkages, effective coordination and building synergies across neighbouring countries to enhance cross-learning, especially at the sub-national/district level
- iii.** **Addressing gaps in multi/trans-disciplinary approaches:**
  - Developing toolkits, mapping different institutions that are engaged in, for example, disaster risk management that can help address loss and damage
  - Establishing entry points for science-policy interfaces at regional, national and local levels
- iv.** **Retaining knowledge, maintaining data, sustaining disaster loss databases**
  - What is going on, where are the gaps, training initiatives on resilience
  - Decision-support tools and training opportunities. Local language would be used at the local level and translations would be available
  - Addressing the problems of existing data: insufficiency, inaccessibility and/or inconsistency

### **Projects funded from the Focussed Call for Proposals**

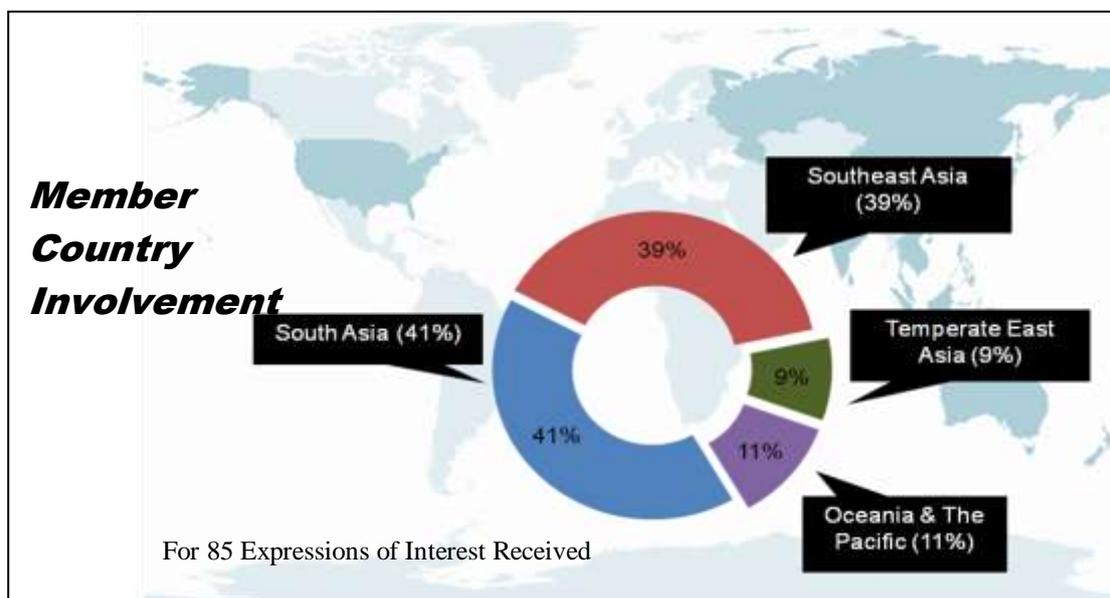
The APN selected 14 proposals that will start their activities in early summer 2014. Nine of these are research projects and 5 are capacity development projects. The list can be viewed in Table 1. [Figure 1](#) outlines the response to the call from the Asia-Pacific community, indicating the need to address such issues under the framework of Climate Adaptation.

**Table 1: 14 new projects for CCA-DRR-L+D**

Denotes Research // Denotes Capacity Development

<b>TITLE</b>	<b>Countries Engaged</b>
<b>Developing Climate Inclusive Potential Loss and Damage Assessment Methodology for Flood Hazards</b>	<b>Thailand</b> , Nepal, Srilanka, Australia
<b>Developing and promoting a people-centred approach to assess and address impacts of climate change induced loss and damage</b>	<b>Bangladesh</b> , Cambodia, Myanmar, Nepal and Vietnam, UK, South Africa
<b>Integrating CCA, DRR and L+D to address emerging challenges due to slow onset processes</b>	<b>Malaysia</b> , Cambodia, The Philippines, Vietnam, Myanmar, Japan
<b>An analysis of longer-term (5-10 years) recovery following major disasters in the Asia Pacific Region: Lessons for resilient development</b>	<b>Thailand</b> , Myanmar, Cambodia, Indonesia
<b>Assessing the linkages between climate change adaptation (CCA), disaster risk reduction (DRR), and Loss and Damage (L&amp;D): Case studies in the floodplains of Cambodia, Indonesia, Philippines, Thailand and Vietnam</b>	<b>Philippines</b> , Cambodia, Indonesia, Thailand, Vietnam
<b>Integrated flood modelling and Pre-Disaster Loss Estimation in Asian countries</b>	<b>Thailand</b> , Japan, China, Myanmar

Methods toolbox for assessing loss and damage at local level	India, <b>Pakistan</b> , Republic of Korea, Nepal, Germany,
Addressing non-economic losses and damages associated with climate change: Learning from the recent past extreme climatic events for future planning	<b>Japan</b> , Bangladesh, India, Philippines, Thailand
Climate change risk assessment and adaptation for loss and damage of urban transportation infrastructure (UTI) in Southeast Asia (SEA)	<b>Vietnam</b> , Thailand, Cambodia
Enhancing Capacity of policymakers and practitioners in India, Sri Lanka and Nepal on Loss and Damage related to slow onset events in the region	<b>India</b> , Sri Lanka, Nepal
Capacity Building for National, Provincial Stakeholders and Local Communities on Loss and Damage related to Disaster Risk Reduction and Climate Change Adaptation	<b>Viet Nam</b>
Building capacity for reducing loss and damage resulting from slow and rapid onset climatic extremes through risk reduction and proactive adaptation within the broader context of sustainable development	<b>Malaysia</b> , Vietnam, Cambodia
Can traditional livelihoods and mining co-exist in a changing climate: strengthening public-private partnerships in Mongolia to reduce risk and address Loss and Damage	<b>Australia</b> , Mongolia
Capacity Building for Resilience Planning in Fiji: Bridging the science-policy-practice interface in Climate Change Adaptation (CCA), Disaster Risk Reduction (DRR) and Loss and Damage (L+D)	<b>Fiji</b> , New Zealand



***Figure 1: Distribution of Expressions of Interest Received***

***(c) Developing the Forum on Loss and Damage***

The recently formed Loss and Damage Forum established at the Asia-Pacific Climate Change Adaptation Forum, in Incheon, Republic of Korea, March 2013, and highlighted that “the Asia-Pacific region is the most vulnerable region to a range of natural disasters and climate change impacts, from those emanating from extreme events to those resulting from slow onset processes.” At the recent meeting held in South Korea and attended by the international community including the APN, and supporting organisations, the following needs were emphasised:

- accessible, high quality data relevant for decision makers and communities;
- regional collaboration; and
- more emphasis on slow-onset events.

The Fifth Assessment of the Intergovernmental Panel on Climate Change (IPCC) has made an even stronger case for the need to address loss and damage in the region. Not only is the region prone to natural degradation, high population density, poverty and food insecurity, it is also highly susceptible to the negative impacts of climate change. Precipitated by an increase in the number of natural hazards, economic losses have also significantly increased. In addition to economic loss and damage such as loss of assets and income and damage to infrastructure, communities in the region are also at risk of non-economic losses. The best way of addressing loss and damage is to avoid it altogether through mitigation and adaptation efforts. However, historical emissions have locked-in a certain level of climate change, the impacts of which will be difficult to avoid through adaptation alone. In fact, countries throughout the Asia Pacific region are already facing mounting losses and damages, presenting a challenge for policy makers.

Currently, changes in climate patterns in the Asia Pacific are leading to significant losses and damages that range across countries, communities and from different climatic events. For countries with large deltas or large coastlines, sea level rise, soil erosion, salinity, flooding, and decreasing fresh water supplies are among the largest issues. While climate changes in climate have meant these events are becoming more variable and extreme, the impacts of this span much further than just economic costs. For instance, in countries such as the small island developing states, complete inundation is a possibility that governments will be forced to cope with in the near future. The effects attributed to this will include loss of heritage, damage to culture, and loss of identity for individuals forced to relocate as well as negative psychological and livelihood effects. As such, addressing loss and damage will require a spectrum of approaches within comprehensive risk management frameworks that include adaptation. In order to support decision making, more research is needed about the potential impacts of climate change countries in the Asia Pacific region are facing and what types of approaches will need to be implemented to reduce and address those losses and damage.