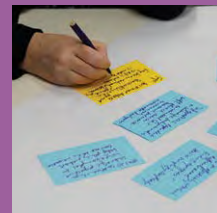




# Annual Report

## 2013–2014



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ASIA-PACIFIC NETWORK FOR  
GLOBAL CHANGE RESEARCH

ISSN 2185-7628

## **APN Annual Report 2013–2014**

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1. Satoyama landscape in Hyogo Prefecture, Japan (Hokusetsu Satoyama Museum); 2. Community discussion in Nepal (ARCP2011-04CMY-Paudel); 3. Diran Peak towering above Bagrot Valley, Gilgit-Baltistan, Pakistan (Stefan Sonntag, Flickr CC BY-NC-ND 2.0); 4. Brainstorming during the writing session in Earth System Governance 2013, Tokyo, Japan (CBA2012-04NSY-Kanie); 5. The Ramsar flooded forests in Steung Treng Province, Cambodia (WWF); 6. PDTW participants from South Asia in a field visit to a drought-prone village in Sri Lanka (APN Secretariat); and 7. A fisherman in Bangladesh's Sundarbans (Sayamindu Dasgupta, Flickr CC BY-NC-ND 2.0)

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## MESSAGE FROM THE STEERING COMMITTEE CHAIR AND SECRETARIAT DIRECTOR

On behalf of the entire APN, we are pleased to present you with the APN Annual Report 2013–2014.

Fiscal year 2013 for the APN has been a year of challenges, significant accomplishments and new ideas. We supported and managed over 50 projects undertaken within and beyond the Asia-Pacific region, including collaborative research and capacity development projects under our core programmes of ARCP and CAPaBLE, as well as new and continuing projects funded through special calls for focused activities.

Under the APN Climate Adaptation Framework, a Call for Expressions of Interest (EOIs) for “Climate Adaptation, Disaster Risk Reduction and Loss & Damage” was launched at the end of August 2013. We received 85 EOIs, 25 of which passed the Stage One Review Process, and 14 new projects were approved and awarded funding.

Addressing the needs of the region for climate change-related synthesised information, the APN-commissioned book “Climate in Asia and the Pacific: Society, Security and Sustainability” was officially published on 10 October 2013. We consider this as one of our major milestones this year.

In terms of sub-regional cooperation, the Fifth South Asia (SA) SRC Meeting was held in October 2013 in Wattala, Sri Lanka, wherein sub-regional cooperation issues were discussed and initial scoping for a Science-Policy Dialogue in South Asia was undertaken. The Sixth Southeast Asia Sub-Regional Cooperation (SEA-SRC) Meeting was held in November 2013 in Kuala Lumpur, Malaysia. The meeting highlighted institutionalisation of sub-regional committees, identified proposed activities for Southeast Asia, and was concluded with improved communications among member countries. Additionally, the engagement of Myanmar in sub-regional cooperation activities of SEA-SRC was also taken into consideration.

We consistently aim to capacitate young scientists in the region and provide support in enhancing their scientific knowledge and network building. In the past year, the APN organised two Proposal Development Training Workshops (PDTWs) back-to-back with the 5th South Asia Sub-Regional Meeting in Sri Lanka and the 6th Southeast Asia Sub-Regional Meeting in Malaysia. As the tenth and eleventh PDTW organised by the APN, the two events provided hands-on training to 29 young/early-career scientists, expanding the PDTW alumni to 186 persons.

The APN also organised a symposium titled “Application of Low Carbon Technology for Sustainable Development in Emerging Countries,” in collaboration with the Hyogo Prefectural Government and the Institute for Global Environmental Strategies – Kansai Research Centre (IGES-KRC).

On communications and outreach, we have produced major new publications including the Annual Report 2012–2013, the APN Newsletter 19, the Proceedings of the 18th IGM/SPG Meeting, the Science Bulletin 2013 Supplement, Science Bulletin 2014 (e-version) and brochures, leaflets and posters used for knowledge-sharing and awareness-raising at various global change-related events.

To all APN members, we deeply thank you for your expertise and taking your role in the scientific and institutional work of APN. We would also like to thank the governments of Japan, United States, Republic of Korea and New Zealand, and all other member countries for their support that contributed to the success of the past year and continuing work of APN.

Lastly, we express our sincere appreciation to all project leaders and collaborators engaged in APN projects implemented in fiscal year 2013–2014 and to our partners in the global change community for their cooperation.



A handwritten signature in black ink, appearing to read 'B. M. U. D. Basnayake'.

B. M. U. D. Basnayake  
Chair,  
APN Steering Committee



A handwritten signature in black ink, appearing to read 'Hiroshi Tsujihara'.

Hiroshi Tsujihara  
Director,  
APN Secretariat

# APN OVERVIEW



▲ APN members and the Secretariat during the 19th IGM, held in Siem Reap, Cambodia.

## BRIDGING SCIENCE AND POLICY FOR A SUSTAINABLE ASIA-PACIFIC

The Asia-Pacific Network for Global Change Research (APN) is a network of 22 Member Country governments that promotes global change research in the region, increases developing country involvement in that research, and strengthens interactions between the science community and policy makers.

The APN defines “global change” as the set of natural and human-induced processes in the Earth’s physical, biological and social systems that, when aggregated, are significant at a global scale.

The APN works to enable developing countries in the Asia-Pacific region to participate increasingly in regional cooperative research, and to benefit fully from such research.

It strives to assure that the research results contribute to the development of science-based adaptation strategies, policy- and decision-making processes, and developing scientific capacity to address these important issues.

Recognising the interactive role of regional processes in the overall Earth system, the APN also aims to link the initiatives it sponsors with related projects conducted in other regions and under the aegis of global-scale programmes.

### History

The APN was established as a result of the 1990 White House Conference on Science and Economics Research Related to Global Change, at which then US President Bush invited the countries of the world to join the United States in creating three regional networks for North-

South scientific cooperation at the intergovernmental level to deal with global environmental change research. Discussions along these lines progressed in three zones: Europe and Africa; North and South America; and Asia and the Pacific.

The APN was formally launched in 1996 with its first Inter-Governmental Meeting (IGM) and Scientific Planning Group (SPG) meeting in Chiang Mai, Thailand.

### Vision

Enable countries in the Asia-Pacific region to successfully address global change challenges through science-based adaptation strategies, effective science and policy linkages, and capacity development.

### Mission

The mission of APN is to enable investigations of changes in the Earth’s life support systems and their implications for sustainable development in the Asia-Pacific region. The APN supports investigations that will:

- ❖ Identify, explain and predict changes in the context of both natural and anthropogenic forcing;
- ❖ Assess potential regional and global vulnerability of natural and human systems; and
- ❖ Contribute, from the science perspective, to the development of policy options for appropriate responses to global change that will also contribute to sustainable development.

# HIGHLIGHTS

## 2013-2014



▲ *Researchers and agriculturists work with farmers to develop drought, salient and submergence tolerant rice varieties in Viet Nam (CIAT/Flickr CC BY-NC-SA 2.0).*



## CORE PROGRAMMES: ARCP AND CAPABLE

The ARCP and CAPaBLE Programmes are the two main scientific pillars of the APN in order to achieve its goals set forth in the APN's third strategic plan. The APN awards activities each year through its Annual Calls for Proposals, and successful activities are implemented under APN's Project Management policies.

### Project Management

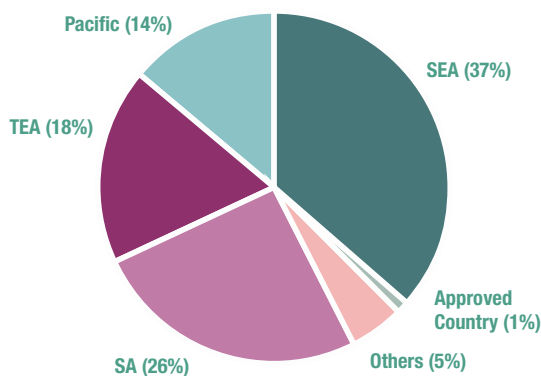
Proposals enter the project management stage upon approval by the APN's Inter-Governmental Meeting. In fiscal year 2013, the APN supported 27 projects under the ARCP Programme (14 newly-awarded projects and 13 continuing projects). Under the CAPaBLE Programme, APN supported 15 newly-awarded projects and 2 continuing projects. In addition, there are more than 40 other ongoing projects presently managed by the APN in fiscal year 2013 (the APN's fiscal year runs from 1 April to 31 March).

### Annual Calls for Proposals

The 2013 Annual Calls for Proposals under the ARCP and CAPaBLE Programmes was launched on 14 June 2013 and the APN received 103 summary proposals. At the 19th IGM in Siem Reap, Cambodia, 11 new ARCP Proposals and 11 new CAPaBLE proposals were approved for funding.

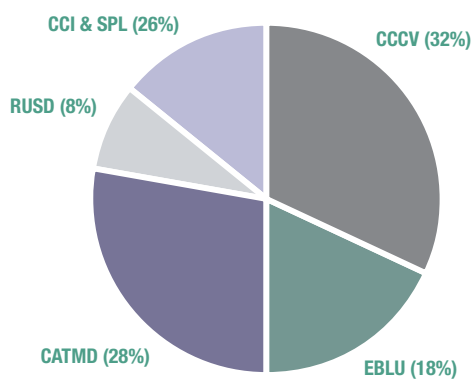
The APN's Call for Proposals is a very competitive process, which includes a rigorous three-stage review process, not only by the APN's Scientific Planning Group (SPG) and Capacity Development Committee (CDC), but also by external reviewers from the international global change community. The APN considers various factors in the selection of the proposals, including scientific merit and regional balance.

### 2013 APN CALLS FOR PROPOSALS



- ▲ Summary Proposals received by Sub-Region.
- ▲ "Others" are proposals received from non-member country proponents who are engaged in international Global Change programmes.

### 2013-2014 PROJECTS BY THEMATIC AREA



- CCCv: climate change and climate variability
- EBLU: ecosystems, biodiversity and land use
- CATMD: changes in atmospheric, terrestrial and marine domains
- RUSD: resources utilisation and pathways for sustainable development
- SPL: science-policy linkages
- CCI: cross-cutting issues



▲ A fisherman in Bangladesh's Sundarbans (Sayamindu Dasgupta, Flickr CC BY-NC-ND 2.0).

## APN FRAMEWORKS

### Biodiversity and Ecosystem Services Framework

The APN Biodiversity and Ecosystems Services (B&ES) Framework, established in 2013, opens up opportunities for collaboration in the areas of biodiversity and ecosystem services. The B&ES opportunity paper and trifold brochure encourages member countries, stakeholders, the donor community, and the international research communities and networks to propose and engage in collaborative activities with the APN that embarks on underpinning regional-based research; capacity development via training and technology transfer; strengthening, establishing and/or interacting with science-policy mechanisms in key thematic areas under the B&ES Framework for the Asia-Pacific region, especially in developing countries.

Under the ARCP Programme, newly approved B&ES-related activities are shifted under the Framework, the outcomes of which are to be shared strategically with international partners, including the Intergovernmental

Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES). Additionally, in terms of new activities, the APN has initiated a partnership to be established with the University Network for Climate and Ecosystems Change Adaptation Research (UN-CECAR) to develop a toolkit for climate impacts on biodiversity and ecosystems services, utilising funds approved at the 18th IGM.

### Climate Adaptation Framework

The Climate Adaptation Framework (CAF) was formally launched in March 2013, following a scoping workshop held in 2012. As part of the activities under CAF, an international workshop was held in August 2013 to address the linkages between Climate Change Adaptation (CCA), Loss and Damage (L&D) and Disaster Risk Reduction (DRR). Important needs by way of research and capacity development to link CCA-DRR-L&D were identified and used as the basis for a focused call for proposals launched in September 2013. Twenty-one full proposals were shortlisted from 85 Expressions of Interest (EOIs) received. After a

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### *LCI Framework Highlights*

- ❖ **Seven** projects awarded and implemented (US \$ 480,000)
- ❖ **Seven** project leaders and **40** collaborators from **12** APN member countries
- ❖ **Nineteen** young researchers involved

review process by the APN Scientific Planning Group and other international experts, 14 new projects were approved for funding at the 19th IGM in March 2014, with a total funding of over 1.5 million US dollars.

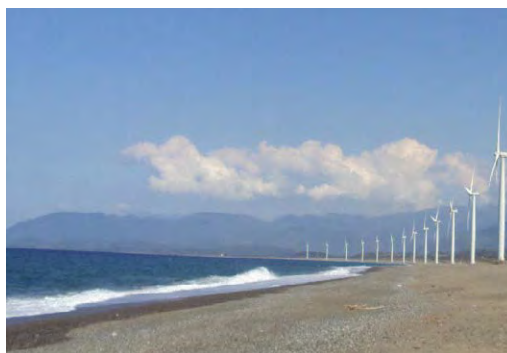
In addition to the 14 new activities, the APN is also providing support for the Loss and Damage Forum (<http://lossanddamageforum.org>), in partnership with the International Centre for Climate Change and Development (ICCCAD). The Forum is addressing Loss and Damage in the context of Climate Change, particularly in the Asia-Pacific Region.

#### **Low Carbon Initiatives Framework**

The APN Low Carbon Initiatives (LCI) Framework aims to enhance mitigation actions in Asia and the Pacific to achieve the global vision of low carbon and sustainability. To achieve the mission, APN has distributed nearly half a million US dollars among two capacity building activities and five regional research projects. All seven projects started their activities in the first quarter of the year and completed more than 50% of their first activities by the end of fiscal year 2013 (i.e. by March 2014).

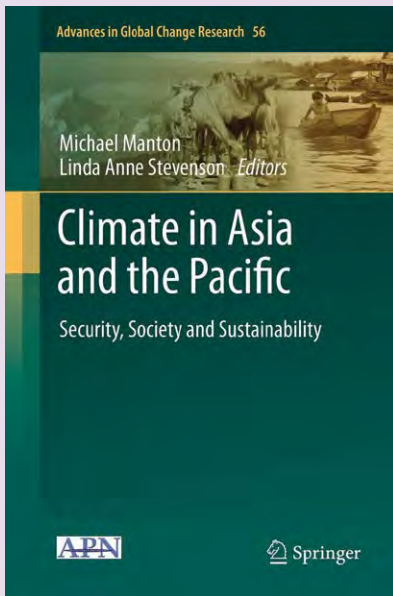
To strengthen the communication and networking activities under the LCI Framework,

APN has conducted several networking activities in collaboration with Low Carbon Asia Research Network (LoCARNet). During fiscal year 2013, the APN conducted two networking activities: a poster session at the 18th IGM/SPG Meeting held in Kobe in March 2013 and a side event at the second annual meeting of LoCARNet on 25 July 2013, held in Yokohama, Japan, where five APN project leaders shared their project activities related to low carbon development. As identified by the LCI project leaders, a main outcome of the session was the need to synthesise the work of the projects and develop a synthesis report and policy brief. Furthermore, it was agreed that the LCI projects need to identify a baseline for real change in low carbon development and implementation of policies related to it.



*Wind turbines on-shore facing South China Sea, located in Bangui, Philippines (Paolo Dala/Flickr CC BY-SA 2.0).*

## CLIMATE IN ASIA AND THE PACIFIC: SECURITY, SOCIETY AND SUSTAINABILITY



One of the major milestones of APN in fiscal year 2013 is the publication of the book titled “Climate in Asia and the Pacific: Security, Society and Sustainability,” which was published by Springer under its series Advances in Global Change Research.

The book was released on the eve of the publication of IPCC Working Group II (WGII) Report on Impacts, Adaptation and Vulnerability, a second component of the IPCC Fifth Assessment Report (AR5), released in spring 2014.

Edited by Prof. Michael Manton, Monash University, Australia and Dr. Linda Anne Stevenson, Head of APN Communication and Scientific Affairs Division, the new book 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; and provides a useful resource for scientists, policy makers and practitioners.

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The book is available in hardcover and ebook formats via Springer. For more information, please visit:

🔗 [www.apn-gcr.org/climate-book](http://www.apn-gcr.org/climate-book)



▲ At UNFCCC COP19 in Warsaw, Poland, where APN organised a side session on financing, partnerships and networking strategies for action-oriented research and capacity building (see next page).

## ENGAGING INTERNATIONAL SCIENCE-POLICY PLATFORMS

Deeply rooted in APN activities is the emphasis on strengthening appropriate interactions among scientists and policy makers and providing scientific input to decision-making for better informed policy options. Policy relevance has been an essential criterion for APN when it comes to evaluating proposals for funding. Additionally, every year, the APN organises special events and takes part in major international gatherings that promote linkages and interaction among the science and policy-making communities.

### IPBES

The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) was established in April 2012 in response to an international call for strengthened dialogue between the scientific community, governments and other stakeholders on the important issue of biodiversity and ecosystem services.



**🕒 Asia-Pacific Regional Workshop on Regional Interpretation of the IPBES Conceptual Framework and Knowledge Sharing**

With joint funding support from APN and the Ministry of Environment, Republic of Korea, the United Nations University Institute for Sustainability and Peace (UNU-ISP) and Korea Environment Institute (KEI) hosted a workshop titled “Asia-Pacific Regional Workshop on Regional Interpretation of the IPBES Conceptual Framework and Knowledge Sharing” in Seoul, Republic of Korea, from 2–4 September 2013, to discuss regional interpretation of the IPBES conceptual framework, and to share knowledge and practices, from a regional perspective, on promoting conservation and the sustainable use of biodiversity and ecosystem services for regional assessment. The outputs of the workshop were disseminated at the IPBES Plenary II Session in December 2013.

**🕒 Second Plenary Session of IPBES**

From 9–11 December 2013, the APN participated as a stakeholder in the second session of IPBES in Antalya, Turkey, including the preceding Stakeholder Consultation meeting from 7–8 December, which facilitated stakeholder organisations to receive updates on the IPBES process and to discuss their engagement in IPBES through informal exchange of views on specific aspects of the plenary meeting agendas.

Through its B&ES Framework, the APN will remain fully engaged in the IPBES process by contributing to its work from the Asia-Pacific perspective and by linking Asia-Pacific scientists and researchers with the platform.

**UNFCCC**

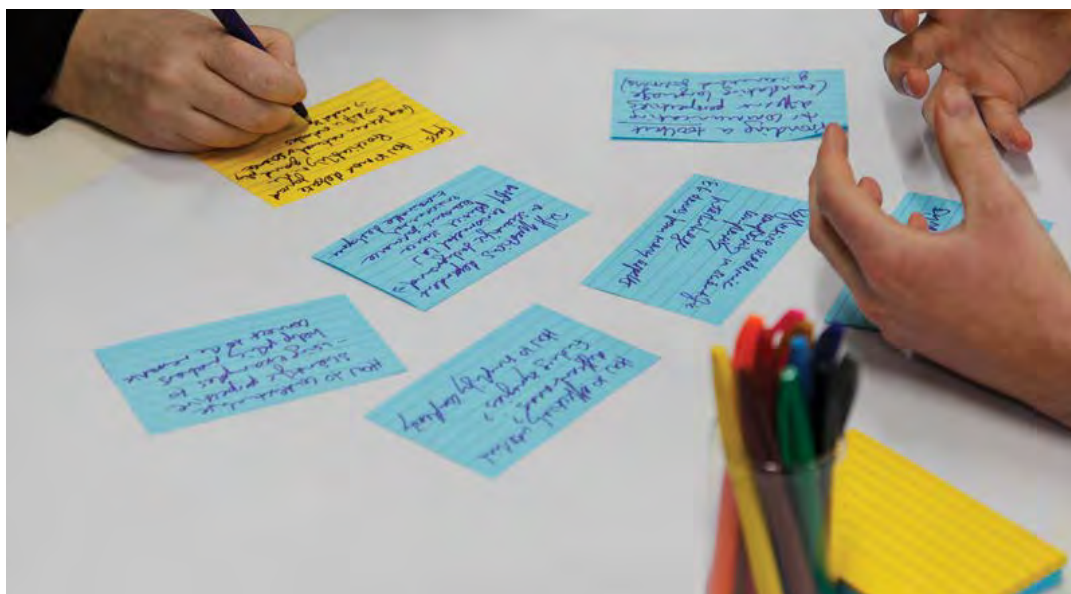
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**🕒 SBSTA38 Research Dialogue**

The APN was represented at the SBSTA Research Dialogue held annually in Bonn Germany. The research dialogue in June 2013 was not only well attended but also received a range of important comments and questions to the panels from delegates. Represented by Dr. Andrew Matthews, APN Steering Committee Member, the APN introduced its recent work, especially under the three frameworks of B&ES, CAF and LCI. Dr. Matthews highlighted the key messages generated from the outcomes of the Southeast Asia Science-Policy Dialogue held in the summer of 2012. The APN received very positive feedback about its recent activities and initiatives.

**🕒 UNFCCC COP 19**

On 13 November 2013 during the 19th session of the Conference of the Parties to United Nations Framework Convention on Climate Change (UNFCCC COP19) in Warsaw, Poland, the APN organised a side event titled “Financing, Partnerships and Networking Strategies for Action-Oriented Research and Capacity Building: What Does/Doesn’t Work?”, involving a number of APN member countries with a view to strengthening the science-policy-user interface for climate change, focusing on disaster risk reduction and climate adaptation, through knowledge generation, sharing and management. A few key messages from the session include: 1) the APN should continue to mobilise funds by involving developed and developing countries; 2) the APN is ready for second generation of projects that are more complex in nature and larger in scope; 3) strengthening financing and building partnerships for action-oriented research is essential.



▲ Brainstorming during the writing session in Earth System Governance 2013, Tokyo, Japan (CBA2012-04NSY-Kanie)

## COMMUNICATION, OUTREACH AND NETWORKING

### Outreach Activities

The APN organised and participated in various national and international events of both science and policy-making communities throughout the region. These activities not only helped disseminate project outputs but also helped raise APN’s visibility in the region. A summary of major events is available on page 47.

### E-Newsletter “APN Updates”

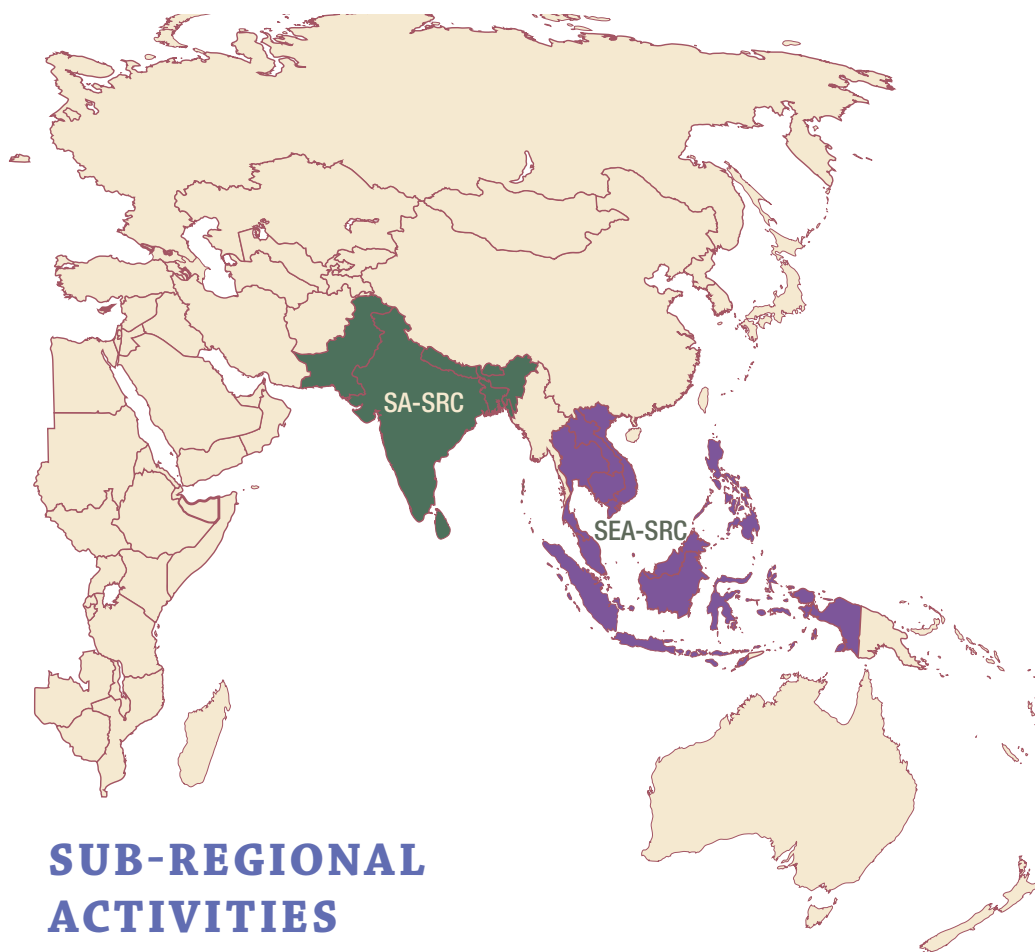
In 2013, the quarterly electronic distribution of the APN Newsletter was phased out and the focus shifted to “APN Updates,” which are regular email newsletters delivered to a large community of more than 2000 active subscribers. The new system allows email messages to be sent to subsets of users on the basis of their areas of interest, country, organisation, etc., thus allowing more targeted reach.

### Internal Mailing Lists

A number of mailing lists were launched to facilitate internal communication for APN members. In contrast to the original EML, which is a one-way broadcasting system, these new internal mailing lists support two-way interaction, making it much easier for members to communicate directly using email.

### Communication & Outreach by Numbers

- ❖ **13.5%** more users reached through APN website, FY2013 vs. FY2012
- ❖ **17.6%** more visits generated by email campaigns, FY2013 vs. FY2012
- ❖ **2,062** active email subscribers to “APN Updates”
- ❖ **5,655** number of downloads of the APN Climate Synthesis Report



## SUB-REGIONAL ACTIVITIES

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The Southeast Asia Sub-Regional Committee (SEA-SRC) and the South Asia Sub-Regional Committee (SA-SRC) gathered in sub-regional groups and discussed common issues and future activities. Temperate East Asia countries, in a scoping workshop, addressed the need to form a Sub-Regional Committee (SRC), which was realised in March 2013. All Committees discussed the necessity and actions needed for SRCs to become formal organs of the APN, which was later realised at the 19th IGM/SPG Meeting in March 2014, through the inclusion of SRCs in the APN Framework Document.



### **Fifth SA-SRC Meeting, Colombo, Sri Lanka**

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The Fifth SA-SRC Meeting was held from 1–2 October 2013 and hosted by the Ministry of Environment and Renewable Energy, Sri Lanka. The main objective was to formulate a structure for the South Asia Science-Policy Dialogue (SA-SPD) which is to be held in 2015. During the meeting, members identified key topics including agriculture and food security, floods and droughts, low carbon development, adaptation management and adaptive governance that need to be addressed in the dialogue. In addition, members discussed institutionalising Sub-Regional Committees (SRCs) in the APN Framework Document and formulated a list of suggestions.

Two proposals related to agriculture and ecosystems in South Asia were developed and SA-SRC agreed to submit them under the next APN Annual Call for Proposals. Furthermore, members discussed SA-SRC evaluation process and agreed to communicate electronically and draft the evaluation report before the 19th IGM/SPG.

### **Sixth SEA-SRC Meeting, Kuala Lumpur, Malaysia**

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The Sixth SEA-SRC Meeting, hosted by the Malaysian Meteorological Department, was held from 25–26 November 2013. The committee discussed its APN seed grant proposal on urban planning and decided to submit the proposal to the 2014 Annual Call for Proposals. Communication among members and other institutions within the region were identified as an area requiring strengthening, and the meeting agreed on new measures to

enhance communication, including through utilising ICT tools.

The Committee discussed Myanmar's involvement in sub-regional activities and devised a strategy for engaging scientists from Myanmar. The group also welcomed the inclusion of SRCs in the APN Framework Document and, in addition, agreed to develop a sub-regional evaluation report.

### **➤ Economics of Climate Change Seminar**

The half-day seminar on Economics of Climate Change was held in the afternoon of 26 November 2013 as a back-to-back event with the Sixth SEA-SRC Meeting. The seminar focused on climate change and economics in Southeast Asia. Following keynote presentations by two Malaysian experts, Mr. Chang Yii Tan and Prof. Dr. Jamal Othman, APN SPG Members from Indonesia, Thailand and Viet Nam shared their country perspective on climate change and economics. The seminar was attended by SEA-SRC members, young scientists and local participants from Malaysia.



▲ PDTW for young scientists of South Asia Sub-Region held in Wattala, Sri Lanka, October 2013.

## PROPOSAL DEVELOPMENT TRAINING WORKSHOPS

To develop the capacity of young scientists from developing countries to conduct global change research and compete for funding, the APN held two Proposal Development Training Workshops (PDTWs) in Southeast Asia and South Asia, back-to-back with the SRC meetings and side events. APN members, including nFPs and SPG members, shared their expertise with 29 young scientists. In addition, APN project leaders—Dr. Buddhi Marambe, Dr. Janaka Ratnasiri, Prof. Fredolin Tangang and Prof. Joy Jacqueline Pereira—shared their experiences and knowledge among the participants during the training.

The young scientists developed eight proposals, two of which were later submitted under the APN's 2014 Calls for Proposals. Based on the feedback from past participants, the APN

plans to employ a new structure to succeeding PDTWs and increase the duration of the workshop to further enhance its effectiveness.

### ////// *Highlights of PDTW*

- ❖ **29 young scientists** were trained (17 male participants and 13 female participants)
- ❖ **86% of the participants** feel that the PDTW has increased their awareness on APN activities and its proposals process
- ❖ **62% of the participants** show high level of satisfaction in terms of developing competitive proposals
- ❖ **Eight regional research proposals** developed
- ❖ **Two proposals** submitted to the 2014 Calls for Proposals and passed the Stage One Review Process

## HYOGO ACTIVITIES

### EMECS 10

In 1990, the world's first International Conference on the Environmental Management of Enclosed Coastal Seas (EMECS '90) was held in the city of Kobe, Japan. Due to the success of the initial conference and subsequent activities, the acronym "EMECS" is now widely recognised internationally as a reference to integrated enclosed coastal seas management initiatives.

In order to develop scientific activities on enclosed coastal seas environment in the Asia-Pacific region, and to further develop partnership with EMECS, the APN contributed to the 10th EMECS Conference, from 30 October to 3 November in Marmaris, Turkey, by disseminating information at the booth exhibition and by supporting the travel costs of participants from developing countries in the Asia-Pacific region.

### Application of Low Carbon Technology for Sustainable Development in Emerging Countries

In developed and developing countries, energy and environmental policies as well as low carbon technologies are developed dynamically, and it is essential for APN to continue to disseminate the latest relevant information and to highlight APN activities on low carbon development in the region to the public of Hyogo Prefecture as part of its partnership activities with Hyogo Prefectural Government.

With this background, the APN worked with the Institute for Global Environmental Strategies, Kansai Research Centre (IGES/KRC) and Hyogo Prefectural Government and organised an international symposium "Application of Low Carbon Technology for Sustainable Development in Emerging Countries" on 4 March 2014 in Kobe, Japan, with a view to deepen mutual understanding on the latest technology, know-how, legal framework and lifestyle in Japan and other Asian countries as well as needs, gaps and lessons on implementation of mitigation actions, and to enhance communication between experts of APN and IGES/KRC and the Hyogo public on the issue of low carbon development.



# 2013-2014 COMPLETED PROJECTS



▲ *Community discussion in Nepal (ARCP2011-04CMY-Paudel).*

## REGIONAL RESEARCH: **THE ARCP PROGRAMME**

The APN supports regional-based global change research activities through its main pillar of activities, the Annual Regional Call for Research Proposals (ARCP). In its third Strategic Phase (2010–2015), APN selects high quality projects that fit within the four specific areas of the APN Scientific Research Agenda:

- ❖ Climate Change and Climate Variability
- ❖ Ecosystems, Biodiversity and Land Use
- ❖ Changes in Atmospheric, Terrestrial and Marine Domains
- ❖ Resources Utilisation and Pathways for Sustainable Development

The above themes are interrelated and involve the interface of natural, social and political

sciences. APN also supports research on cross-cutting issues, science-policy linkages and the human dimensions of global change.

In fiscal year 2013, 12 regional research projects and two seed grant projects were completed. The regional research projects covered a variety of topics, and are highlighted below grouped by APN's Scientific Research Agenda. The seed grant awards were given to proposed projects that were considered priority for the region but required further improvement. With funds awarded to hold a scoping workshop, these projects are expected to develop improved proposals for re-submission under the calls for proposals.

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\* *The section lists APN projects completed in fiscal year 2013 (page 19–38).*

## Climate Change and Climate Variability (CCCV)

APN has been supporting research that contributes to the understanding of Climate Change and Climate Variability (CCCV) in the Asia-Pacific Region, its impact on natural and human systems across the region, as well as strategies in mitigation and adaptation. In 2013, APN completed four regional research projects and one seed grant project under this theme.

### 🕒 ARCP2011-01CMY-Wang: Building Asian Climate Change Scenarios by Multi-Regional Climate Models Ensemble

The project's aim was to build high resolution climate change scenarios for Asia for 2040–2070 using regional climate model outputs, and to develop an envelope analysis of ensembles for Asian regional climate projections with full evaluation and assessment of uncertainty. The scenarios built will be provided to research communities for impact and adaptation studies.

#### **Outputs:**

- ❖ Highly confident climate change scenarios for Asia with an envelope analysis of ensembles and uncertainty range.

- ❖ Establishment of the Asian Climate Change Projection Network, which connects to other regional climate research networks.

#### **Outcomes:**

- ❖ Project results have been made available to scientific communities, including those working on vulnerability and impact studies.
- ❖ Promotion of project applications through establishing connection to other projects.
- ❖ Expansion of the regional climate modeling network established through the project by active involvement in WCRP CORDEX activities.
- ❖ The network will play an active role in sustaining data and technique sharing activities in the project.



**🌀 ARCP2011-02CMY-Koike: River Management System Development in Asia based on Data Integration and Analysis System (DIAS) under the GEOSS**

This project was launched under the GEOSS/ Asian Water Cycle Initiative (AWCI) framework and included three meetings of AWCI, demonstration project activities in AWCI river basins, and one training course focused on techniques for climate change assessment. A comprehensive study on climate change impacts in three basins in the Philippines was conducted and the project concluded that uncertainty should be carefully considered for water resource management planning, factoring in future changes in climate in these basins. A training course was provided to 25 scientists from 15 countries on the use of model outputs for impact assessment.

**Outputs:**

- ❖ Water and Energy Balance Distributed Hydrological Model (WEB-DHM) calibrated for 14 AWCI river basins.
- ❖ A hydrological model for snow and glacier region (WEB-DHM-S) developed and used in cold region basins.
- ❖ A method for estimation of snow cover distribution in the mountainous areas using satellite AMSR-E data developed and validated in Bhutan.
- ❖ An improved statistical method for GCM precipitation output bias correction that covers extreme rainfall, normal rainfall and

frequency of dry days and was validated in the Pampanga basin in the Philippines.

- ❖ Four peer-reviewed journal articles.

**Outcomes:**

- ❖ Assessment of climate change on water resources based on the project output.
- ❖ Observation data of the 18 AWCI demonstration basins shared in DIAS, a fully open access data system.
- ❖ Trainees learned how to use global model precipitation outputs of future climate projections for the assessment of climate change impacts on hydrological regime in the basin.
- ❖ Demonstration project activities in Cambodia, Indonesia, Pakistan, Philippines and Viet Nam have resulted in the initiation of a complex project involving strategic partners from country governmental sectors, international ODAs and academia.
- ❖ Participating countries of AWCI expressed their interest to continue active involvement in the second stage of AWCI framework.



*The Tonle Sap in Cambodia, is the largest freshwater lake in Southeast Asia and is an ecological hot spot designated as a UNESCO biosphere in 1997.*

### 🕒 ARCP2011-05CMY-Bae: Climate Change Impact Assessment on Asia-Pacific Water Resources Under AWCI/GEOS

The project analysed historical climate and hydrology trends with future climate change impacts of 18 demonstration basins in AWCI countries. The Mann-Kendall test was used for past trend analyses. The analysis showed an increasing trend for average temperature and a decreasing trend for average precipitation and runoff over Asia in the past 30 years (1977–2006). The analysis projected increases in average temperature, precipitation and runoff over Asia in 2020s, 2050s and 2080s.

#### Outputs:

- ❖ Historical climate and hydrology trend was analysed in 18 river basins.
- ❖ A training course was held for the Climate Change Assessment and Adaptation Study.
- ❖ Three peer-reviewed journal articles.

#### Outcomes:

- ❖ The analysis projected increases in average temperature, precipitation and runoff over Asia.
- ❖ Trained developing country scientists for the Climate Change Assessment and Adaptation Study.
- ❖ The project will lead to enhanced studies using high-resolution observation data and Representative Concentration Pathways of IPCC AR5 scenarios to further analyse climate and hydrology features over Asia.



▲ AWCI training course for Climate Change Assessment and Adaptation Study, held in Tokyo, Japan.

### 🕒 ARCP2011-20NSY-McEvoy: Assessment of Climate Change Risks and Adaptation Options for Secondary Cities in Southwest Bangladesh and Central Viet Nam

The project set out to develop a participatory toolkit that would enable local communities to assess the climate risks facing their cities in Southwest Bangladesh (Satkhira) and Central Viet Nam (Huế). The toolkit, comprising a portfolio of participatory assessment approaches, was tested in the respective local communities to ensure it was fit for purpose, with the intention of providing a platform for informing context-specific adaptation options.

#### Outputs:

- ❖ A participatory toolkit on climate risk assessment in cities.
- ❖ Workshops to disseminate key findings.

#### Outcomes:

- ❖ Valuable information for identifying and prioritising local exposure and vulnerability of urban communities to climate-related hazards.
- ❖ Increased local community awareness of climate change issues.
- ❖ Feedback for improvement of the toolkit as well as toolkit application.
- ❖ Generated considerable interest from policy makers and other key stakeholders in upscaling the activity and replicating the participatory risk assessment in other vulnerable neighbourhoods and cities.

**⊕ ARCP2012-23NSG-Crawford: Scoping Workshop to Develop Proposal: Human Responses to Catastrophic Monsoon Events in South Asia, Designing a Spatially Explicit Model in Low-Lying Coastal Areas**

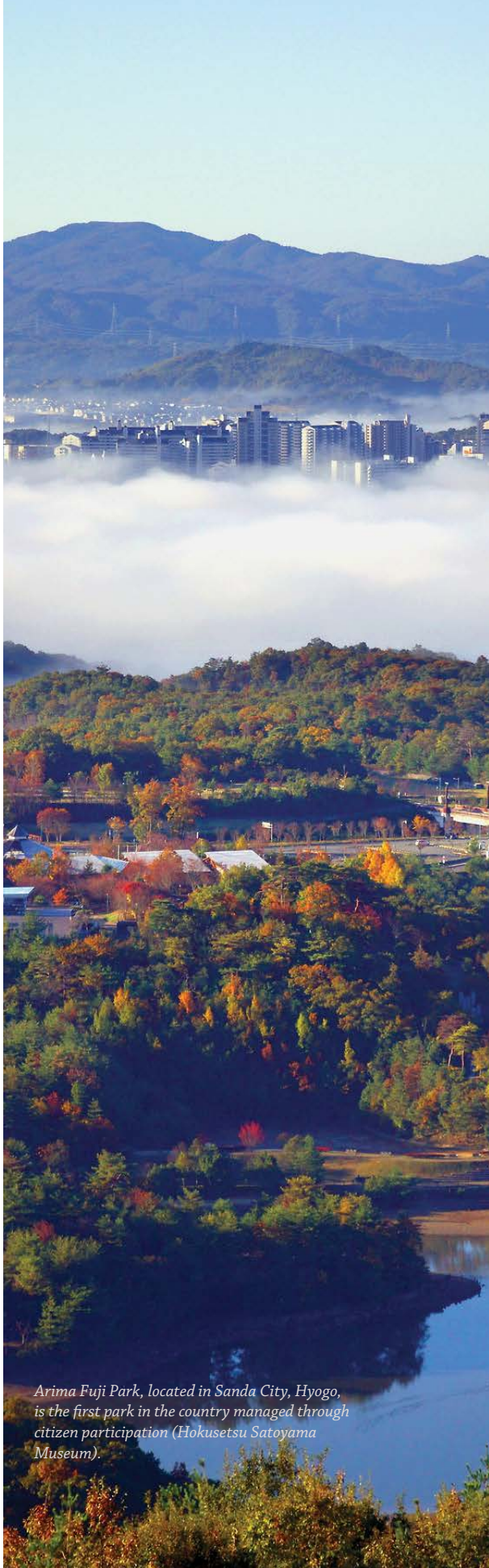
The scoping workshop was held to develop a research initiative aiming to investigate human responses to coastal hazards in low-lying coastal areas. Scientists with expertise in a range of disciplines including meteorology, hydrology, geography, sociology, economic development and geospatial technologies, gathered to share knowledge, listen and learn from the various topical and regional experts about the best strategies to develop a larger-scale research project. Workshop participants identified key science questions, data gaps, and the need for both natural and social science collaborative approaches.

**Outputs:**

- ❖ Proposal titled “Linking Monsoon Dynamics to Coastal Riverbank Erosion and Human Response in South Asia” submitted to 2013 ARCP Call for Proposals.
- ❖ Documentation on field trip to Char Algi Village and synthesis on local perceptions regarding coastal hazard challenges.

**Outcomes:**

- ❖ The scoping workshop secured support from two universities (Bangabandhu Sheikh Mujibur Rahman Agricultural University and Noakhali Science and Technology University) and two scientific agencies (Bangladesh Disaster Management Bureau and Institute of Water Modeling in Bangladesh) for future collaboration.



*Arima Fuji Park, located in Sanda City, Hyogo, is the first park in the country managed through citizen participation (Hokusetsu Satoyama Museum).*





## Ecosystems, Biodiversity and Land Use (EBLU)



Under the theme Ecosystems, Biodiversity and Land Use (EBLU), the APN supports research on environmental systems analysis in relation to global change, covering observation and analysis of ecosystems services, agricultural technology and practices, biodiversity status, land use information and land-use changes, and management of environment and natural resources. In 2013, the APN completed five regional research projects and one seed grant project under this theme.

**🌀 ARCP2010-03CMY-Marambe:  
Vulnerability of Home Garden Systems to  
Climate Change and its Impacts on Food  
Security in South Asia**

The project assessed the degree of climate vulnerability of different homegarden systems in Bangladesh, India and Sri Lanka. All five sites studied experienced increased variability of seasonal rains and minimum and maximum temperatures over the past five decades (1961–2010). The composition of plant, tree and animal of homegardens has not been impacted substantially during the past two decades despite climatic variations. Project results show that homegardens are resilient to climate change and contribute considerably to household food security. The socio-economic status, experience in farming, homegarden size, diversity of homegardens, and perceptions towards climate change have influenced the decision of homegardeners to adopt different adaptation strategies to cope with climate change.

**Outputs:**

- ❖ Identified the vulnerability of homegardens in South Asia and resilience of homegardens to climate change impacts.
- ❖ Generated information that helped raise the awareness and interest of stakeholders on impacts of climate change on household food security.
- ❖ Six peer-reviewed papers, book chapter and six conference papers.

**Outcomes:**

- ❖ Raised awareness of homegarden systems and their resilience.
- ❖ Results used to strengthen the academic programmes of universities in three countries.
- ❖ Project data shared with other projects and led to further studies.
- ❖ Established long-term relationships with decision makers, particularly in terms of

assisting governments to develop effective adaptation strategies.

- ❖ Nine young scientists were involved and gained first-hand experience.
- ❖ Project scientists were called upon to serve in many national level committees and project outputs have guided national policy implementation.
- ❖ Received new grants and developed partnerships to sustain project activities.

**🌀 ARCP2011-03CMY-Asanuma:  
Intercomparison of Landsurface Process  
Modelling at Asian Drylands**

The project brought together a number of Asian scientists to gather and compare numerous land surface process models. Through this project, a fine dataset was constructed and utilised in a number of state-of-the-art numerical models of land surface processes. This process of model inter-comparison shed light into differences in reproducibility of land surface processes caused by different coding between the models. As a result, scientists can derive information on the current status of modeling skills of land surface processes in Asian drylands.

**Outputs:**

- ❖ Well-qualified data series with high temporal resolution.
- ❖ Model inter-comparison result of 18 land surface models, with target sites: Tongyu, Inner Mongolia, China; and Kherlenbayan Ulaan, Mongolia.
- ❖ Website of the Asian Dryland Model Inter-comparison Project (ADMIP): <http://hywr.kuciv.kyoto-u.ac.jp/admip/index.html>.

**Outcome:**

- ❖ A long-term research plan was devised for a minimum five-year period to ensure continuation of the research work.

### 🕒 ARCP2011-04CMY-Paudel: Community Based Forestry and Livelihoods in the Context of Climate Change Adaptation

The research aimed to investigate how climate change affects forest-dependent communities in one of the world's most vulnerable regions and the actual and potential adaptation measures that enable households, communities and networks to remain resilient in the changing contexts. Through the project, local and indigenous communities' knowledge and experience in coping with climate change were documented and disseminated to wider audiences.

#### **Outputs:**

- ❖ Documented traditional knowledge of rural people on climate change adaptation.
- ❖ Training manual on climate change adaptation in Nepali language.
- ❖ Trained young researchers in the field of climate change adaptation.

#### **Outcomes:**

- ❖ Increased awareness and knowledge on climate change adaptation for trained students.
- ❖ Four graduate students completed their research dissertations and graduated.
- ❖ Research results disseminated in international conferences/symposia, reaching out to the international community.
- ❖ An international climate change consortium network was established with researchers in Bangladesh, Nepal, Thailand, Viet Nam, Bhutan, India and USA with a view to scope the expansion beyond these countries. The consortium network has enabled researchers to share their experiences and identify adaptation strategies appropriate to each country's situation.

### 🕒 ARCP2011-08CMY-Huda: Food Security and Climate Change in the Asia-Pacific: Evaluating Mismatch between Crop Development and Water Availability

This project assessed the effects of climate change on crop growth, water stress and yield using Cropping Systems Simulation Models in selected sites in Australia, China and India. It demonstrated that the selected temperature and rainfall change scenarios could reduce yields of major crops and cropping systems across locations. Based on studies conducted in Australia, the project team found that serious adverse effects on yields will not be evident until about 2050. Adaptation strategies such as supplementary irrigation, breeding new varieties with better adaptation to the new climate, or concentrating agriculture in areas more suited following climate change will help in overcoming the impacts.

#### **Outputs:**

- ❖ Mismatches between crop and its environment such as water availability and extreme temperatures were identified during critical growth phases of the crop.
- ❖ Professional development of two young scientists through Early Career Researchers Programme.

#### **Outcomes:**

- ❖ Identified possible adaptation strategies to overcome climate change effects on crop growth.
- ❖ An understanding of the impacts of climate change on key crops in Asia and sharing of outcomes with local governments, especially in China.
- ❖ Increased the capacity of two young researchers to analyse and interpret local climate and computer simulation data.
- ❖ Project continuity through follow-up grant.
- ❖ Project methodology has been replicated in Qatar.

**🌀 ARCP2011-09CMY-Towprayoon:  
Strategic Rice Cultivation for Sustainable  
Low Carbon Society Development in  
Southeast Asia**

The project assessed and identified strategic rice cultivation practices that can contribute to global warming mitigation and adaptation to climate change to enable Southeast Asia to move forward to a low carbon society. Project results show that energy crop rotation (corn and sorghum) with rice is an effective strategy to reduce GHG emissions and contribute increasing soil carbon in the long run. Further, crop rotation will increase the income of the farmers through energy crop yield. Expansion of crop rotation strategy will enhance the biomass resources for biofuel and bioenergy without impacting on food crops while contributing to reducing competition between food and fuel crops and problems of land-use change.

**Outputs:**

- ❖ A database of rice cultivation practices of each country in SEA.
- ❖ Identified sustainable rice-energy crop cultivation practices under well-defined condition in SEA.
- ❖ Assessed the carbon budget of rice cultivation under crop rotation system with corn and sorghum.
- ❖ Conducted a comparative assessment of soil carbon sequestration.

**Outcomes:**

- ❖ Cambodia, Myanmar, Indonesia, Japan, Viet Nam and Thailand initiated rice cultivation practices through rotation with energy crops.
- ❖ Developed the capacity of scientists and policy makers in the region in assessing the influence of alternative cultivation prac-

tices on soil carbon stock and GHG emissions.

- ❖ Helped build a foundation for further collaboration on strategic rice cultivation in Southeast Asia.

**🌀 ARCP2012-22NSG-Prayitno:  
Scoping Workshop to Develop Proposal:  
Vulnerability Assessment of Mangrove  
Biodiversity to Climate Change in  
Southeast Asia**

The project implemented a scoping workshop on vulnerability assessment of mangrove biodiversity to climate change in Southeast Asia. Scientists from Indonesia, Philippines and Malaysia gathered to discuss a research framework and methodologies on the assessment of mangrove ecosystem sensitivity and adaptability to climate change. Research results will be aimed at assisting decision makers in formulating climate change adaptation strategies for maintaining mangrove ecosystems biodiversity and sustainability of fish production.

**Outputs:**

- ❖ Compilation of the latest information on climate change and mangrove biodiversity.
- ❖ Proposal titled “Vulnerability Assessment of Mangrove Ecosystem to Climate Change in Southeast Asia” submitted to APN’s 2013 Call for Proposals.

**Outcomes:**

- ❖ Collaborating scientists have deepened understanding on the proposed project and its sub-tasks: climate change scenarios, mangrove biodiversity, fisheries production and socio-economic status of the community.
- ❖ Improved project organisation and task allocation.

## Changes in Atmospheric, Terrestrial and Marine Domains (CATMD)

Under the theme “Changes in Atmospheric, Terrestrial and Marine Domains” (CATMD), APN supports research that contributes to understanding of natural and human-induced changes that occur in atmospheric, terrestrial and marine systems. In 2013, APN completed two research projects: (1) investigation of CO<sub>2</sub> release in the atmosphere and its relation to city planning, and (2) map reconstruction on changes in sea level in Southeast Asia.

### 🕒 ARCP2011-07CMY-Han: The Impact of Spatial Parameters on GHG Emissions: A Comparative Study between Cities in China and India

The project compared the characteristics of urban households, urban built environment and the spatial distribution of carbon emissions between Xi’an in China and Bangalore in India. From this comparison, key determinants of carbon emissions associated with urban households were discovered. The information acquired was then used to recommend policies for carbon emission control.

#### **Outputs:**

- ❖ Trained young scientists on strategies for sample household surveying, data analysis, writing skills and networking opportunities.

- ❖ Developed conceptual and methodological framework in studying energy use behaviour and urban planning policies.
- ❖ Held three workshops on urban planning, energy consumption and emissions.

#### **Outcomes:**

- ❖ The project drew interest from new researchers beyond the core team, and managed to expand the geographic scope. Researchers from Shanghai, Tianjin and Haerbin participated in workshop discussions and shared their related knowledge and experiences.
- ❖ Dissemination of the research findings in the two workshops in Bangalore and Beijing generated interest in exploring the policy implications of this research. The planners from Beijing Municipal Government are considering the continuation of the enquiry on different scales.



**🕒 ARCP2011-21NSY-Manurung:  
Reconstruction of Sea Level Change in  
Southeast Asia Waters Using Combined  
Coastal Sea Level Data and Satellite  
Altimetry Data**

Accurate sea level change maps in Southeast Asia are of great importance in responding to questions on the probability of sea level rise in the future. Improving near-coast satellite altimetry data processing will extend coastal sea level records back in time and allow accurate mapping of sea level change in the region as well as support various potential applications of sea level data in coastal zones. With this background, the project brought together scientists to reconstruct maps of sea level change in Southeast Asia and provided opportunities for young scientists to enhance

their capacity in developing sea level maps and coastal altimetry data processing.

**Outputs:**

- ❖ Reconstructed maps of sea level change of Southeast Asia seas.
- ❖ Workshops and training materials developed on reconstruction of sea level maps and coastal altimetry data processing.

**Outcomes:**

- ❖ Raised public awareness through media coverage of sea level rise issues.
- ❖ Increased capacity of ten young scientists on reconstruction of sea level maps and coastal altimetry data processing.



▲ Archipelagic countries, such as the Philippines, are vulnerable to the increasing risks from climate change including sea level rise and storm surge. This image shows part of Bohol Province in Central Visayas, which was affected during typhoon Haiyan in 2013 (Storm Crypt, Flickr CC BY-NC-ND 2.0).

## Resources Utilisation and Pathways for Sustainable Development (RUSD)

Under the theme Resources Utilisation and Pathways for Sustainable Development (RUSD), the APN aims to support research that contributes to knowledge and understanding on sustainable resource management that covers socio-economic analysis of resource utilisation, assessment of sustainable environmental technology, planning and development of strategies/policies/initiatives towards sustainable development.

### ☉ ARCP2011-19NSY-Koottatep: Affordable Sanitation as an Adaptive Strategy to Emerging Waterborne Diseases due to Climate Change

The risk of waterborne diseases due to inadequate sanitation systems are increasing due to climate change. On the other hand, sanitation systems may release GHGs if not properly maintained and operated. The project attempted to assess the potential for GHG emissions and microbial health risk for each type of sanitation system available at research sites in Thailand, Viet Nam and Lao PDR. The assessment results were then used as a base for recommendations on strategies to reduce GHG emissions and health risks.

#### **Outputs:**

- ❖ Documentation on GHG emissions from various types of sanitation systems in the study area.
- ❖ Scenarios and policy recommendations to reduce GHG emissions and health risks.
- ❖ A seminar on “Affordable Sanitation as an Adaptive Strategy to Emerging Waterborne Diseases Due to Climate Change”.

#### **Outcomes:**

- ❖ Increased awareness of key stakeholders, including policy makers, on affordable sanitation systems to reduce risks of waterborne diseases due to climate change.
- ❖ Feedback from stakeholders on possible areas for improvement in the research.
- ❖ Recommended strategies not only to reduce risks of waterborne diseases but also reduce GHG emissions.



▲ Training on algaculture in inundated coastal areas at the Sundarbans (CBA2013-14NSY-Maity).

## SCIENTIFIC CAPACITY BUILDING: THE CAPaBLE PROGRAMME

The CAPaBLE programme is enhancing scientific capacity in developing countries to improve decision-making relating to issues directly linked to sustainable development. This effort is achieved through capacity enhancement for experienced leading scientists and capacity development for early-career scientists under the APN Annual Call for Proposals.

In fiscal year 2013, 11 projects funded under the CAPaBLE Programme were completed. Thematic areas of these projects encompassed Climate Change and Climate Vulnerability; Resource Utilisation and Pathways for Sustainable Development; Changes in the Atmospheric, Terrestrial and Marine Domains; Ecosystems, Biodiversity and Land Use; Crosscutting Issues; and Science and Policy Linkages.



**🕒 CBA2011-08NSY-Baker: Towards Engagement in the United Nations Regular Process for Global Assessment of the Marine Environment: Strengthening Capacity of Developing Countries in the Seas of East Asia**

This project supported a workshop aimed at building capacity to conduct integrated marine assessment. The workshop utilised a methodology for a rapid regional ocean assessment and applied it to the South China Sea.

**Outputs:**

- ❖ A capacity building workshop in Bangkok for integrated marine assessment, with a focus on requirements for assessments to support the new United Nations World Ocean Assessment.
- ❖ Evaluated assessment methodology and effectiveness in producing a credible assessment for the region and for national jurisdictions.

**Outcomes:**

- ❖ The revised methodology was used to produce an indicative assessment of biodiversity and ecosystem health in the South China Sea.
- ❖ Participating states and experts from the World Ocean Assessment are considering replicating the project in other countries and regions, including the Pacific.

**🕒 CBA2011-15NSY-Wagan: Capability Enhancement of Local Experts from State Universities and Colleges in Assessing Climate Change Vulnerability and Adaptive Capacity of Crop-based Farming Systems in Various Agroecological Settings**

The project involved a series of activities where both the proponents and the participating agricultural state universities and colleges from

different regions in the country learned from each others' experiences on climate change research and agricultural development. This capability enhancement project engaged agriculture experts from various state universities and colleges in the Philippines and provided them with knowledge on climate change and its effects on Philippine agricultural systems.

**Outputs:**

- ❖ Developed site-specific adaptation measures for agriculture and disseminated information to local policy makers, local leaders, farming communities and other stakeholders about the vulnerability of production systems in their regions.

**Outcomes:**

- ❖ Agriculture experts equipped with skills on community-level vulnerability assessments, which are requisites for a more relevant role in planning/implementing site-specific adaptation measures for agriculture and the farming communities facing climate change adversities.
- ❖ Enabled the proponents to refine a locally-developed methodology for identifying site interventions for climate adaptation as well as providing an instrument for local policy-making on climate change adaptation for agriculture.
- ❖ Outputs from vulnerability assessment in several production sites in the country are useful for future research and development for climate change adaptation.
- ❖ The community-based vulnerability assessment methodology for agriculture (called VAST-Agro) can be used for research and development on local management of agrobiodiversity for climate change adaptation.
- ❖ Future training courses may be conducted for other agricultural state universities and colleges in the Philippines.

**⊕ CBA2011-18NSY-Penalba: Enhancing the Climate Change Adaptation Capacity of Local Government Units and Scientists in the Philippines**

The project aimed to create awareness and develop the capacity of local government units (LGUs), communities and regional universities to effectively respond to climate change for sustainable development. Hands-on training on vulnerability assessment and climate change adaptation plan preparation were conducted using data from the most vulnerable barangays within five selected municipalities, which yielded tangible results. All learning and alliance building opportunities were maximised through participatory research, coaching and interactive discussion on climate change issues. Vulnerability assessment was also done through public consultations amplifying awareness-raising.

**Outputs:**

- ❖ Climate change awareness raising seminar.
- ❖ Hands-on training on vulnerability assessment and climate change adaptation planning preparation.
- ❖ Five mini workshops to discuss adaptation planning preparation with LGUs.
- ❖ Six dissemination forums.

- ❖ Project outcome shared at dissemination forums where 555 local people participated.
- ❖ A booklet on Climate Change and Municipal Level Adaptation Planning and three journal articles.

**Outcomes:**

- ❖ Enhanced vulnerability assessment and climate change adaptation planning skills of over 60 local governmental representatives.
- ❖ Developed partnership between UPLB, other public educational institutions, communities and LGUs towards science-based climate change adaptation planning.
- ❖ Climate risk management and climate change adaptation plans mainstreamed and integrated into the development plans of partner LGUs.

**⊕ CBA2012-04NSY-Kanie: Exploring Effective Architecture for Emerging Agencies in International Environmental Governance (IEG)**

This project facilitated developing country participation from Asia-Pacific countries in the Earth System Governance (ESG) Tokyo Conference held in January 2013 and hosted by the United Nations University Institute of

*Participatory research in Rizal Province, Philippines, with input from local government officials (CBA2011-18NSY-Penalba).*



Advanced Studies (UNU-IAS), the International Environmental Governance Architecture Research Group and the Tokyo Institute of Technology, which increased the interaction among early-career researchers, leading scholars and policy makers in the field. The ESG conference focused on sustainable development governance (SDG), and brought together scientists and policy makers from the north and the south. Asia-Pacific countries are of global importance for the realisation of sustainable development, due partly to the fact that the region includes key emerging economies such as China, India and Indonesia. As the issue of effective governance from local to global levels is diverse both in academic and practical terms, social science-based interaction needs to be the basis for future cooperation in the area.

#### **Outputs:**

- ❖ Funded seventeen early-career researchers from within the Asia-Pacific region to attend the ESG Conference.
- ❖ ESG Conference served as a great networking platform among senior researchers, peers and civil society groups from different parts of the world. This network has created an opportunity for researchers to further understand the need to work with others who have similar research interests.

#### **Outcomes:**

- ❖ Lasting networks and collaboration between scientists and policy makers with intellectual interest in ESG.
- ❖ Established networks between countries in and outside of the Asia-Pacific region.

#### **🕒 CBA2012-06NSY-Zhang: International Workshop: Needs Assessment for Capacity Development for Integrated Marine Biogeochemistry and Ecosystem Research in the Asia-Pacific Region**

The Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) project is a multi-disciplinary, international project that seeks to identify the mechanisms by which global change and anthropogenic forcing influence marine biogeochemical cycles and marine food webs and how these, in turn, influence marine ecosystems and human society. To enhance IMBER research in the Asia-Pacific region, an international workshop was held to assess needs for capacity development for IMBER research.

#### **Outputs:**

- ❖ Stocktaking of ongoing capacity building activities on integrated marine biogeochemistry and ecosystems research.
- ❖ Identification of issues and challenges in terms of capacity building.
- ❖ Identification of capacity building needs for IMBER relevant research.
- ❖ Assessment of global/regional networking information.
- ❖ Development of a strategy for enhancing capacity development.

#### **Outcomes:**

- ❖ The workshop provided an important contribution to the capacity building efforts of Scientific Committee on Oceanic Research Capacity Building Committee, the IMBER Capacity Building Task Team and UNESCO Intergovernmental Oceanographic Commission Western Pacific Sub-Commission (IOC/WESTPAC). All of these groups contributed to the success of the meeting and are dedicated to improving capacity and keen to have Asia-Pacific countries involved as stakeholders.

**🕒 CBA2012-07NSY-Arida: ASEAN Training Workshop on Building Capacity on Access and Benefit Sharing (ABS)**

A capacity building activity for key stakeholders in Southeast Asia was conducted to enhance their understanding of the policy, mechanisms and implementation of the third objective of the Convention on Biological Diversity on access to genetic resources and the fair and equitable sharing of benefits arising from their utilisation.

**Outputs:**

- ❖ Third Regional Workshop on ABS was held in Kuala Lumpur, Malaysia in December 2012, and aimed at assisting Southeast Asian countries in implementing policies under the Nagoya Protocol.
- ❖ Sixty representatives from academia/science community, lawyers, policy makers, NGOs, indigenous and local communities, industry, and ABS National Focal Points participated in the four-day workshop comprising lectures and a field visit to a research institute.
- ❖ Website on Southeast Asia Regional Capacity Building on ABS: <http://www.aseanbiodiversity.org/abs/>

**Outcomes:**

- ❖ Enhanced knowledge on the status and key elements of the Nagoya Protocol, relevance of the draft ASEAN Framework Agreement on ABS, procedures for sharing of benefits and country experiences in implementing ABS policies.
- ❖ A field visit demonstrated the experience of the Forest Research Institute Malaysia in documenting selected traditional knowledge associated with genetic resources and its interface with science and policy development.
- ❖ An analysis of the international and regional guidelines on ABS, procedures of benefit sharing, and ABS implementation in different countries and industries.

- ❖ Participants are better prepared in developing national roadmaps towards ABS legal frameworks.

**🕒 CBA2012-08NSY-Hongbo: Marine Invasive Species in the Northwest Pacific Region of China**

Presently, Marine Invasive Species (MIS) is one of the major threats to marine biological diversity. However, there is still insufficient information about MIS at both national and international levels. With the aim of exchanging information on MIS problems and experiences on the prevention and control of MIS, a Regional Workshop on MIS Problems in Northwest Pacific Region was held in Qingdao, China from 23–24 October 2012. Twenty prominent experts from 17 organisations and more than 20 local researchers participated.

**Outputs:**

- ❖ Appraisal of the current situation of MIS and their associated problems in NOWPAP member states, and impacts of MIS on ecosystems and the environment in NOWPAP member countries.
- ❖ Assessment of policies and measures to prevent and control problems associated with MIS in NOWPAP member states and future needs for regional cooperation.

**Outcome:**

- ❖ Recommendations in several areas, including regional cooperation, reliable research and prevention measures, among others.

🕒 **CBA2012-10NSY-Zondervan: Governing Critical Uncertainties: Climate Change and Decision-Making in Transboundary River Basins**

A capacity building workshop held in Chiang Mai, Thailand from 21–23 January 2013 brought together a community of researchers working on earth system governance in general and transboundary river basin governance in particular to jointly learn, discuss research, and initiate new research endeavours. The workshop helped increase the understanding of the implications of analytical and normative uncertainties associated with climate change and other large-scale drivers for the governance of transboundary river basins.

**Outputs:**

- ❖ A three-day workshop featuring five keynote lectures on various aspects of governance under uncertainty in the field of Transboundary River Basins in Asia.
- ❖ Case study presentations by 14 early-career researchers from the Asia-Pacific region.
- ❖ A set of prepositions on uncertainty in governance of transboundary river basins under climate change.

**Outcomes:**

- ❖ Stimulated academic discussions and knowledge transfer, and practically served to reducing uncertainty by creating trust, exchanging views and information, and establishing relationships and social learning between the participants.



▲ Capacity building workshop in Chiang Mai, Thailand.

- ❖ Developed a set of propositions on uncertainty in governance of transboundary river basins under climate change during the workshop that can serve as basis for future work and reference.

🕒 **CBA2012-12NSY-Cruz: Enhancing Local Government Unit Capacity for Implementing Conservation Farming Villages and a Strategy for Climate Change Adaptation in Upland Environments**

Due to burgeoning population and the seemingly lack of better livelihood opportunities in the lowlands of the Philippines, higher influx into the upland communities is expected in the next few years, unless more responsive government programmes are implemented to avert such consequences. The devolution of responsibilities from national government to LGUs to attain sustainable access and development of resources, increased productivity, and sustainable upland development is a task that requires partnership and assistance of all sectors. Conservation Farming Villages (CFV) is a modality of transforming traditional upland farming systems into sustainable upland production systems, while stimulating upland community development that is resilient to climate change.

**Outputs:**

- ❖ Training of farmer-volunteers and community extension workers/change agents under an appropriate technology promotion mechanism.
- ❖ Development of sloping land science and technology based model farms.
- ❖ Establishment of basic facilities and structures for conservation farming information service.
- ❖ Development of farming support systems such as credit, technical assistance linkages and information/database systems.



- ❖ Capacity building strategies for farmers and other community groups and sectors/ key players.
- ❖ Multiplier effect of existing technology diffusion processes at the local level.

**Outcomes:**

- ❖ Capacities of LGU executives and technical personnel were enhanced. In turn, upland farmers were capacitated to manage natural resources while having more sustainable livelihood sources.
- ❖ A local NGO concerned primarily with rural development and environmental protection will work in collaboration with UPLB to expand CFV in Northern Philippines.

**🌀 CBA2012-13NSG-Bora: Scoping Workshop to Develop an APN Proposal on Capacity Building in Climate Change Mitigation through Precision Agriculture**

Precision Agriculture in the USA has greatly contributed to reducing the use of chemicals and fertilisers with positive economic impacts and without affecting productivity. This has resulted in the reduction of GHG emissions and aided in mitigating climate change impacts. Similar adaptive and customised technology can be used in developing countries and their policy makers and professionals could be trained to advise farmers to adopt precision agriculture practices. A scoping workshop was conducted with experts and officials from Bangladesh, India, Thailand and Viet Nam to write a proposal to develop capacity building efforts for precision agricultural techniques to mitigate climate change in South and Southeast Asia.

**Output:**

- ❖ A scoping workshop was held among project collaborators at the Asian Institute of Technology, Bangkok, Thailand from 17–19 September 2012.

**Outcome:**

- ❖ A full proposal on “Capacity Building in Climate Change Mitigation through Precision Agriculture” was developed and submitted to APN under its 2013 CAPaBLE Call for Proposals. The full proposal was approved for funding in March 2014.

**🌀 CBA2012-16NSY-Gordov: Capacity Building to Study and Address Climate Change-induced Extremes in Northern Asia**

The activity exposed the regional research community, especially young scientists, to professional work being conducted on climate change-induced extremes with special emphasis on their manifestations in Northern Asia.

**Outputs:**

- ❖ An international workshop “Climate change-induced extremes in Northern Asia” was held in Irkutsk, Russia with participation of young scientists from the targeted region.
- ❖ A major workshop providing scientific materials and key messages on the potential role of climate change-induced extremes in Northern Asia’s sustainable development, which was openly accessible via a dedicated website (<http://project.enviromis.scert.ru/Capacity/resources>).

**Outcomes:**

- ❖ Both workshops were embedded in the regular international events ENVIROMIS and CITES, resulting in more direct involvement of young scientists and regional decision makers.
- ❖ Thematic educational tools for young scientists on climate change analysis.
- ❖ Firsthand experience for young scientist working on climate change-induced extremes and their consequences.

- ❖ A bilingual (English and Russian) website containing thematic lectures, invited paper presentations as well as basic thematic information on climate change.
- ❖ Cooperation among international researchers and MAIRS, NEESPI and SIRS, paving the way for future cooperative activities.

🕒 **CRP2011-01CMY-Pereira:**  
**Strengthening Capacity for Policy Research on Mainstreaming Adaptation to Climate Change in Agriculture and Water Sectors**

The project assessed technical, institutional and regulatory barriers for integrating climate change adaptation at the policy and operational levels concerning agriculture and water sectors. It identified the need for capacity building of local stakeholders for science-based adaptation and improved the communication and coordination between different administrative levels to address barriers. Case studies that evaluated effectiveness and identified characteristics of selected policies concluded that simple ability to respond to policy requirements is not sufficient for a policy to be effective. The project suggested a number

of priority issues in developing indicators to monitor the mainstreaming of adaptation measures: scalability, transferability, independence, comparability, and cost-effectiveness. In addition, engagement between policy makers and local communities was recognised as a crucial factor in deciding the indicators.

**Outputs:**

- ❖ Six meetings held to share research findings with stakeholders and partners.
- ❖ Identified barriers to integrating climate change adaptation concerns.
- ❖ Developed country-specific indicators to track effectiveness of adaptation measures.
- ❖ Evaluated effectiveness of selected policies.
- ❖ Established a project website for information dissemination.

**Outcomes:**

- ❖ Established linkages between climate adaptation regional level networks and institutions such as APAN, AUEDM, UN-CECAR and AIT.
- ❖ The project played a catalytic role in exchange of information between policy makers and researchers.
- ❖ Twelve peer-reviewed papers and a book chapter.



▲ Weeds infesting ricefield soil (NASA/Flickr CC BY-NC-ND 2.0).

## FOCUSED ACTIVITIES

In addition to funding activities under the core programmes of ARCP and CAPaBLE that address APN's science agenda, we also support sets of projects responding to annual emerging thematic needs in the region. These activities have a sharper focus and are in line with ongoing international science-policy initiatives. In fiscal year 2013, the APN completed two projects under the focused activity "Ecosystems, Biodiversity and Land Use (EBLU)", which started in early 2011.

### 🕒 EBLU2011-02CMY(C)-Skole: Developing an MRV System for REDD+: Scaling Up From Project Level to a National Level REDD+ MRV Systems for Lao PDR and Viet Nam

The project conducted a series of sub-national pilot REDD+ activities in Lao PDR and Viet Nam. It established three biomass plots in Lao PDR and Viet Nam and collected field-level plot inventory data. The project measured estimated carbon stocks, mean carbon per hectare values and emission factors in tonnes of dry matter per hectare using the online forest carbon MRV/M&E system. Furthermore, it built the capacity of local and regional participants on understanding of REDD+ concepts, MRV technologies and climate change topics, including measurement requirements for forest carbon inventory.

#### **Outputs:**

- ❖ Trained 165 participants.
- ❖ Established three pilot sites and determined carbon stock estimates based on different emission scenarios.
- ❖ Developed advanced remote sensing methods for forest carbon mapping.
- ❖ Two review papers.

#### **Outcome:**

- ❖ The forest carbon mapping method developed is being evaluated by the World Bank Forest Investment Programme and Thailand Greenhouse Gas Management Organisation.

### 🕒 EBLU2011-03CMY(C)-Sekiya: Capacity Building of ALOS Satellite Data to Support Mapping and Monitoring Deforestation and Degradation in Indonesia

The project conducted a workshop and training with the aim of capacity building and knowledge and technology transfer on the use of radar satellite data for forest monitoring. To design the training based on political and administrative needs, the initial workshop was conducted involving project collaborators, ministries, agencies and universities in Indonesia. During the two-week training, eight Indonesian forestry experts were trained to utilise radar satellite data for forest monitoring and the use of data for decision making.

#### **Outputs:**

- ❖ Identified policy and administrative needs of Indonesia for forest monitoring.
- ❖ Trained eight Indonesian GIS/RS experts.

#### **Outcome:**

- ❖ Built capacity of Indonesian experts on forest monitoring using Synthetic Aperture Radar (SAR).



*LIST OF*  
**ONGOING PROJECTS**  
*2013-2014*



▲ *South Asia PDTW field visit to a community in Imbulgodayagama, Sri Lanka.*

**ANNUAL REGIONAL CALL FOR RESEARCH PROPOSALS (ARCP)**

ARCP2013-01CMY-Patra/Canadell	Greenhouse Gas Budgets of South and Southeast Asia	Dr. Prabir K. PATRA and Dr. Josep CANADELL, Research Institute for Global Change (JAMSTEC), Global Carbon Project (GCP), JAPAN/AUSTRALIA	CCCV, CATMD
ARCP2013-02CMY-Fortes	Seagrass-Mangrove Ecosystems: Bioshields against Biodiversity Loss and Impacts of Local and Global Change along Indo-Pacific Coasts	Miguel FORTES, Marine Science Institute, University of the Philippines Diliman, PHILIPPINES	CCCV, EBLU
ARCP2013-03CMY-Herath	Developing Ecosystem-based Adaptation Strategies to Enhance the Resilience of Rice Terrace Farming Systems against Climate Change	Prof. Anura Srikantha HERATH, Institute for Sustainability and Peace, United Nation University (UNU), JAPAN	CCCV, EBLU
ARCP2013-04CMY-Meinke	Improving the Robustness, Sustainability, Productivity and Eco-Efficiencies of Rice Systems throughout Asia	Prof. Holger MEINKE, University of Tasmania, AUSTRALIA	CCCV, EBLU
ARCP2013-05CMY-Li	Development of an Integrated Climate Change Impact Assessment Tool for Urban Policy Makers (UrbanCLIM)	Dr. Yinpeng LI, International Global Change Institute, Waikato University, NEW ZEALAND	CCCV
ARCP2013-06CMY-Quynh	Carbon Fluxes and Emission from the Red River (Viet Nam and China): Human Activities and Climate Change	Dr. Le Thi Phuong QUYNH, Viet Nam Academy of Science and Technology (VAST), VIET NAM	EBLU, RUSD
ARCP2013-07CMY-Roy	Coastal Ecosystem and Changing Economic Activities: Challenges for Sustainability Transition	Prof. Joyashree ROY, Global Change Programme, Jadavpur University, INDIA	CATMD, CCI
ARCP2013-08CMY-DeCosta	A Study on Loss of Land Surface and Changes to Water Resources Resulting from Sea Level Rise and Climate Change	Dr. G. S. DECOSTA, Unitec University, NEW ZEALAND	CCCV, EBLU
ARCP2013-09CMY-Carter	Coral Reef and Water Quality Status and Community Understanding of Threats in the Eastern Gulf of Thailand	Assoc. Prof. RW (Bill) CARTER, Sustainability Research Centre, University of the Sunshine Coast, AUSTRALIA	CATMD
ARCP2013-10CMY-Yoo	Toward a Fire and Haze Early Warning System for Southeast Asia	Dr. Jin Ho YOO, APEC Climate Center, REPUBLIC OF KOREA	CCCV, EBLU, CATMD
ARCP2013-11CMY-Yabe	GEOSS/Asian Water Cycle Initiative/Water Cycle Integrator (GEOSS/AWCI/WCI)	Ms. Shizu YABE, Satellite Applications and Promotion Center (SAPC), Japan Aerospace Exploration Agency (JAXA), JAPAN	CCCV

**LIST OF ONGOING PROJECTS 2013-2014**

ARCP2013-12CMY-Burnett	Assessing the Impact of Climate Change and Development Pressures on Nutrient Inputs into the Mekong River and Tonle Sap	Prof. William C. BURNETT, Florida State University, USA	CCCV, CATMD
ARCP2013-13CMY-Sase	Dynamics of Sulphur Derived From Atmospheric Deposition and Its Possible Impacts on the East Asian Forests	Dr. Hiroyuki SASE, Asia Centre for Air Pollution Research, JAPAN	EBLU, CATMD
ARCP2013-14NMY-Miyata	Toward CarboAsia: Integration and Syntheses of Terrestrial Ecosystem Flux Data in Tropics/Subtropics and Croplands in Asia by Activating Regional Tower-based Observation Networks	Dr. Akira MIYATA, National Institute for Agro-Environmental Sciences, JAPAN	EBLU
ARCP2013-15NMY-Manton	Coordinated Regional Climate Downscaling Experiment (CORDEX) in Monsoon Asia	Prof. Michael MANTON, Monash University, AUSTRALIA	CATMD
ARCP2013-16NMY-Li	Assessing Spatiotemporal Variability of NPP, NEP and Carbon Sinks of Global Grassland Ecosystem in Response to Climate Change in 1911-2011	Prof. Jianlong LI, Nanjing University, CHINA	EBLU, CATMD
ARCP2013-17NMY-Tangang	Southeast Asia Regional Climate Downscaling Project (SEACLID)	Prof. Fredolin TANGANG, University Kabangsaan Malaysia, MALAYSIA	CATMD
ARCP2013-18NMY-Prabhakar	Assessing Community Risk Insurance Initiatives and Identifying Enabling Policy and Institutional Factors for Maximizing Climate Change Adaptation and Disaster Risk Reduction Benefits from Risk Insurance	Dr. S.V.R.K. PRABHAKAR, Institute for Global Environmental Strategies, JAPAN	CCI
ARCP2013-19NMY-Gomboev	Boreal and Tropical (Monsoonal) Forests and Forest-Steppes in Asia-Pacific Region in Territory of Russia, Mongolia and China: A Comparative Estimation of the Contribution to Softening of Global Climatic Changes and Working Out of Measures on Adaptation to Them	Prof. Bair O. GOMBOEV, Baikal Institute of Nature Management of Russian Academy of Sciences, RUSSIAN FEDERATION	EBLU
ARCP2013-20NMY-Shrestha	Runoff Scenario and Water Based Adaptation Strategies in South Asia	Dr. Madan Lall SHRESTHA, The Small Earth Nepal, NEPAL	EBLU, CATMD

- ❖ **CCCV:** climate change and climate variability
- ❖ **EBLU:** ecosystems, biodiversity and land use
- ❖ **CATMD:** changes in atmospheric, terrestrial and marine domains
- ❖ **RUSD:** resources utilisation and pathways for sustainable development
- ❖ **SPL:** science-policy linkages
- ❖ **CCI:** cross-cutting issues

\* The list comprised of all projects ongoing in fiscal year 2013.

ARCP2013-21NMY-Yamada	Adaptation of Solid Waste Management to Frequent Floods in Vulnerable Mid-Scale Asian Cities	Dr. Masato YAMADA, National Institute for Environmental Studies (NIES), JAPAN	CCCV, EBLU, RUSD
ARCP2013-22NMY-Sellers	Mega-Regional Development and Environmental Change in China and India	Assoc. Prof. Jeffery M. SELLERS, University of Southern California, USA	EBLU
ARCP2013-23NMY-Sthiannopkao	Developing Scientific and Management Tools to Address Impacts of Changing Climate and Land Use Patterns on Water Quality in East Asia's River Basins	Asst. Prof. Suthipong STHIANNOPKAO, Dong-A University, REPUBLIC OF KOREA	CCCV, EBLU
ARCP2013-24NSY-Fidelman	Supporting Governance Institutions for Adaptive Capacity to Environmental Change	Dr. Pedro FIDELMAN, Sustainability Research Centre, University of the Sunshine Coast (USC), AUSTRALIA	CATMD
ARCP2013-25NSY-Shahid	Climate Change Vulnerability and Adaptation in Groundwater-dependent Irrigation System in Asia-Pacific Region	Dr. Shamsuddin SHAHID, Universitit Teknologi Malaysia, MALAYSIA	CCCV
ARCP2013-26NSY-Patankar	Characterizing Public and Private Adaptation to Climate Change and Implications for Long-Term Adaptive Capacity in Asian Megacities	Dr. Archana PATANKAR Regional Centre for Urban and Environmental Studies, All India Institute of Local Self Government, INDIA	CCCV, CCI
ARCP2013-27NSY-Liu	The Impact of Global Warming on Ocean-Atmosphere Feedback Strength at Tropical Indian Ocean	Dr. Lin LIU, First Institute of Oceanography, State Oceanic Administration, CHINA	CCCV, CATMD
ARCP2013-28RUF-David	Synthesis of Case Studies and Integrative Analysis of the Region /Integrated Vulnerability Assessment of Coastal Areas in the Southeast Asia and East Asian Region	Dr. Laura DAVID, University of the Philippines Diliman, PHILIPPINES	CCCV, CATMD
ARCP2012-04CMY-Salik	Impact of Climate Change on Mangrove Ecosystems in South Asia	Dr. Kashif Majeed SALIK, Global Change Impact Studies Centre (GCISC), PAKISTAN	CCCV, EBLU
ARCP2012-05CMY-Zhen	Holistic Assessment of Land-use Change and Impacts on Ecosystem Services of Wetlands	Dr. Lin ZHEN, Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences, CHINA	EBLU

**LIST OF ONGOING PROJECTS 2013-2014**

ARCP2012-06CMY-IGBP	An International Geosphere-Biosphere Programme Synthesis Theme on: Global Environment Change and Sustainable Development: Needs of Least Developed Countries	Dr. Karen SMYTH, International Geosphere-Biosphere Programme (IGBP), SWEDEN	CCI, SPL
ARCP2012-07CMY-Ramanathan	Tracing Nitrogen and Carbon Biogeochemical Processes in the Inter-tidal Mangrove Ecosystem (Sundarban) of India and Bangladesh: Implications of the Global Environmental Change	Dr. Alagappan RAMANATHAN, School of Environmental Sciences, Jawaharlal Nehru University, INDIA	CCCV, EBLU
ARCP2012-08CMY-Jung	Impacts of Global Warming on Coastal and Marine Ecosystems in the Northwest Pacific	Dr. Sukgeun JUNG, National Fisheries Research and Development Institute, Republic of Korea, REPUBLIC OF KOREA	CCCV, CATMD,
ARCP2012-19NSY-Kamal	Assessing Climate Change Impacts on Salt Marsh and Seagrass Ecosystems in the South and South East Asian Coasts	Dr. Abu Hena Mustafa KAMAL, Senior Lecturer, Department of Animal Science and Fishery, University Putra Malaysia, MALAYSIA	CCCV, EBLU, CATMD, RUSD
ARCP2012-20NSY-Musafer	Sustainable Biochar Systems in Developing Countries	Mr. Namiz MUSAFER, Practical Action Sri Lanka, SRI LANKA	RUSD
ARCP2012-21NSY-Siswanto	Climate Change and Human Impacts on Marine Biological Production in the Asia-Pacific Marginal Seas	Dr. Eko SISWANTO, Japan Agency for Marine-Earth Science and Technology, JAPAN	CATMD
ARCP2009-04CMY-Shrestha	Impacts of Global Change on the Dynamics of Snow, Glaciers and Runoff over the Himalayan Mountains and Their Consequences for Highland and Downstream Regions	Dr. Kedar Lal SHRESTHA, Institute for Development and Innovation, NEPAL	CCCV, RUSD, CCI
ARCP2009-08CMY-Iqbal	Assessment of Food and Water Security in South-Asia under Changing Climate Scenario Using Crop Simulation and Water Management Models, and Identification of Appropriate Strategies to Meet Future Demands	Dr. M Mohsin IQBAL, Head Agriculture Section, Global Change Impact Studies Centre (GCISC), Islamabad, PAKISTAN	RUSD

**SCIENTIFIC CAPACITY BUILDING/ENHANCEMENT FOR SUSTAINABLE DEVELOPMENT IN DEVELOPING COUNTRIES (CAPaBLE)**

CBA2013-01CMY-Rasul	Impact of Climate Change on Glacier Melting and Water Cycle Variability in Asian River Basins	Dr. Ghulam RASUL, Pakistan Meteorological Department, PAKISTAN	CCCV, SPL
CBA2013-02CMY-Hashim	Global Environmental Change and Human Health: Extreme Events and Urbanization in the APN Region	Dr. Jamal Hisham HASHIM, UKM Medical Centre, MALAYSIA	CCCV
CBA2013-03NMY-D'Arrigo	ACRE SE Asia – Towards New Weather and Climate Baselines for Assessing Weather And Climate Extremes, Impacts and Risks over SE Asia	Prof. Roseanne D'ARRIGO, Lamont-Doherty Earth Observatory, Columbia University, USA	CCCV
CBA2013-04NSY-WCRP	International Conference on Regional Climate CORDEX 2013	Dr. R. KRISHNAN, Indian Institute of Tropical Meteorology, INDIA	CCCV
CBA2013-05NSY-Sutrisno	The Implementation of Multi Sensors Remote Sensing Technology for Sustainable Disaster Management	Dr. Dewayany SUTRISNO, Indonesian Society For Remote Sensing/Geospatial Information Agency, INDONESIA	CATMD
CBA2013-06NSY-Shrestha	Enhancing the Groundwater Management Capacity in Asian Cities through the Development and Application of Groundwater Sustainability Index in the Context of Global Change	Dr. Sangam SHRESTHA, Asian Institute of Technology (AIT), THAILAND	RUSD
CBA2013-07NSY-Dahal	Policy Brief Writeshop for Researchers: An Approach to Promote Greater Science-Policy Interfacing in South Asia	Assoc. Prof. Khem Raj DAHAL, The Small Earth Nepal (SEN), NEPAL	SPL
CBA2013-08NSY-SOLAS	Capacity Building on Surface Ocean-Lower Atmosphere Study: The SOLAS Summer School	Prof. Minhan DAI, Xiamen University, CHINA	EBLU, SPL
CBA2013-09NSY-Pascoe	Building Capacity for Socio-Ecological Resilience to Coral Bleaching Events in Indonesia, Malaysia, and Thailand	Dr. Sean PASCOE, Commonwealth Scientific and Industrial Research Organisation (CSIRO), AUSTRALIA	CATMD, CCI
CBA2013-10NSY-Visco	Communicating and Operationalizing Site-Specific Climate Change Adaptation Strategies in Selected Vulnerable Upland Communities in Southeast Asia	Dr. Roberto G. VISCO, Philippine Agroforestry Education and Research Network, University of the Philippines Los Baños, PHILIPPINES	CCCV, SPL
CBA2013-11NSY-Pakharkova	Scale in Earth System Governance: Local Case Studies and Global Sustainability	Dr. Nina PAKHARKOVA, Siberian Federal University, RUSSIAN FEDERATION	CCI



**LIST OF ONGOING PROJECTS 2013-2014**

CBA2013-12NSY-MAIRS	Promoting the Sustainability Science in Monsoon Asian Region	Dr. AILIKUN, Institute of Atmospheric Physics (IAP), Chinese Academy of Sciences (CAS), CHINA	CCCV
CBA2013-13NSY-Varma	Building Capacity for Adaptive Governance through Participatory Modelling: Rural and Urban Flooding in India	Mr. Navarun VARMA, The Energy and Resources Institute (TERI), INDIA	CATMD, SPL
CBA2013-14NSY-Maity	Promoting Algae Culture in Trapped Waters as Sustainable Aquafarming and Adaptive Climate Mitigation in Inundated Coastal Areas	Ms. Ashoka MAITY, South Asian Forum for Environment, INDIA	CCCV, CATMD
CBA2013-15NSY-Heinrich-Sanchez	Building Capacity on Marine Litter Management in the NOWPAP (Northwest Pacific Action Plan) Region	Mr. Eduardo HEINRICH-SANCHEZ, NPO Okinawa Ocean Culture and Environment Action Network, JAPAN	CATMD
CBA2013-16NSY-Dargantes	Strengthening the Capability of Colleges of Agriculture in Incorporating Food and Water Security and Climate Change and Climate Variability into Curricular Programmes, Research and Extension Projects and Teaching Modules	Prof. Dr. Buenaventura B. DARGANTES, Institute for Strategic Research & Development Studies (ISRDS), Visayas State University, PHILIPPINES	CATMD, RUSD
CBA2013-17NSY-Bodeker	SPARC (Stratosphere-troposphere Processes And their Role in Climate) General Assembly 2014	Dr. Gregory BODEKER, SPARC 2014 Local Organising Committee/Bodeker Scientific, NEW ZEALAND	CCCV, CATMD
CBA2012-01CMY-Abawi	Building Scientific Capacity in Seasonal Climate Forecasting (SCF) for Improved Risk Management Decisions in a Changing Climate	Prof. Yahya ABAWI, c/o Ministry of Agriculture, Indonesian Agency for Agricultural Research and Development, INDONESIA	CCCV
CBA2012-15NSY-Hiwasaki	Capacity Building to Strengthen Resilience of Coastal and Small Island Communities against Impacts of Hydro-Meteorological Hazards and Climate Change	Dr. Lisa HIWASAKI, UNESCO Jakarta Office, Regional Science Bureau for Asia and the Pacific, INDONESIA	CCCV, CATMD
CBA2012-16NSY-Gordov	Capacity Building to Study and Address Climate Change Induced Extremes in Northern Asia	Prof. Evgeny GORDOV, Siberian Center for Environmental Research and Training/Institute of Monitoring of Climatic and Ecological Systems SB RAS, RUSSIAN FEDERATION	CCCV, RUSD
CBA2012-17NSY-Pradhananga	Preparation of Next Generation Leadership in Sustainability: An Approach in the Asia-Pacific Region	Mr. Dhiraj PRADHANANGA, The Small Earth Nepal (SEN), NEPAL	CCI
CBA2012-18NSY-PAGES	The Past: A Compass for Future Earth — PAGES 2nd Young Scientists Meeting and 4th Open Science Meeting	Dr. Thorsten KIEFER, PAGES Past Global Changes, SWITZERLAND	CCCV

**FRAMEWORK: LOW CARBON INITIATIVES (LCI)**

LCI2012-01NSY(C)-Maeda	Capacity Building for Implementing a “Measurable, Verifiable and Reportable (MRV)” Model in a Mid-Sized Thai Municipality	Mr. Toshido MAEDA, Institute for Global Environmental Strategies (IGES), JAPAN
LCI2012-02NSY(C)-Guerrero	Strengthening Community Voices in REDD+ Policy	Ms. Maria Cristina GUERRERO, Non-Timber Forest Products Exchange Programme for South and Southeast Asia, PHILIPPINES
LCI2012-01NMY(R)-Vashist	Identification of Policy and Institutional Gaps, Drivers and Strategies to Scale-up Low Carbon and Energy Efficient Technology Application in the Construction and Infrastructure Sectors in South Asia	Dr. Sanjay VASHIST, Climate Action Network South Asia (CANSA), BANGLADESH
LCI2012-02NMY(R)-Dhakal	Understanding and Quantifying the Water-Energy-Carbon Nexus for Low Carbon Development in Asian Cities	Dr. Shobhakar DHAKAL, Asian Institute of Technology, THAILAND
LCI2012-03NMY(R)-Lopez	Assessment of Carbon Sequestration through Vermitechnology in Organic Farming	Ms. Marilou J. ANG-LOPEZ, Universty of the Philippines Visayas, PHILIPPINES
LCI2012-04NMY(R)-Macandog	Integrated Sustainability Assessment of Bioenergy Potentials in Asia: An Application of a Hybrid Approach on Trade-offs and Pathway	Dr. Damasa B.M. MACANDOG, University of Philippines Los Baños, PHILIPPINES
LCI2012-05NMY(R)-Jupesta	Low Carbon Urban Infrastructure Investment: Cases of China, Indonesia, and Japan	Dr. Joni JUPESTA/Ms. Takako WAKIYAMA, United Nations University – Institute of Advanced Studies (UNU-IAS)/ Institute for Global Environmental Strategies(IGES), JAPAN

### **FOCUSED ACTIVITIES: ECOSYSTEMS, BIODIVERSITY AND LAND USE (EBLU)**

EBLU2012-01CMY(R)- Takeuchi	Critical Analysis of Effectiveness of REDD+ for Forest Communities and Shifting Cultivation based on Lessons Learned from Conservation Efforts in Laos and Thailand	Dr. Kazuhiko TAKEUCHI, United Nations University, JAPAN
EBLU2012-02CMY(R)- Scheyvens	Participatory Approaches to Forest Carbon Accounting to Mitigate Climate Change, Conserve Biodiversity, and Promote Sustainable Development	Dr. Henry SCHEYVENS, Institute for Global Environmental Strategies (IGES), JAPAN

### **FOCUSED ACTIVITIES: RESOURCES UTILISATION AND PATHWAYS FOR SUSTAINABLE DEVELOPMENT (RUSD)**

RUSD2012-01CMY(R)- Surjan	Advancing Locally-Based Green Practices to realise Establishment of Sound Material Cycle Society in Asian Cities	Dr. Akhilesh SURJAN, United Nations University (UNU), JAPAN
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### **OTHER APN ACTIVITIES (AOA/OAA)**

OAA2013-01SY-Sri Lanka	25th Steering Committee Meeting	Mr. B.M.U.D. BASNAYAKE, Ministry of Environment and Renewable Energy, SRI LANKA
OAA2013-02SY- EMECS	10th EMECS Global Congress on Integrated Coastal Management: Lessons Learned to Address New Challenges, Marmaris, Turkey, 30th October – 03rd November 2013	Mr. Yasuo KAWAWAKI, International Center for Environmental Management of Enclosed Coastal Seas, JAPAN
AOA2012-05NSY- Herath	UNU-CECAR/UNU-ISP/APN Training Programme on Climate Change Downscaling Approaches and Applications	Dr. Srikantha HERATH, United Nations University – Institute for Sustainability and Peace (UNU-ISP), JAPAN
AOA2012-08NSY- Lansigan	International Conference on Climate Change Impacts and Adaptation for Food and Environmental Security	Dr. Felino P. LANSIGAN, University of the Philippines Los Baños (UPLB), PHILIPPINES

# MAJOR EVENTS

## 2013-2014



▲ *Dr. Linda Anne Stevenson, Head of Communication and Scientific Affairs of the APN Secretariat and Dr. Akio Takemoto, former APN Secretariat Director, moderating a session at the UNFCCC COP19, Warsaw, Poland.*

<b>April 2013</b>	
18th IGM/SPG Meeting	Kobe, JAPAN
<b>May 2013</b>	
WMO/IOC/ICSU Joint Scientific Committee for the World Climate Research Programme	Brasilia, BRAZIL
<b>June 2013</b>	
38th Session of the Subsidiary Body for Scientific and Technological Advice (SBSTA)	Bonn, GERMANY
ICCCAD Loss and Damage Workshop	Bonn, GERMANY
IAI 21st meeting of the Conference of the Parties	Montevideo, URUGUAY
AWCI Training Course on Improved Bias Correction and Downscaling Techniques for Climate Change Assessment including Drought Indices	Tokyo, JAPAN
<b>July 2013</b>	
5th International Forum for Sustainability in Asia and the Pacific (ISAP)	Yokohama, JAPAN
LoCARNet Second Annual Meeting	Yokohama, JAPAN
MAIRS/FUTURE EARTH/APN strategic planning activity	Hong Kong, CHINA
<b>August 2013</b>	
APN Climate Adaptation Workshop on Loss and Damage	Kobe, JAPAN
Scoping Meeting for 3SP Evaluation and 4SP Planning	Kobe, JAPAN
International Conference: Adaptation and Loss and Damage Associated with Climate Change in Asia Pacific: Integrating Scientific Aspects	Bangkok, THAILAND
<b>September 2013</b>	
Asia-Pacific Workshop on Regional Interpretation of the IPBES	Seoul, ROK
APAN/UNFCCC L&D Workshop	Nadi, FIJI
<b>October 2013</b>	
25th APN Steering Committee Meeting	Wattala, SRI LANKA
5th South Asia SRC Meeting and Proposal Development Training Workshop	Wattala, SRI LANKA
PICES 22nd Annual Science Meeting	Vancouver, CANADA
EMECS 10 – MEDCOAST 2013 Joint Conference	Marmaris, TURKEY
<b>November 2013</b>	
International Conference on Regional Climate – CORDEX 2013	Brussels, BELGIUM
Conference of Parties to the United Nations Framework Convention on Climate Change	Warsaw, POLAND
6th Southeast Asia SRC Meeting and Proposal Development Training Workshop	Kuala Lumpur, MALAYSIA
<b>December 2013</b>	
IGFA Annual Meeting 2013	Cape Town, SOUTH AFRICA
Second Meeting of IPBES	Antalya, TURKEY
<b>March 2014</b>	
19th APN Inter-Governmental Meeting/Scientific Planning Group Meeting	Siem Reap, CAMBODIA



# PUBLICATIONS

## 2013-2014



## ARCP PROJECT OUTPUTS

### ARCP2008-07CMY-Dutta: Climate Perturbation and Coastal Zone Systems in Asia Pacific Region: Holistic Approaches and Tools for Vulnerability Assessment and Sustainable Management Strategy

Alam, M. J., & Dutta, D. (2013). Predicting climate change impact on nutrient pollution in waterways: A case study in the upper catchment of the Latrobe River, Australia. *Ecohydrology*, 6(1), 73–82. doi:10.1002/eco.282

### ARCP2008-10CMY-Sheikh: Development and Application of Climate Extreme Indices and Indicators for Monitoring Trends in Climate Extremes and their Socio-Economic Impacts in South Asian Countries

Revadekar, J. V., Hameed, S., Collins, D., Manton, M., Sheikh, M., Borgaonkar, H. P.,...Shrestha, M. L. (2013). Impact of altitude and latitude on changes in temperature extremes over South Asia during 1971–2000. *International Journal of Climatology*, 33(1), 199–209. doi:10.1002/joc.3418

### ARCP2009-01CMY-Fukami: Flood Risk Management Demonstration Project (phase 1) Under the Asian Water Cycle Initiative for the Global Earth Observation System of Systems (FRM/AWCI/GEOS)

Ozawa, G., Inomata, H., & Fukami, K. (2013). Effect of density of gauges on accuracy of merged GSMAP: Case study of typhoon Morakot. Floods: From Risk to Opportunity, IAHS Publication No. 357, 350–356. Retrieved from <http://iahs.info/uploads/dms/15674.357%20350-356.pdf>

Sayama, T., Tatebe, Y., Fujioka, S., Ushiyama, T., Yorozuya, A., & Tanaka, S. (2013).

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Jung, S., Pang, I. C., Lee, J. H., Choi, I., & Cha, H. K. (2014). Latitudinal shifts in the distribution of exploited fishes in Korean waters during the last 30 years: a consequence of climate change. *Reviews in Fish Biology and Fisheries*, 24(2), 443–462. DOI: 10.1007/s11160-013-9310-1

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**CAPaBLE PROJECT OUTPUTS**

**CBA2011-03NSY-WCRP: WCRP Open Science Conference: Climate Research in Service to Society**

Asrar, G. R., & Hurrell, J. W. (Eds.). (2013). *Climate Science for Serving Society*. Dordrecht: Springer Netherlands. doi: 10.1007/978-94-007-6692-1

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Morrison, R. J., Zhang, J., Urban Jr., E. R., Hall, J., Ittekkot, V., Avril, B., ... Zuo, F. (2013). Developing human capital for successful implementation of international marine scientific research projects. *Marine Pollution*



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- CBA2012-18NSY-PAGES: The Past: A Compass for Future Earth — PAGES 2nd Young Scientists Meeting and 4th Open Science Meeting**
- Bogus, K., Bouimetarhan, I., & Richey, J. (2013). Early-Career Scientists Discuss Research and Future Directions for the Paleoclimate Field. *Eos, Transactions American Geophysical Union*, 94(26), 233–233.
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## FOCUSED ACTIVITIES

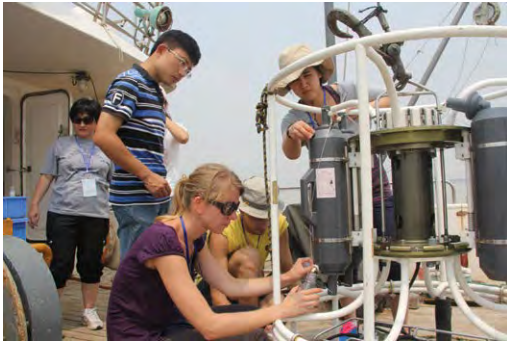
- EBLU2010-03NMY(R)-Scheyvens: Participatory Approaches to Forest Carbon Accounting to Mitigate Climate Change, Conserve Biodiversity, and Promote Sustainable Development**
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# VOICES

## FROM YOUNG SCIENTISTS



▲ *Capacity building workshop on understanding the implications of analytical and normative uncertainties associated with climate, Chiang Mai, Thailand, January 2013 (CBA2012-04NSY-Kanie).*



*CBA2013-09NSY-Pascoe: Building Capacity for Socio-ecological Resilience to Coral Bleaching Events in Indonesia, Malaysia, and Thailand*

“It was truly rewarding to be part of the project team and to help with the workshops. I consider myself fortunate to have been able to learn not only about the science being done in other countries but also about organising and running international workshops, something I have never done before.”

— Sue Yee Chen, Reef Check Malaysia, MALAYSIA

“For this project, I was involved in the economic valuation of costs from coral bleaching. During the workshop, I was one of the facilitators of group discussions. It was an invaluable opportunity to work with the many experienced scientists and researchers, as well as engage in discussions with the participants who represented various stakeholders. The opportunity to communicate the research findings as well as understand the issues from stakeholder perspectives allowed me to consolidate the importance of research in this field and the need for cohesion between all the parties involved to draw up relevant outcomes. It has also further stimulated my interest in environmental and resource economics.”

— Amar Doshi, Queensland University of Technology, AUSTRALIA

“Working with this group of international scientists and being part of the workshops was a

awesome experience. It was something different for me and the team was very helpful and supportive in guiding us along the way. It helped me gain a lot of soft skills, something they never taught us in university.”

— Alvin Chelliah, Reef Check Malaysia, MALAYSIA

“It was a fascinating experience to be involved in this project alongside international scientists with different disciplines. Being a part of the team that conducted the field surveys, organised and facilitated the workshops, I have learnt the crucial communication skills to engage stakeholders and scientists. I realised that the conservation of coral reefs involves more than just science, but society and economics as well. This project has sparked my interest in pursuing multidisciplinary coral reef studies in the hope to be a coral reef scientist.”

— Lau Chai Ming, University of Malaya, MALAYSIA

*CBA2013-17NSY-Bodeker: SPARC (Stratosphere-troposphere Processes And their Role in Climate) General Assembly 2014*

“I got not only scientific knowledge but also many friends, which I stay in touch with. We still send emails to discuss scientific problems. I think the SPARC GA is one of the most important things in my scientific career, and I hope that I will be a good scientist in the future. So once more, I thank SPARC and the APN for their great help.”

— Yuli Zhang, PhD Student, Institute of Atmospheric Physics, Chinese Academy of Sciences, CHINA



▲ Young scientist involvement in a capacity building project.

# MITRA AWARD

*FOR GLOBAL CHANGE RESEARCH*



The Mitra Award for Global Change Research was established in 2010 in memory of Dr. Ashesh Proshad Mitra, APN SPG Member for India from 1996 to 2007. Dr. Mitra was a doyen in atmospheric research in India, and was recipient of the Padma Bhushan award conferred by the Indian government in recognition of his distinguished service to the nation in the field of scientific research. Dr. Mitra’s work was instrumental for the APN to formulate a strong and effective scientific agenda that has successfully led to the international recognition that APN holds today in global change research.

The award recognises outstanding young scientists conducting global change research in the Asia-Pacific region. It is presented in conjunction with the annual APN IGM/SPG Meetings, where a poster session is organised and the winner is selected by SPG members, nFPs and other esteemed members of the science and policy communities.

The latest Mitra Awardee is Mr. Puthea Khon, a project manager of Wetlands Work! Ltd. based in Phnom Penh, Cambodia, who has been deeply involved in prototyping and testing the initial line of WW! products, including the Handy-Pod (wastewater treatment system for floating toilet) and other sanitation solutions for flood-prone areas.

“After I got the APN Mitra award, I’ve developed networks with some APN members and scientists and learnt new knowledge from different people who share similar interest in neighboring countries, and always followed information updated on the APN website and I received another opportunity to attend the Proposal Development Training Workshop on 9–11 July 2014 in Vientiane, Lao PDR,” Mr. Khon says. His long-term career plan is to introduce his innovative technologies to other developing countries that are experiencing

similar sanitation issues like the Cambodian floating communities.

### Recipients of the Mitra Award

- ❖ 2014: Puthea Khon, Wetlands Work! Ltd., Phnom Penh, Cambodia: *Sanitation Technology for a Safe Environment in Floating Communities in Tonle Sap Lake, Cambodia*
- ❖ 2013: Joni Jupesta, United Nations University – Institute for Advanced Studies, Tokyo, Japan: *Rio+20 Outcomes into Implementation: Water-Energy-Food Security Nexus in Indonesian Palm Oil*
- ❖ 2012: Evi Gusmayanti, Centre for Wetlands People and Biodiversity, Universitas Tanjungpura, Indonesia: *Natural Properties of Carbon Stock in Customary Peat Forest at Danau Sentarum National Park, West Kalimantan, Indonesia*
- ❖ 2011: W.G.D. Lakmini, Faculty of Agriculture, University of Ruhuna, Sri Lanka: *Plant Mediator to Tackle Climate Change*
- ❖ 2010: Woo-Seop Lee, Department of Atmospheric Sciences, Kongju National University, Republic of Korea: *The Relationships between Absorbing Aerosols and Snow Cover/Snow Water Equivalent over the Himalayas and the Western Tibetan Plateau during Boreal Spring*



▲ Mr. Khon and his colleague, Ms. Chansolyka Tep, receiving the Mitra Award during the 19th IGM held in Siem Reap, Cambodia, March 2014.



# PEOPLE IN APN

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The Inter-Governmental Meeting (IGM) is the main decision-making body of the APN. The IGM consists of national Focal Points (nFPs) appointed by Member Country governments and approves APN’s annual programme of work and budget based on recommendations from the Scientific Planning Group (SPG). The Steering Committee (SC) acts on behalf of the IGM and provides guidance to the Secretariat on scientific, policy and institutional matters. The lists in this section are current at the time of publication.

## NFP AND SPG MEMBERS

COUNTRY	nFP	SPG Member
<b>AUSTRALIA</b>	<i>(Identifying nominees is in progress)</i>	
<b>BANGLADESH</b>	<i>Faiz AHMED</i> Ministry of Environment and Forests	<i>Md. Giashuddin MIAH</i> Bangabandhu Sheikh Mujibur Rahman Agricultural University
<b>BHUTAN</b>	<i>Peldon TSHERING</i> National Environment Commission	
<b>CAMBODIA</b>	<i>Sundara SEM</i> Ministry of Environment	<i>Veasna KUM</i> Zaman University
<b>CHINA</b>	<i>Chengyong SUN</i> Ministry of Science and Technology	<i>Wenjie DONG</i> Beijing Normal University
<b>FIJI</b>	<i>(Identifying nominees is in progress)</i>	
<b>INDIA</b>	<i>Subodh SHARMA</i> Ministry of Environment and Forests	<i>B.N. GOSWAMI</i> Indian Institute of Tropical Meteorology
<b>INDONESIA</b>	<i>Sabar GINTING</i> Ministry of Environment	<i>Erna Sri ADININGSIH</i> National Institute of Aeronautics and Space
<b>JAPAN</b>	<i>Akio TAKEMOTO</i> Ministry of the Environment	<i>Kensuke FUKUSHI</i> The University of Tokyo

<b>COUNTRY</b>	<b>nFP</b>	<b>SPG Member</b>
<b>LAO PEOPLE'S DEMOCRATIC REPUBLIC</b>	<i>Sangkhane THLANGTHAMMAVONG</i> Ministry of Natural Resources and Environment	<i>Virasack CHUNDARA</i> Ministry of Natural Resources and Environment
<b>MALAYSIA</b>	<i>Che Gayah ISMAIL</i> Ministry of Science, Technology and Innovation	<i>Fariza YUNUS</i> Malaysian Meteorological Department
<b>MONGOLIA</b>	<i>Bayarbat DASHZEVEG</i> Ministry of Nature, Environment and Tourism	<i>Tsogtbaatar JAMSRAN</i> Mongolian Academy of Sciences
<b>NEPAL</b>	<i>Mahendra Kumar THAPA</i> Ministry of Science, Technology and Environment	<i>Madan Lall SHRESTHA</i> Academy of Science and Technology
<b>NEW ZEALAND</b>	<i>(Identifying nominees is in progress)</i>	<i>Andy REISINGER</i> New Zealand Agricultural Greenhouse Gas Research Centre
<b>PAKISTAN</b>	<i>Sajjad AHMAD</i> Ministry of Environment	<i>Amir MUHAMMED</i> National University of Computer and Emerging Sciences
<b>PHILIPPINES</b>	<i>Eriberto C. ARGETE</i> Department of Environment and Natural Resources	<i>Portia G. LAPITAN</i> Department of Environment and Natural Resources
<b>REPUBLIC OF KOREA</b>	<i>Ho YU</i> Ministry of Environment	<i>Soojeong MYEONG</i> Korea Environment Institute
<b>RUSSIAN FEDERATION</b>	<i>Andrey V. ADRIANOV</i> Russian Academy of Sciences	<i>Alexander STERIN</i> Russian Research Institute for Hydrometeorological Information – World Data Center
<b>SRI LANKA</b>	<i>B. M. U. D. BASNAYAKE</i> Ministry of Environment	<i>Lalith CHANDRAPALA</i> Department of Meteorology
<b>THAILAND</b>	<i>Chote TRACHU</i> Ministry of Natural Resources and Environment	<i>Jariya BOONJAWAT</i> Chulalongkorn University
<b>UNITED STATES OF AMERICA</b>	<i>Maria UHLE</i> National Science Foundation	<i>Luis M. TUPAS</i> United States Department of Agriculture
<b>VIET NAM</b>	<i>Xuan Bao Tam NGUYEN</i> Ministry of Natural Resources and Environment	<i>Kim Chi NGO</i> Vietnam Academy of Science and Technology

**STEERING COMMITTEE (SC)**

<b>Elected Members</b>		<i>Peldon TSHERING</i>	nFP for Bhutan
		<i>Chengyong SUN</i>	nFP for China
		<i>Sabar GINTING</i>	nFP for Indonesia
		<i>B. M. U. D. BASNAYAKE</i>	nFP for Sri Lanka
<b>Host of the 20th IGM/SPG Meeting</b>		<i>Mahendra Kumar THAPA</i>	nFP for Nepal
<b>Ex Officio Members</b>	<b>SPG Co-chairs</b>	<i>Luis M. TUPAS</i>	SPG Member for United States of America
		<i>Jariya BOONJAWAT</i>	SPG Member for Thailand
	<b>Donors*</b>	<i>Akio TAKEMOTO</i>	nFP for Japan
		<i>Ho YU</i>	nFP for Republic of Korea
		<i>Maria UHLE</i>	nFP for United States of America
<b>Co-opted Members</b>		<i>Louis BROWN</i>	International Cooperation in Global Change Research, United States of America
		<i>Roland J. FUCHS</i>	East West Center, United States of America
		<i>Andrew MATTHEWS</i>	National Commission for UNESCO, New Zealand
		<i>Kazuhiko TAKEMOTO</i>	United Nations University, Japan

\* Donors participating in the Steering Committee at time of print.

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<i>Jariya BOONJAWAT</i>	SPG Member for Thailand
<i>Luis M. TUPAS</i>	SPG Member for United States of America
<i>Roland J. FUCHS</i>	East West Center, United States
<i>Srikantha HERATH</i>	United Nations University, Japan
<i>Andrew MATTHEWS</i>	National Commission for UNESCO, New Zealand
<i>Harini NAGENDRA</i>	Ashoka Trust for Research in Ecology and the Environment, India
<i>Akio TAKEMOTO</i>	nFP for Japan

**SPG SUB-COMMITTEE**

<i>Jariya BOONJAWAT</i>	SPG Member for Thailand
<i>Luis M. TUPAS</i>	SPG Member for United States of America
<i>Kensuke FUKUSHI</i>	SPG Member for Japan
<i>B. N. GOSWAMI</i>	SPG Member for India
<i>Amir MUHAMMED</i>	SPG Member for Pakistan

**INVITED EXPERTS TO THE SPG**

<i>AILIKUN</i>	International Program Office of Monsoon Asia Integrated Regional Study (MAIRS)
<i>Lance Clive HEATH</i>	Australian National University Climate Change Institute
<i>Kanayathu Chacko KOSHY</i>	Centre for Global Sustainability Studies, Universiti Sains Malaysia
<i>Chao Han LIU</i>	Southeast Asia Regional Committee for START (SARCS)
<i>Subramaniam MOTEN</i>	Former SPG Member for Malaysia

**SECRETARIAT**

<i>Hiroshi TSUJIHARA</i> , Director		
<i>Ryujiro YAMANE</i> Head, Division of Administrative Affairs	<i>Linda Anne STEVENSON</i> Head, Division of Communication and Scientific Affairs	<i>Yukihiro IMANARI</i> Head, Division of Development and Institutional Affairs
<i>Dyota CONDRORINI</i>	Programme Officer for Scientific and Institutional Affairs	
<i>Christmas DE GUZMAN</i>	Programme Fellow for Communication and Scientific Affairs	
<i>Xiaojun DENG</i>	Programme Officer for Communication and Development	
<i>Chieko KODAMA</i>	Administrative Officer	
<i>Taniya KOSWATTA</i>	Coordinator	
<i>Yayoi NAGAOKA</i>	Programme Assistant (part-time)	
<i>Natsuki NIIMI</i>	Programme Assistant (part-time)	

# FINANCIAL RESOURCES

## 2013-2014



▲ APN members and participants of the South Asia PDTW examine a species of mangrove in Sri Lanka, October 2013.



# FINANCIAL RESOURCES

Statement of income and expenditures in fiscal year 2013 (1 April 2013 to 31 March 2014)

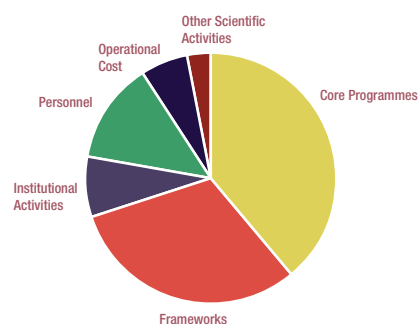
## RESOURCES AVAILABLE (US\$)

Total operative cash balance		744,000
Donor contributions		
Japan	Ministry of the Environment	
	Hyogo Prefectural Government	
United States of America	National Science Foundation	3,103,000
	United States Global Change Research Program	
New Zealand	Ministry for the Environment	
Republic of Korea	Ministry of Environment	
<i>Total resources available</i>		<b>3,847,000</b>

## USE OF RESOURCES (US\$)

Category	<i>Executed &amp; Committed</i>
Core Programmes	1,597,000
Frameworks	1,300,400
Institutional Activities	310,000
Personnel	540,300
Operational Cost	257,000
Other Scientific Activities	131,000
<i>Total use of resources</i>	
	<b>4,135,700</b>

BREAKDOWN IN THE USE OF RESOURCES



## IN-KIND CONTRIBUTIONS AND CO-FUNDING

In fiscal year 2013, APN members and invited experts spent considerable time on activities directly related to APN, including hosting and participating in APN meetings; reviewing proposals, science activities and agendas; regularly communicating with the Secretariat on strategic issues, and promoting APN at various levels within and outside the Asia-Pacific region.

The Hyogo Prefectural Government generously supports the Secretariat by providing office space and fixtures, staff time, etc. This in-kind support amounts to more than US\$ 300,000 per year.

Furthermore, APN receives in-kind support at two levels: (1) project level and (2) organising APN activities. With regard to the project level support, administrative overheads are covered by the institutions of the project leaders and collaborators. While, in terms of organising APN activities, member countries provide logistical and administrative support without any charge.

APN expresses special gratitude to its 22 member country governments as well as engaged institutions in APN projects for their support.

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**Asia Pacific Adaptation Network** (APAN), Bangkok, Thailand • **DIVERSITAS**, Paris, France • **Global Earth Observation System of Systems** (GEOSS), Geneva, Switzerland • **Institute for Global Change Adaptation Science** (ICAS), Tsukuba, Japan • **ICSU Regional Office for Asia and the Pacific** (ICSU ROAP), Kuala Lumpur, Malaysia • **International Group of Funding Agencies for Global Change Research** (IGFA), Washington, DC, USA • **International Geosphere-Biosphere Programme** (IGBP), Stockholm, Sweden • **Institute for Global Environmental Strategies** (IGES), Hayama, Japan • **International Human Dimensions Programme on Global Environmental Change** (IHDP), Bonn, Germany • **Intergovernmental Platform on Biodiversity and Ecosystem Services** (IPBES), Bonn, Germany • **Low Carbon Asia Research Network** (LoCARNet), Hayama, Japan • **Monsoon Asia Integrated Regional Study** (MAIRS), Beijing, China • **North Pacific Marine Science Organization** (PICES), Nanaimo, Canada • **Southeast Asia START Regional Center** (SEA START RC), Bangkok, Thailand • **Small Earth Nepal** (SEN), Kathmandu, Nepal • **SysTem for Analysis Research and Training** (START International), Washington DC, USA • **University Network for Climate and Ecosystems Change Adaptation Research** (UN-CECAR), Tokyo, Japan • **United Nations University** (UNU), Tokyo, Japan • **World Climate Research Programme** (WCRP), Geneva, Switzerland

# ACRONYMS

- AIT (37)**  
*Asian Institute of Technology*
- APAN (37)**  
*Asia Pacific Adaptation Network*
- ARCP (7, 18, 40)**  
*Annual Regional Call for Research Proposals*
- AWCI (20, 21)**  
*Asian Water Cycle Initiative*
- B&ES (8, 12)**  
*Biodiversity and Ecosystem Services*
- CAF (8)**  
*Climate Adaptation Framework*
- CAPaBLE (7, 30, 44)**  
*Scientific Capacity Building/Enhancement for Sustainable Development in Developing Countries*
- CATMD (7, 27, 41)**  
*Changes in Atmospheric, Terrestrial and Marine Domains*
- CCA (8)**  
*Climate Change Adaptation*
- CCCV (7, 19, 41)**  
*Climate Change and Climate Variability*
- CCI (7, 41)**  
*Cross-cutting issues*
- CDC (62)**  
*Capacity Development Committee*
- CORDEX (19)**  
*Coordinated Regional Climate Downscaling Experiment*
- DRR (8)**  
*Disaster Risk Reduction*
- EBLU (7, 23, 38, 41, 47)**  
*Ecosystems, Biodiversity and Land Use*
- EMECS (17)**  
*Environmental Management of Enclosed Coastal Seas*
- GCISC (42)**  
*Global Change Impact Studies Centre*
- GEOSS (20, 21)**  
*Global Earth Observation System of Systems*
- ICCCAD (9)**  
*International Center for Climate Change and Development*
- IGBP (43)**  
*International Geosphere-Biosphere Programme*
- IGES (17, 47)**  
*Institute for Global Environmental Strategies*
- IGM (60)**  
*Inter-Governmental Meeting*
- IMBER (33)**  
*Integrated Marine Biogeochemistry and Ecosystem Research*
- IPBES (8, 11)**  
*Intergovernmental Platform on Biodiversity and Ecosystem Services*
- IPCC (10)**  
*Intergovernmental Panel on Climate Change*
- ISAP (49)**  
*International Forum for Sustainable Asia and the Pacific*
- KEI (12)**  
*Korea Environment Institute*
- LCI (9, 46)**  
*Low Carbon Initiatives*
- L&D (8)**  
*Loss and damage*
- LoCARNet (9)**  
*Low Carbon Asia Research Network*
- MAIRS (37)**  
*Monsoon Asia Integrated Regional Study*
- nFP (60)**  
*National Focal Point*
- NOWPAP (34)**  
*Northwest Pacific Action Plan*
- PDTW (16)**  
*Proposal Development Training Workshop*
- PICES (49)**  
*North Pacific Marine Science Organization*
- RUSD (7, 29, 41, 47)**  
*Resources Utilisation and Pathways for Sustainable Development*
- SC (60, 62)**  
*Steering Committee*
- SEN (45)**  
*Small Earth Nepal*
- SPG (60, 63)**  
*Scientific Planning Group*
- SPG-SC (63)**  
*SPG Sub-Committee*
- SPL (7, 41)**  
*Science Policy Linkages*
- SRC (14)**  
*Sub-Regional Committee*
- UN-CECAR (8, 37)**  
*University Network for Climate and Ecosystems Change Adaptation Research*
- UNESCO (33)**  
*United Nations Educational, Scientific and Cultural Organization*
- UNFCCC (12)**  
*United Nations Framework Convention on Climate Change*
- UNU (47)**  
*United Nations University*
- UNU-IAS (33)**  
*Nations University Institute of Advanced Studies*
- UNU-ISP (12, 47)**  
*United Nations University Institute for Sustainability and Peace*
- WCRP (19)**  
*World Climate Research Programme*

The Asia-Pacific Network for Global Change Research (APN) is a network of 22 member country governments that promotes global change research in the region, increases developing country involvement in that research, and strengthens interactions between the science community and policy makers.



Ministry for the  
**Environment**  
*Manatū Mō Te Taiao*



United States  
Global Change  
Research Program