ANNUAL REPORT

FISCAL YEAR 2018

JULY 2018 – JUNE 2019

APN

ASIA-PACIFIC NETWORK FOR
GLOBAL CHANGE RESEARCH

About APN

The Asia-Pacific Network for Global Change Research (APN) is an intergovernmental network of 22 countries working towards an Asia-Pacific region that is successfully addressing the challenges of global change and sustainability.

To achieve its mission, a set of programmes and activities are conducted.

- Funds regional, multi-country and transdisciplinary research projects on global change and sustainability that provides underpinning scientific input to policymaking.
- Funds and implements projects and workshops to develop the capacity of individuals and organizations to conduct high quality research on global change and sustainability.
- Fosters and strengthens interactions between the science and policymaking communities to produce actionable science and informed decision-making.

Fiscal year 2018 at a glance

Member country involvement

Project leaders and collaborators involved in APN programmes, aggregated by programme and nationality.

* CRYS: Collaborative Research for Young Scientists
** Approved countries

RESEARCH & CAPACITY DEVELOPMENT

17 projects completed, involving 109 project leaders and collaborators.

EXTENSIVE NETWORK

3,100+ researchers, government officials, community members and practitioners directly involved in projects.

3,815 active subscribers to the APN mailing list.

INVOLVING YOUNG SCIENTISTS

350+ young scientists directly involved in projects.

88% of projects reported involvement of young scientists.

KNOWLEDGE MANAGEMENT

798 publications produced and shared through the APN E-Library.

19,661 page views on the APN E-Library.

Air, land, coasts and oceans

Understanding peripheral communities in the Pacific Islands in the context of global climate change

DUE TO RAPID CLIMATE CHANGE, peripheral communities in the Pacific Islands urgently need to adapt to its impacts. To understand the current capacities of these communities, research was conducted in 73 communities in 18 islands, covering Fiji and the Federated States of Micronesia.

The project found that many communities heavily depend on foreign financial aid to cope with the impacts of climate change, which is a "one-size-fits-all" approach that is ineffective and unsustainable. On the contrary, the project revealed that communities that are located further from urban areas tend to demonstrate a diverse mechanism to cope with the impacts of climate change built on traditional knowledge. Additionally, these communities were observed to recover faster after a disaster event and to have greater self-belief as a result of the close-knit relationship among community members.

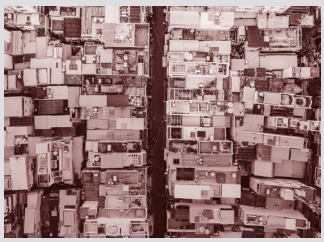
Based on the findings, the project developed an easy-to-use tool to evaluate and understand the challenges that peripheral communities face, and the diverse coping capacities of these communities in the Pacific Islands and other peripheral communities in the Asia-Pacific region.

The tool is available in the final report of the project deposited in the APN E-Library. ■

PROJECT Risk and resilience in the Pacific: Influence of peripherality on exposure and responses to global change **PROGRAMME** Collaborative Regional Research Programme (CRRP) **PROJECT LEADER** Prof. Patrick D. Nunn, University of the Sunshine Coast, Australia **ORGANIZATIONS INVOLVED** Conservation Society of Pohnpei, Federated States of Micronesia; University of the South Pacific, Fiji **WEBSITE** www.apn-gcr.org/resources/items/show/2049

▲ An analytical framework for land-use functions was developed to assess policy impact on sustainable land management and how to integrate the outcomes into land-use decision making in rural areas in Bangladesh, China and Japan.

PROJECT LEADER Prof. Lin Zhen, Chinese Academy of Sciences, China
WEBSITE www.apn-gcr.org/resources/items/show/2050



▲ Case studies on urban heat island effects conducted in Bandung, Indonesia, and Bangkok, Thailand, reveal urbanization, high usage of air conditioning and heat stress as the biggest impact to cities, household energy consumption, residents and their health.

PROJECT LEADER Dr Sigit D. Arifwidodo, Kasetsart University, Thailand
WEBSITE www.apn-gcr.org/resources/items/show/2029

Climate

Climate scenarios deepen the understanding of future climate change in Southeast Asia

TO UNDERSTAND HOW future climate change could affect areas such as food safety and food security at regional and local levels, high-resolution, robust and multi-model regional scenarios are necessary. These scenarios are produced by dynamical climate downscaling, a method that is useful in regions that lack long term high-quality observed data; however, the method is also technically challenging, costly and time-consuming to perform.

Trained more than 40 early-career scientists in eight workshops, producing nine research papers and 30 regional climate simulations.

To address the situation, the Southeast Asia Subregional Climate Downscaling (SEACLID) project was established to share tasks, expertise and computing resources to respond to the growing demands of climate information in the region. SEACLID was then incorporated into the Coordinated Regional Climate Downscaling Experiment (CORDEX) and produced a large compilation of high-quality simulations that contributed to enhancing the understanding of future climate changes in Southeast Asia. The key findings include significant changes in rainfall and drought patterns in parts of Myanmar, and extremely drier periods in Indonesia, in particular when coupled with the influences of El Niño.

Further downscaling work, including bias-correction, data upload and documentation work are expected to be conducted in a separate initiative. ■

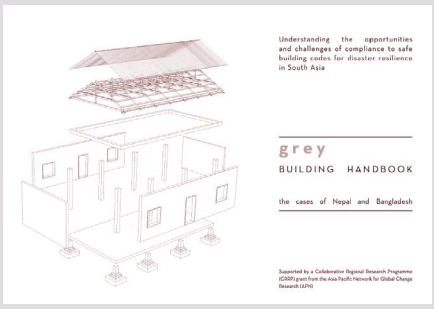
PROJECT Southeast Asia regional climate downscaling project (SEACLID) **PROGRAMME** Collaborative Regional Research Programme (CRRP) **PROJECT LEADER** Prof. Fredolin Tangang, University Kabangsaan Malaysia, Malaysia **ORGANIZATIONS INVOLVED** Indonesian Agency for Meteorology, Climatology and Geophysics, Indonesia; Ateneo de Manila University, Philippines; Manila Observatory, Philippines; Chulalongkorn University, Thailand; Ramkhamhaeng University, Thailand; University of Science and Technology of Hanoi, Viet Nam; VNU Hanoi University of Science, Viet Nam **WEBSITE** www.apn-gcr.org/resources/items/show/1886

Enhanced multidisciplinary capacity and networking promotes understanding of loss and damage

DUE TO DRASTIC changes in intensity and patterns of climate events caused by global warming, the importance of scientific research to document and report loss and damage is increasing, particularly in

◂ Studies conducted in China, Thailand and Viet Nam showed extreme heat events contribute significantly to morbidity and mortality. The findings shed new light on the importance of developing climate adaptation strategies that are tailored to each region.

PROJECT LEADER Prof. Cunrui Huang, Sun Yat-sen University, China **WEBSITE** www.apn-gcr.org/resources/items/show/2056



Southeast Asia. However, this remains a challenge as knowledge gaps are hindering the implementation.

To address these gaps, this project examined the links between climate change adaptation and disaster risk reduction in the context of loss and damage, and how the two can be integrated to address emerging challenges such as droughts, floods and saline intrusion due to slow-onset processes.

The project conducted pilot activities in Cambodia, Malaysia, Myanmar, Philippines and Viet Nam to identify: key issues related to slow-onset processes; potential risk-based approaches to address adaptation and disaster risk reduction; methods to evaluate prospective loss and damage; and policy strategies to integrate climate change adaptation, disaster risk reduction, and loss and damage.

Based on the activities, eight workshops were organized to: enhance multidisciplinary capacities of researchers; establish connections among researchers, policymakers and practitioners at the local, national and regional levels; and develop a network of experts from diverse backgrounds. It is hoped that the findings of the project will assist the development of the IPCC Sixth Assessment Report. ■

PROJECT Integrating climate change adaptation, disaster risk reduction and loss and damage to address emerging challenges due to slow onset processes **PROGRAMME** Climate Adaptation Framework (CAF) **PROJECT LEADER** Prof. Joy Jacqueline Pereira, Universiti Kebangsaan Malaysia, Malaysia **ORGANIZATIONS INVOLVED** Royal University of Phnom Penh, Cambodia; Institute for Global Environmental Strategies, Japan; SEEDS Asia, Japan; Myanmar Climate Change Watch, Myanmar; University of The Philippines Los Banos, Philippines; Viet Nam Institute of Meteorology, Hydrology and Climate Change, Viet Nam **WEBSITE** www.apn-gcr.org/resources/items/show/1949

Waste disposal guidelines assist local governments and urban residents in reducing flood occurrence in Thailand and Viet Nam

ONE OF THE CAUSES of prevalent floods in cities in Asia is the blockage of drainage due to inappropriate disposal of waste. To address the issue, factors for preventing inappropriate waste disposal need to be identified, both from physical and social perspectives, and removed.

The project aimed to formulate a strategy to reduce the risk of urban flood caused by drainage problems in Bangkok, Thailand, and Hue, Viet Nam. This was done by identifying solid debris produced from waste collection, and anthropogenic and natural activities through local administrative services during sewage and drainage clearing. The composition of solid debris was analyzed, the drainage system was investigated, and a survey was conducted to understand the drainage capacity under normal conditions and during a flood event, as well as the type of materials that obstruct the drainage system. Additionally, the behaviour of residents with regard to waste disposal was analyzed.

> Ninty-five officers of the Bangkok Metropolitan Administration and practitioners joined five capacity development workshops and inter-department task force meetings.

Based on the findings, a model for debris clogging was developed, and a series of workshops and meetings were organized to formulate a strategy for improved solid waste management in drainage systems and canals. Consequently, the strategy was taken up by the local authorities and is currently being implemented in the two cities. ■

PROJECT Appropriate solid waste management towards flood risk reduction through recovery of drainage function of tropical Asian urban cities **PROGRAMME** Collaborative Regional Research Programme (CRRP) **PROJECT LEADER** Dr Tomonori Ishigaki, National Institute for Environmental Studies, Japan **ORGANIZATIONS INVOLVED** Joint Graduate School of Energy and Environment, Thailand; Kasetsart University, Thailand; Thamassart University, Thailand; Hue University, Viet Nam **WEBSITE** www.apn-gcr.org/resources/items/show/2053

◂ An illustrated training manual titled "Grey Building Handbook" was developed to provide guidance for increased disaster resilience in the informal building sector in South Asia. The handbook is available in Bengali, Nepali and English.

PROJECT LEADER Dr Iftekhar Ahmed, University of Newcastle, Australia
WEBSITE www.apn-gcr.org/resources/items/show/2081

◂ Rapid vulnerability assessments were conducted in six cities in Cambodia, Thailand and Viet Nam, to increase the understanding of loss and damage of urban transportation infrastructure caused by climate change, particularly due to floods and sea-level rise. Consequently, adaptation measures were developed.

PROJECT LEADER Dr Lam Vu Thanh Noi, Southern Institute of Water Resources and Research, Viet Nam
WEBSITE www.apn-gcr.org/resources/items/show/1951

Biodiversity and ecosystems

Applying management strategy evaluation to assist decision-making for sustainable fishery resource

FOR THE SUSTAINABLE AND EFFECTIVE use of fishery resources, Management Strategy Evaluation (MSE) is becoming a standard tool used across various fishery management organizations. MSE is a model aimed at evaluating the robustness of a potential plan by examining the objectives, costs and constraints, and assisting in determining which kind of plan will perform the best in achieving the management objectives for the fishery.

To assist IMBIZO* 5, a gathering to progress the implementation of the Science Plan of the Integrated Marine Biosphere Research (IMBeR), a workshop was organized for early-career scientists and students to share knowledge on the design and implementation of MSE, and on the importance of effective communication among the parties.

The workshop examined case studies conducted in small to large scale fisheries in the Asia-Pacific region that are associated with diverse cultural, societal and management backgrounds. The workshop also provided a platform for early-career scientists and students to connect with professionals who participate in the decision making processes of fishery resource management.

> The workshop contributed to strengthening IMBeR by enhancing international networks of social and natural scientists in the Asia-Pacific region.

Consequently, based on the improved understanding of MSE and its best practices, the project developed a synthesis report on the implementation of MSE with a focus on small scale fisheries. ■

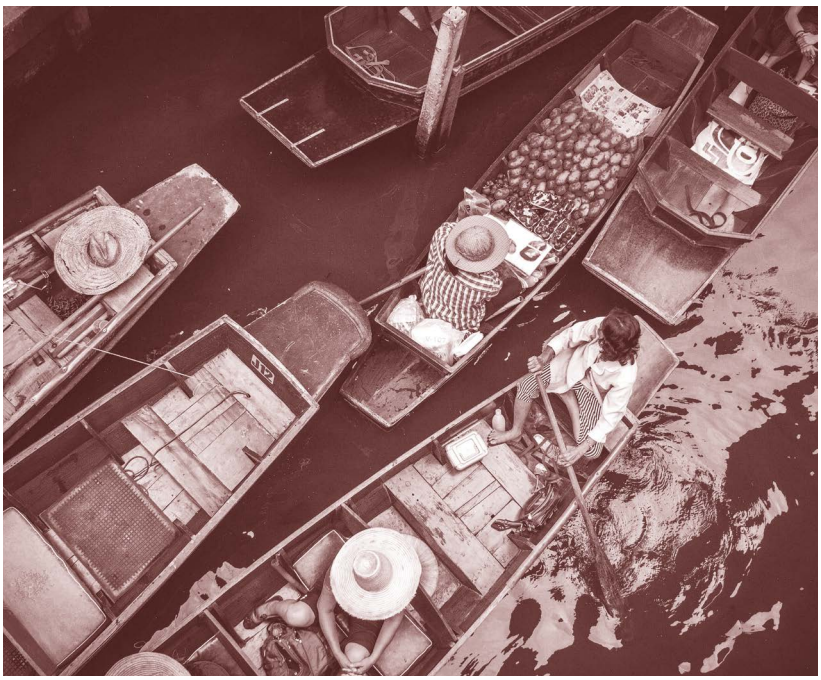
* *Imbizo is a Zulu word for gathering.*

PROJECT IMBER IMBIZO V workshop: Management strategy evaluation: Achieving transparency in natural resource management by quantitatively bridging social and natural science uncertainties **PROGRAMME** Scientific Capacity Development (CAPaBLE) **PROJECT LEADER** Prof. Eileen E. Hofmann, Old Dominion University, United States of America **ORGANIZATIONS INVOLVED** Commonwealth Scientific and Industrial Research Organisation, Australia; Yellow Sea Fisheries Research Institute, China; University of the South Pacific, Fiji; Universitas Gadjah Mada, Indonesia; National Research Institute of Far Seas Fisheries, Japan; National Institute of Water and Atmospheric Research, New Zealand; National Oceanic and Atmospheric Administration, USA; Woods Hole Oceanographic Institution, USA; **WEBSITE** www.apn-gcr.org/resources/items/show/2067

◂ One hundred and fifty practitioners and policymakers from Nepal, Thailand, Sri Lanka and Viet Nam, deepened their understanding of improving agricultural livelihoods while enhancing agroecosystem services and functions.

PROJECT LEADER Mr Susantha Jayasinghe and Dr Rishiraj Dutta, Asian Disaster Preparedness Center, Thailand
WEBSITE www.apn-gcr.org/resources/items/show/2043

Food, water and energy



Framework developed for sustainable water management under the influence of climate change, rapid urbanization and industrialization

THE VULNERABILITY OF URBAN WATER under the influence of climate change, and rapid urbanization and industrialization should not be overlooked. The project assessed the vulnerability of drinking water in Guwahati, India, and Colombo, Sri Lanka, by analyzing the concurrence of pharmaceuticals and personal care products, antibiotic-resistant bacteria, metal, faecal contamination etc., and long-term changes in precipitation and temperature of the Brahmaputra River and Kelani River, respectively.

The assessment identified that both rivers contain a variety of contaminants and stressors. High levels of theophylinne and caffeine were detected in the Brahmaputra River indicating the negative impact of urbansization. The prevalence of a high level of *E. coli* from upstream of the Kelani River, especially at Seethawaka EPZ, suggests poor quality of treated industrial wastewater. Furthermore, in addition to water testing, people's perception on the future of drinking water and its health risks was also collected.

The project concluded with a roundtable discussion where more than 30 experts from the state government, academia, industry, NGOs and the agricultural sector participated. Valuable information was collected including new treatment plants in industrial areas to control water contamination at source, water harvesting and pollution measurement methods, etc. Consequently, a new policy implementation framework for sustainable water management was developed and proposed for the two countries. ■

PROJECT Development of new water supply strategies in two watersheds of India and Sri Lanka in the context of climate change, rapid urbanization and population growth: a vulnerability assessment approach **PROGRAMME** Collaborative Regional Research Programme (CRRP) **PROJECT LEADER** Dr Manish Kumar, Tezpur University, India **ORGANIZATIONS INVOLVED** Kanazawa University, Japan; Ruhuna University, Sri Lanka **WEBSITE** www.apn-gcr.org/resources/items/show/2052

▲ Assessments on long-term water availability of the Ganges Basin, and its water supply-demand balance under the influence of climate change and increased number of power plants were conducted in India, Bangladesh and Nepal.

PROJECT LEADER Dr Xin Zhou, Institute for Global Environmental Strategies, Japan
WEBSITE www.apn-gcr.org/resources/items/show/1968

▲ Studies on the impact of organic amendments on productivity and soil properties in India and Sri Lanka show an increase of crop yields at the cost of higher level greenhouse gas emissions.

PROJECT LEADER Dr David Rowlings, Queensland University of Technology, Australia
WEBSITE www.apn-gcr.org/resources/items/show/2051

Scientific Capacity Development

Improved skills promote sustainable watershed management practices in South Asia

THE RAPID DEPLETION of freshwater resources, and frequent occurrence of watershed flood and drought caused by climate change, pose serious threats to the sustainability of agriculture in South Asia. However, traditional practices and skills have failed to respond to these threats, leading to an increased level of food insecurity and poverty.

To pursue sustainable watershed management practices, the project developed an easy-to-use rating method to assess the level of climate risk of a particular watershed. Subsequently, by using the method, 47 improved watershed management practices were developed that include: rainwater harvesting at watersheds, farms and households; soil erosion control measures; and potential use of harvested rainwater for groundwater recharge, etc.

Three workshops were organized in Pakistan, Nepal and Sri Lanka to build the capacity of 20-25 professionals including climate scientists, agriculturalists and community workers. The workshop provided updated information on climate change, climate resilience and food security, and streamlined the 47 improved watershed management practices in line with local climate scenarios.

Consequently, brochures recommending the top four watershed management practices were developed and disseminated to 100 farmers and service providers in Pakistan, Nepal and Sri Lanka. Furthermore, feedback and recommendations for follow-up programmes were collected and reported to the concluding policy workshop held in Pakistan. ■

PROJECT Improving skills for promoting sustainable watershed management practices in South Asia PROGRAMME Scientific Capacity Development (CAPaBLE) PROJECT LEADER Dr Ghani Akbar, Climate Change, Alternate Energy and Water Resources Institute, Pakistan ORGANIZATIONS INVOLVED Nepal Academy of Science and Technology, Nepal; The Small Earth Nepal, Nepal; Tribhuvan University, Nepal; Global Climate Change Impact Study Centre, Pakistan; Natural Resource Management Centre, Sri Lanka WEBSITE www.apn-gcr.org/resources/items/show/2065

Identification of local adaptation measures of rice-farming households against saltwater intrusion

SALTWATER INTRUSION is a consequence of sea-level rise caused by climate change. This is posing a serious concern on coastal and farming communities, as the slow onset events continue to contaminate water resources, affect agricultural production and threaten the livelihoods of people.

The capacity of communities to adapt to saltwater intrusion greatly depends on local adaptation measures and penetration of knowledge at the household level. The project aimed to understand knowledge gaps in rural rice-farming households in the Philippines and Viet Nam by developing and testing an adaptation index. The index accounted for climate change exposure, susceptibility, and resolution process. Results revealed that adaptation takes place at four different levels: (1) propensity to adapt; (2) adoption of adaptation measures; (3) implementation of adaptation measures; and (4) varying levels of saltwater intrusion.

Based on the findings, the project concluded that the level of adaptation to saltwater intrusion is largely influenced by the economic capacity of farmers, which is crucial in optimizing the adaptation measures employed. Additionally, the project results suggest that means of securing livelihoods of these farmers should be considered and designed in a way that they can diversify their income by continuing rice production and engaging in off-farm work. ■

PROJECT Multidimensional indicators of adaptive capacity of rice farming households to address salt water intrusion in the Philippines and Viet Nam PROGRAMME Collaborative Research for Young Scientists Small Grant Pilot Programme (CRYS) PROJECT LEADER Dr Catherine Roween C. Almaden, Xavier University – Ateneo de Cagayan, Philippines ORGANIZATIONS INVOLVED Tra Vinh University, Viet Nam; University of the Philippines Los Baños; Philippines WEBSITE www.apn-gcr.org/resources/items/show/2072

◂ Scoping workshop to understand carbon rich wetlands in Bhutan paved the way for improved public awareness and increased institutional collaboration.

PROJECT LEADER Mr Kuenzang Tshering, Royal Thimphu College, Bhutan
WEBSITE www.apn-gcr.org/resources/items/show/2083

Events

Proposal development training workshop in Temperate East Asia

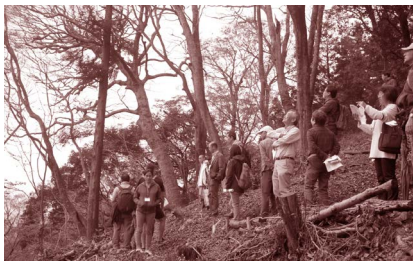
In September 2018, APN and The University of Tokyo jointly organized a proposal development training workshop in Japan on the effective management of water resources in line with the Sendai Framework for Disaster Risk Reduction and the Paris Agreement. Twenty-one early-career scientists from China, Japan, Mongolia, Republic of Korea and Russia participated. The scientists formed four groups and developed research proposals on: (1) flood control; (2) water quality and water availability; (3) water resources management; and (4) water-food-energy nexus, with the aim of submitting to the APN call for proposals. The workshop was partially funded by the Kurita Water and Environment Foundation in Japan.

Interactive session on enhancing community resilience to climate change

In October 2018, APN organized an interactive session on "The role of science tools and indigenous knowledge practices to enhance community resilience" at the 6th Asia-Pacific Climate Change Adaptation Forum in the Philippines. Four speakers from Australia, Philippines and Viet Nam presented their project outcomes on: enhancing community resilience through developing a resilience toolkit in India; conducting a community resilience project in Cambodia and Viet Nam; working with local government units on Local Climate Change Action Plan in the Philippines; and integrating indigenous knowledge into policy planning process in Viet Nam. Subsequently, discussions were held on participatory tools and resilience strategies, and adaptation planning and practices.

Activities supported by the Hyogo Prefectural Government, Japan

In November 2018, APN supported the attendance of a former project leader and a collaborator of two APN-funded projects to present their project outcomes at the 12th International Conference on the Environmental Management of Enclosed Coastal Seas in Thailand. The presentations focused on the effects of wastewater degrading coral reefs at multiple levels of ecological organization in the eastern Andaman Sea. The presentations also recommended the use of sediment control measures, deep-water marine outfalls, and secondary and tertiary water treatment, and urged national and local governments, and the tourist industry to commit to the conservation of coral reefs.



In November 2018, APN and the Hyogo Prefectural Government jointly organized the Fifth Hokusetsu SATOYAMA International Seminar in Japan. Three speakers from Japan, New Zealand and Bhutan gave presentations. Mr Mitsuhiko Imamori, a nature photographer, shared his fascination on the various forms and shapes created by nature. Mr Pataka Moore from Te Wānanga o Raukawa (university) presented on the Maori worldview that acknowledges the interconnection between nature and humans, and how traditional knowledge is passed down to the younger generation in the community. Mr Jamba Tobden from the Royal University of Bhutan introduced the "Bhutan for Life" programme that focuses on ensuring the stability of protected areas through a new funding approach.

Science-policy dialogue on the IPBES Asia Pacific Regional Assessment Report

In February and April 2019, APN and the Institute for Global Environmental Strategies jointly organized two science-policy dialogues on the IPBES Asia-Pacific Regional Assessment Report in Nepal and Australia, respectively. The main focus of the dialogues was to strengthen the science-policy interface by increasing the understanding of the Report that provides valuable information on: (1) the status and threats to biodiversity and ecosystem services; (2) the contribution of nature to humans; and (3) appropriate response options. The dialogues were part of the "Capacity building project for the implementation of IPBES Asia Pacific Regional Assessment" funded by the Japan Biodiversity Fund under the Secretariat of the Convention on Biological Diversity.

Projects

APPROVED PROJECTS

Assessment of the feasibility of applying payment for forest ecosystem services in Viet Nam and Bangladesh mangrove forests • Prof. Richard J. Harper, Murdoch University, Australia

Enhancing the capacity of scientists and practitioners for promoting resilient food systems in Indonesia and the South Pacific • Prof. William Bellotti, The University of Queensland, Australia

Water-food-energy nexus in East Asia: Insights from changes in consumption patterns • Dr Jingli Fan, China University of Mining and Technology, China

The health and restoration of economically and culturally important rivers of India using biological indicators found in Kerala streams, within the context of climate change impacts and sustainable development • Prof. G. Achuthan Nair, Environmental Resources Research Center, India

Climate smart actions "Saung Iklim" for smallholder farmers in Subang District, West Java, Indonesia • Dr Perdinan, Bogor Agricultural University, Indonesia

Understanding space-time variability of climate extremes for societal resiliency in Indonesia and India • Dr Yanto, Jenderal Soedirman University, Indonesia

Capturing sustainable development innovations from the ground, towards strategic advocacy and mainstreaming for SDGs policy across the ASEAN region • Mr Mochamad Indrawan, University of Indonesia, Indonesia

Strengthening inter-sectoral coordination and governance for the effective implementation of Nepal's NDCs based on a voluntary national quality-of-governance standard for forest sector activities and programmes • Dr Federico Lopez-Casero, Institute for Global Environmental Strategies, Japan

Implementing science and technology in society for water-related disaster risk reduction • Prof. Toshio Koike, International Centre for Water Hazard and Risk Management, Japan

Integrating health into urban planning towards sustainable development goals in developing countries • Dr Soo Chen Kwan, Kyoto University, Japan

Capacity development training workshop on crop simulation modelling and effects of climate risks on agricultural production systems in Southeast Asia • Dr Mohan Geetha, The University of Tokyo, Japan

Plausible alternative futures of island mangroves in the Asia-Pacific: Scenario-based analysis and quantification of mangrove ecosystem services in coastal hazard mitigation and climate change adaptation • Dr Shizuka Hashimoto, The University of Tokyo, Japan

Potential impact of climate change on norovirus incidence and seasonality: Water ecology and human health • Dr Jian Pu, The University of Tokyo, Japan

Improving assessment of drought and mitigating its impact on food and water in Nepal and adjoining parts of India • Dr Hemu (Kharel) Kafle, Kathmandu Institute of Applied Sciences, Nepal

Extreme events related to monsoon and climate change • Dr Shaukat Ali, Global Change Impact Studies Centre, Pakistan

Policy gaps and needs analysis for the implementation of NDCs on adaptation, and loss and damage in Bangladesh, Nepal and Sri Lanka • Ms. Vositha Wijenayake, SLYCAN Trust, Sri Lanka

Investigations on microplastics pollution in the aquatic environment in selected developing countries from Southeast Asia • Prof. Sandhya Babel, Sirindhorn International Institute of Technology, Thammasat University, Thailand

Mapping groundwater resilience to climate change and human development in Asian cities • Dr Sangam Shrestha, Asian Institute of Technology, Thailand

Capacity building programme on developing project proposals for climate change adaptation for Northeast Thailand • Mr Lyan Baybay Villacorta, Asian Institute of Technology, Thailand

Integrated highland wildfire, smoke and haze management in the upper Indochina region • Dr Kobsak Wanthongchai, Kasetsart University, Thailand

Consumer's perception of food safety risk and its impact on the willingness to pay for organic food in Southeast Asia • Dr Thich Nguyen Van, Banking University of Ho Chi Minh City, Viet Nam

COMPLETED PROJECTS

Managing organic amendments to reduce greenhouse gas emissions and supplement fertiliser nitrogen inputs in tropical Indian and Sri Lankan agricultural soils • Dr David Rowlings, Queensland University of Technology, Australia

Understanding the opportunities and challenges of compliance to building codes for disaster resilience in South Asia: The cases of Bangladesh and Nepal • Dr Iftekhar Ahmed, University of Newcastle, Australia

Risk and resilience in the Pacific: Influence of peripherality on exposure and responses to global change • Prof. Patrick D. Nunn, University of the Sunshine Coast, Australia

Identification of wetland types in Bhutan with detailed documentation of carbon rich wetlands • Mr Kuenzang Tshering, Royal Thimphu College, Bhutan

Assessing land use functions for sustainable land management in Asia countries • Prof. Lin Zhen, Chinese Academy of Sciences, China

Assessing the health effects of extreme temperatures and the development of adaptation strategies to climate change in the Asia-Pacific region • Prof. Cunrui Huang, Sun Yat-sen University, China

Development of new water supply strategies in two watersheds of India and Sri Lanka in the context of climate change, rapid urbanization and population growth: a vulnerability assessment approach • Dr Manish Kumar, Tezpur University, India

Assessment of climate-induced long-term water availability in the Ganges Basin and impacts on energy security in South Asia • Dr Xin Zhou, Institute for Global Environmental Strategies, Japan

Appropriate solid waste management towards flood risk reduction through recovery of drainage function of tropical Asian urban cities • Dr Tomonori Ishigaki, National Institute for Environmental Studies, Japan

Integrating climate change adaptation, disaster risk reduction and loss and damage to address emerging challenges due to slow onset processes • Prof. Joy Jacqueline Pereira, Universiti Kebangsaan Malaysia, Malaysia

Southeast Asia regional climate downscaling project (SEACLID) • Prof. Fredolin Tangang, University Kabangsaan Malaysia, Malaysia

Improving skills for promoting sustainable watershed management practices in South Asia • Dr Ghani Akbar, Climate Change, Alternate Energy and Water Resources Institute, Pakistan

Multidimensional indicators of adaptive capacity of rice farming households to address salt water intrusion in the Philippines and Viet Nam • Dr Catherine Roween C. Almaden, Xavier University – Ateneo de Cagayan, Philippines

Mainstreaming weather and climate information application for agro-ecosystem resilience in a changing climate • Dr Rishiraj Dutta, Asian Disaster Preparedness Center, Thailand

Understanding urban heat island effect and its implications to climate change adaptation strategies in major Southeast Asian cities • Dr Sigit D. Arifwidodo, Kasetsart University, Thailand

IMBER IMBIZO V workshop: Management strategy evaluation: Achieving transparency in natural resource management by quantitatively bridging social and natural science uncertainties • Prof. Eileen E. Hofmann, Old Dominion University, United States of America

Climate change risk assessment and adaptation for loss and damage of urban transportation infrastructure in Southeast Asia • Dr Lam Vu Thanh Noi, Southern Institute of Water Resources Research, Viet Nam

Finances

APN receives financial contributions from: The Ministry of the Environment, Japan; Hyogo Prefectural Government, Japan; Ministry of Environment, Republic of Korea; and The Ministry for the Environment, New Zealand. In addition to direct financial contributions, APN receives significant in-kind contributions from member countries, in particular the Hyogo Prefectural Government, Japan.

* *As of August 2019.*
** *The figures include executed expenditures for old and new projects and activities, as well as committed resources for multi-year projects.*

FINANCIAL RESOURCES OF FY 2018 (USD)

Donor contributions FY 2018	Ministry of the Environment, Japan	1,890,000
	Hyogo Prefectural Government, Japan	194,800
	Ministry of Environment, Republic of Korea	44,500
	Ministry for the Environment, New Zealand	21,400
Balance brought forward from FY 2017 (including committed funds for multi-year projects)		980,174
Returned funds from completed projects and adjustments		596,848
	Total	3,727,722

USE OF RESOURCES IN FY 2018 (USD) *

	*Executed and committed***
Core programmes	1,948,449
Frameworks	176,026
Other scientific and policy activities	183,355
Institutional activities	165,403
Personnel, administration and operational costs	610,764
Total	3,083,997

NATIONAL FOCAL POINTS

BANGLADESH
Billal Hossain
Ministry of Environment, Forest and Climate Change

BHUTAN
Tenzin Khorlo
National Environment Commission

CAMBODIA
Roath Sith
Ministry of Environment

FIJI
Nilesh Prakash
Ministry of Economy

INDIA
J. R. Bhatt
Ministry of Environment, Forest and Climate Change

INDONESIA
Henry Bastaman
Ministry of Environment and Forestry

JAPAN
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LAO PEOPLE'S DEMOCRATIC REPUBLIC
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MALAYSIA
Jailan Simon
Ministry of Energy, Science, Technology, Environment and Climate Change

MONGOLIA
Bayarbat Dashzeveg
Ministry of Environment and Tourism

NEPAL
Maheshwar Dhakal
Ministry of Forests and Environment

NEW ZEALAND
Douglas Hill
University of Otago

PAKISTAN
Muhammad Irfan Tariq
Ministry of Climate Change

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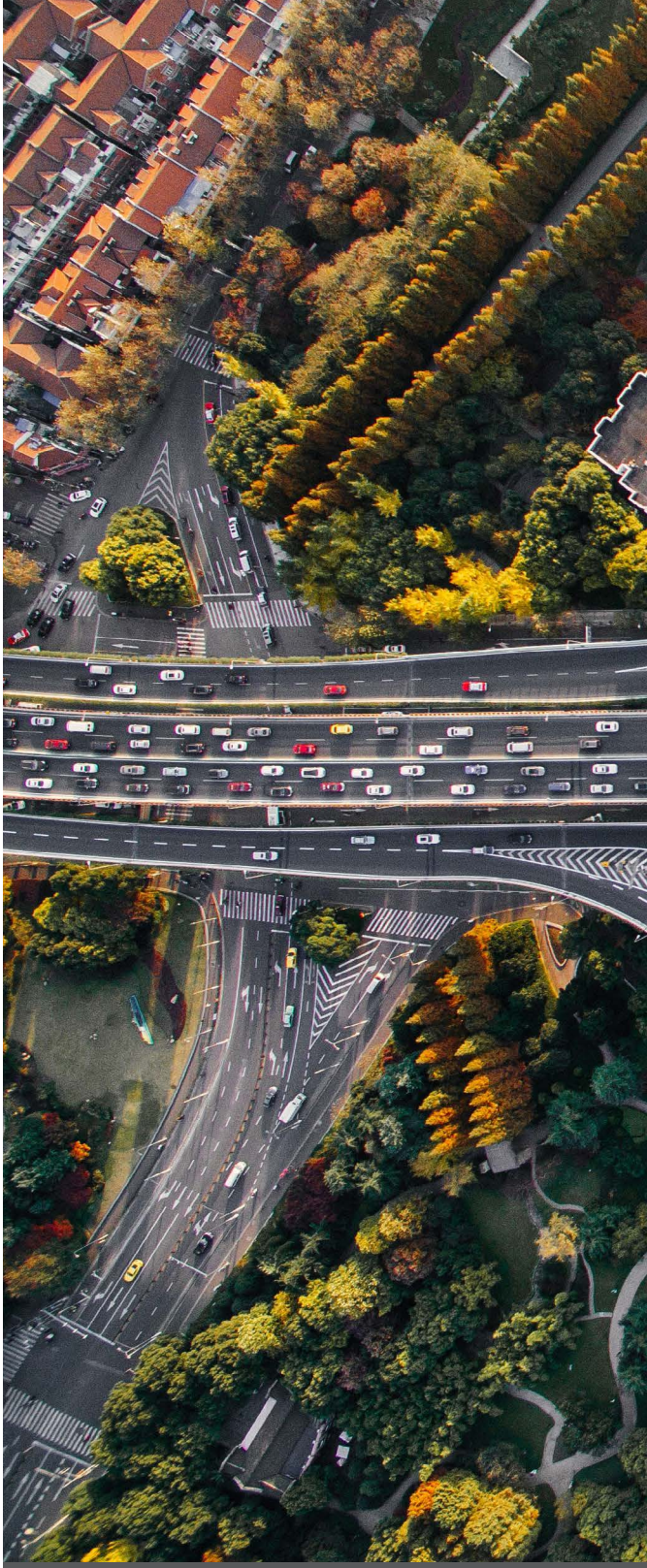
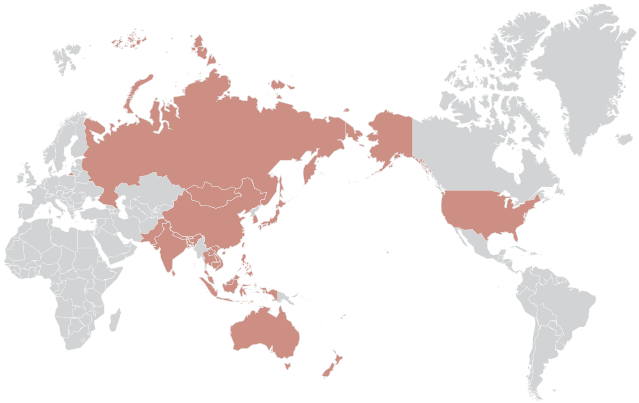
* *The list above contains current members of APN at the time of publication.*





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