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GUEST ARTICLE

Valuing Nature: The Satoyama Renaissance

Dr. Anantha Duraiappah

In 2005, the Millennium Ecosystem Assessment (MA) reported that 60% of the global ecosystem services it had assessed were in decline, and could be expected to decline further in the absence of immediate action. The same report also noted that the rate of biodiversity loss over the last 100 years was 1000 times the normal rate of extinction, unprecedented in the planet's recent history. The recent 10th Conference of Parties (COP10) to the Convention on Biological Diversity (CBD), meeting in Nagoya, Japan, delivered equally distressing news: its 2010 targets for reducing the rate of biodiversity worldwide have not been met, and there is now a high risk of dramatic biodiversity and accompanying degradation of a broad range of ecosystem services if the trends are not reversed. Delegates then established a new set of 20 goals for 2020. These are in many ways similar to those of 2010 and many experts question the rationale of establishing new targets without the accompanying policies needed to achieve them.



At the same time, it is worth mentioning that while biodiversity loss has been unprecedented over the past 100 years, so too have been the population growth and economic development of the same period – development which has lifted many millions of people out of poverty and drastically improved the lives of many others. It is therefore unrealistic to simply prescribe conventional approaches to environmental protection (e.g. expansion of protected areas and preservation efforts) in regions where reducing poverty and improving human well-being are top priorities. The balancing-act between societies' aspirations to develop economically and their efforts to maintain the integrity of their environments must be at the heart of any discussion of practical, sustainable development strategies.

One potential inspiration for such a strategy may be found in the centuries-old Satoyama (terrestrial-aquatic) and Satoumi (marine-coastal) regions of Japan. The potential importance of these areas was recently highlighted by the Japan Satoyama Satoumi Assessment (JSSA), an assessment of Japan's biodiversity and ecosystem services. The JSSA identified a number of landscape management approaches that might offer a solution to slow – and potentially even reverse – biodiversity loss while at the same time improving human well-being in a sustainable manner.

As defined by the JSSA, the Satoyama and Satoumi represent a dynamic mosaic landscape of different ecosystem types, which are managed to produce a bundle of ecosystem services to improve human well-being. In the case of Satoyama, the mosaic was primarily terrestrial, including inland freshwater systems, while Satoumi comprised marine and coastal ecosystem types. The JSSA reports that biodiversity levels in Satoyama and Satoumi are much higher than homogenous landscapes producing a single ecosystem service, such as rice or timber; indeed, higher even than in landscapes that have entirely reverted back to nature.

The magic question is whether Satoyama and Satoumi landscapes can be implemented in developing countries to attain development. The short answer is: No, if the objective is purely economic growth;

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“...it is unrealistic to simply prescribe conventional approaches to environmental protection in regions where reducing poverty and improving human well-being are top priorities. The balancing-act between societies' aspirations to develop economically and their efforts to maintain the integrity of their environments must be at the heart of any discussion of practical, sustainable development strategies.”

GUEST ARTICLE

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and Yes, if the priority is human development which in addition to material wealth generated by economic development includes human security, health, social relations and freedoms and choices. Satoyama and Satoumi provide a bundle of ecosystem services that include market-based provisioning services as well as non-market services such as flood regulation, prevention of soil erosion and water purification.

The role of biodiversity in the provision of many of these non-market services is well known; it becomes increasingly crucial with changes in climate, and the need for increased resiliency of natural systems. The mosaic nature of Satoyama and Satoumi and the richness of biodiversity act as vital security nets for producing a range of ecosystem services including food and fibre for human consumption.

One of the key challenges developing countries face in creating and maintaining Satoyama and Satoumi systems is their use of complicated land tenure systems operating within the mosaic structure. This "New Commons" spans across a multitude of different ecosystem types that operate under a variety of different land ownership and use tenure systems. Some parts of the mosaic will be governed by private tenure systems while others might be under communal ownership, and still others entirely public.

It is envisaged that a system of nested institutions ranging from the local to the global will be needed to ensure the success of the New Commons. Provisioning services are governed by private tenure systems while community-based institutions govern regulatory and cultural services, and public regulating institutions oversee the supply of the bundle of ecosystem services. It is no doubt a complex system of nested institutions, in which each level must work symbiotically

with the others such that the whole system works in unison.

The COP10 decision on the use of Satoyama and Satoumi can only be successful if this critical factor of governance, including the notion of nested institutions, is openly discussed and implemented. The institutions of land tenure in most developing countries are communal and/or public, but undergoing rapid transition to private land tenure systems.

There is no doubt that private land tenure systems produce efficient management systems. However, this efficiency generally derives from improving the marketable outputs of single-ecosystem services. They do not work efficiently in Satoyama- and Satoumi-type systems in which a general social welfare, incorporating the value of biodiversity, is the goal.

Indeed, this age-old problem – internalising the intrinsic value of such an ecosystem to society as a whole into economic development strategies – is one of the greatest challenges to environmental protection. The JSSA demonstrated that the valuation of a bundle of ecosystem services exceeded the simple addition of individual ecosystem services – the whole is always greater than the sum of the parts. Another question is one of cultural values.

In Japan, it was found that the value of the cultural benefit provided by the Satoyama and Satoumi landscapes far exceeded any purely monetary valuation. This cultural appreciation, developed over generations, may not be easily transferrable to developing regions in other parts



of the world - particularly that intent on acquiring the industrialised world's taste for material goods and economic growth. It will in any case require a comprehensive strategy incorporating broad outreach and communications efforts to mitigate the seemingly ubiquitous drive for monetary reward.

The challenge thus lies in allowing societies around the world to, like the Japanese with Satoyama and Satoumi, promote a cultural appreciation for local ecosystems, take the long, holistic view in creating human development strategies, and take the difficult steps necessary to ensure sustainable human well-being.

The author, **Dr. Anantha Duraiappah**, is the Executive Director of the International Human Dimensions Programme in Global Environmental Change (IHDP) which is one of APN's key partners. IHDP is an international, interdisciplinary, non-governmental science programme. It promotes social science research that helps humans to understand and address the challenges of global environmental change and improve societal responses.



Satoyama



Satoumi

MESSAGE FROM THE DIRECTOR

On behalf of the APN Secretariat, let me wish you a prosperous and happy New Year!

I would like to take this opportunity to convey APN's heartfelt thanks for your readership and support. We owe the success of APN in 2010 and past years to your continued involvement in our activities and programmes. With your participation in APN's research, capacity development, science-policy and networking activities at the international, regional, sub-regional and domestic levels, our role in enabling countries in the Asia-Pacific region to successfully address global change challenges becomes more relevant.

While this Newsletter issue presents and summarises the highlights of APN activities in the last quarter of 2010, I am also very pleased to report selected APN major achievements in the first three (3) quarter of the previous year (noting that our quarters are from April to March). Our network has been continuously supporting and managing projects under the Annual Regional Call for Research Proposals (ARCP) and Scientific Capacity Development (CAPaBLE) Programmes. The 15th Inter-Governmental Meeting (IGM)/Scientific Planning Group (SPG) Meeting held in March 2010 in Busan, Republic of Korea approved 35 projects under both Programmes for funding in 2010-2011. We are also supporting seven (7) projects under the Focussed Activity: Scientific Capacity Building for Climate Impact and Vulnerability Assessments (SCBCIA).

The publication of the APN Evaluation Report (2005-2010) and the APN 3rd Strategic Plan (2010-2015) marked the culmination of the evaluation of the activities conducted under the second strategic phase and the formulation of plans for the following strategic phase. Both publications were distributed throughout the global change community.

We completed the APN Climate Synthesis First Author's Workshop for the two-year synthesis activity: *Climate in Asia and the Pacific* synthesising the work of over 50 APN-funded climate projects. The Workshop aimed to come up with a draft Synthesis Report and address the issues that were raised in 2009's Scoping Meeting.



In cooperation with the Indian Institute of Tropical Meteorology (IITM) in India, the APN South Asia Sub-Regional Cooperation (SA-SRC) Meeting and the Training Workshop on Downscaling of South Asian Climate Projections back-to-back with the Proposal Development Training Workshop (PDTW) successfully convened on 1-5 November 2010, in Pune, India. Following this, the APN 3rd Southeast Asia (SEA) SRC Meeting back-to-back with the PDTW was conducted in collaboration with the Department of Environment and Natural Resources (DENR) through the Ecosystems Research and Development Bureau (ERDB) on 9-12 November 2010 in Manila, Philippines. The achievements were remarkable and more information is detailed in the succeeding pages of this Newsletter edition.

To raise APN visibility, every opportunity has been used including active engagement in many international policy and scientific activities such as the 32nd Session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 32), 3rd Ad hoc Intergovernmental and Multi-stakeholder Meeting on an Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 2010 International Climate Change Adaptation Conference – Climate Adaptation Futures: Preparing for the Unavoidable Impacts of Climate Change; In International Union of Forest Research Organisation (IUFRO) World Congress 2010 – Forests for the Future: Sustaining Society and the Environment; 2010 Group on Earth Observations (GEO) Beijing Summit and VII Plenary Session; the United Nations Framework Convention on Climate Change 16th Meeting of the Conference of the

Parties (UNFCCC COP16); and many other events.

The APN also successfully organised the following activities: International Symposium on Coexistence with Nature: Biodiversity and People – Hyogo Dialogue for the Future and side-events at the UN Convention on Biological Diversity (CBD) COP 10, Nagoya, Japan. These events are also instrumental in strengthening the network's partnership with key organisations in the global change community.

Let me express my sincere gratitude to our financial sponsors: Hyogo Prefectural Government, Japan; Ministry of the Environment Japan; Ministry of Environment, Republic of Korea; Ministry for the Environment, New Zealand; and National Science Foundation (NSF) – US Global Change Research Program, United States of America, for their generous support. Deepest appreciation goes to all APN member countries for strongly supporting the network with in-kind contributions including providing their time and equipment, supplies and other assistance. Your commitment in hosting meetings, sharing expertise and resources, and raising APN awareness in your respective governments/countries is invaluable. In realising its goals, APN relies heavily on the generosity, cooperation and dedication of all our member countries. We are also grateful to the efforts of the project leaders and collaborators in securing substantial in-kind contributions and fund-matching from other sources for the successful conduct of APN projects/activities.

The year 2010 certainly promised and provided more challenges and opportunities and I encourage you all to join APN in playing a crucial role in shaping the future of global change research and capacity development and in addressing the needs in Asia-Pacific region particularly for developing countries in 2011 and beyond. We will again count on your continued cooperation and support. To our APN member countries, key partner organisations in the region, the global change community, I wish all of you the best of happiness in 2011 and I look forward to strengthening our collaboration this year and in the years to come. Akemashite omedetou gozaimasu! - Tetsuro Fujitsuka

NEWS FLASH (APN Partner Organisation) Planet Under Pressure 2012: New Knowledge Toward Solutions, London, UK, 26-29 March 2012. This conference will focus on solutions to global sustainability and will provide a comprehensive update of knowledge of the Earth System and the pressure it is under. It will discuss solutions at all scales to move societies on to a sustainable pathway and will provide scientific leadership for the 2012 UN Conference on Sustainable Development – Rio +20 (Earth Summit). Visit this link for more information: <http://www.planetunderpressure2012.net/index.html>. Sponsorship opportunities are also available.

MESSAGE FROM THE STEERING COMMITTEE CHAIR

I have been with the APN for one year now and it is a great pleasure to deliver to you this New Year message. With APN's contribution in strengthening ties between member nations and through research projects and other activities related to changes in the Earth such as climate change and improving the environment in the Asia-Pacific region, I hope that more research and capacity development projects will be supported this year and in the years to come. The Republic of Korea is willing to cooperate in facing the environmental challenges in the Asia-Pacific region.



As the 16th Inter-Governmental Meeting (IGM)/Scientific Planning Group (SPG) Meeting is fast-approaching, I see more opportunities for further development of APN. I look forward to again meeting and discussing with the APN country representatives the future activities at the coming IGM/SPG Meeting to be held in Colombo, Sri Lanka, April 2011. With this, I wish you all a cheerful new year as 2011 is the year of the rabbit according to the lunar calendar. Best health and good luck to you and your family. Thank you very much. - *Suho Seong*

NEWS FROM THE SECRETARIAT

APN Joins Series of Lectures on Global Environmental Topics

APN joined a series of lectures on global environmental topics by international organisations in Hyogo Prefecture from 26 November to 15 December 2010 at the University of Hyogo, Kobe City, Japan. The list of topics and invited resource persons is provided below. The APN would like to take this opportunity to express sincere gratitude to Prof. Hidenori Niizawa, Graduate School of Economics, University of Hyogo for inviting APN in this lecture series. The presentations are available upon request to the APN Secretariat (info@apn-gcr.org).



Tetsuro Fujitsuka, *APN Secretariat*, International Collaboration of Local Governments and their Activities on Environment

Yasuhiro Sakai, *Institute for Global Environmental Strategies Kansai Research Center (IGES-KRC)*, IGES-KRC and Environmental Problems in Developing Countries

Masakazu Furukawa, *Environmental Management of Enclosed Coastal Seas (EMECS)*, EMECS and its Role

Yukihiro Imanari, *APN Secretariat*, APN and its Role and Activities

Linda Anne Stevenson, *APN Secretariat*, Global Change, Science-Policy and International Conventions

APN to Organise Gap Analysis Scoping Workshop: Biodiversity and Ecosystem Services in Asia and the Pacific



To recognise the International Year of Biodiversity and the landmark 10th Conference of the Parties (COP) Meeting of United Nations Convention on Biological Diversity, held in Nagoya, Japan, 2010, the 15th Inter-Governmental Meeting (IGM) endorsed a new activity of the APN whereby a scoping exercise on a synthesis of biodiversity activities in the Asia-Pacific region would be undertaken. In this regard, the APN is organising the Gap Analysis Workshop that will identify the needs, appropriate focus, research gaps, and right direction where APN can make a difference through its research and capacity development activities related to biodiversity and ecosystem services in the Asia-Pacific region. In doing so, the scoping workshop will address the challenges being faced in the Asia-Pacific region as a densely populated region where human coexistence with nature is heavily affected by changes in the environment.

The Gap Analysis Scoping Workshop will take place from 13-15 February 2011, in Tokyo, Japan. A number of reputable scientists in the region will be invited to participate in the workshop. For more information, please contact Mr. Yukihiro Imanari (yimanari@apn-gcr.org) of the APN Secretariat.

NEWS FROM THE SECRETARIAT

Project Update on the APN Website

New pages were developed on the APN website to feature the selected projects for funding following the launch of a call for proposals for two focussed activities and undergoing a rigorous review process. Please feel free to visit the below links. Brief project abstracts/summaries are found on pages 39-40.



KEY FOCUS AREA 1

Theme 2: Ecosystems, Biodiversity and Land Use

<http://www.apn-gcr.org/newAPN/activities/focussedActivities/2010/2010Focus1.htm>

KEY FOCUS AREA 2

Theme 4: Resources Utilisation and Pathways for Sustainable Development

<http://www.apn-gcr.org/newAPN/activities/focussedActivities/2010/2010Focus2.htm>

In addition to new web pages, the APN also regularly updates its members, stakeholders and the public with new project developments such as the release of reports/publications, developed or updated project websites, and events' schedule. The following are recent posts in the APN website. This kind of information is also distributed through the APN electronic mailing list (EML). To subscribe to APN EML, please log on to: <http://www.apn-gcr.org/newAPN/opportunities/subscribeToEml.htm>.

Project Outputs

Abstracts of Peer-reviewed Journal Article

- ARCP2008-04CMY-Park: *Regional Collaborative Research on Climate Change Impacts on Surface Water Quality in Eastern Monsoon Asia: Towards Sound Management of Climate Risks*
 - Ø Park, J.-H., Duan, L., Kim, B., Mitchell, M.J., and Shibata, H. 2010. Potential effects of climate change and variability on watershed biogeochemical processes and water quality in Northeast Asia. *Environment International* 36: 212-225
 - Ø Duong CN, Ra JS, Cho J, Kim SD, Choi HK, Park JH, Kim KW, Inam E, Kim SD. 2010. Estrogenic chemicals and estrogenicity in river waters of South Korea and seven Asian countries. *Chemosphere* 78: 286-293

Final Project Reports

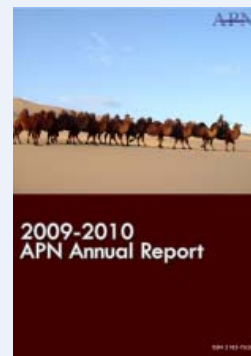
- (Revised version) ARCP2008-09CMY-Espaldon, *Assessing Vulnerability of Communities and Understanding Policy Implications of Adaptation Responses to Flood-related Landslides in Asia*

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APN New Publications

Annual Report 2009/2010

The *Annual Report 2009/2010* is the first Annual Report of the APN's third strategic phase. It is now available in electronic version and can be downloaded from the APN website: www.apn-gcr.org. This Report presents a summary of APN's efforts in promoting global change research, highlighting the major research, scientific capacity development, communications and outreach activities undertaken by the APN in 2009/2010, results and outputs of its completed projects, and other updates. Printed copies will be available for distribution in January 2011. Please contact the Secretariat (info@apn-gcr.org) if you are interested in receiving a printed copy.



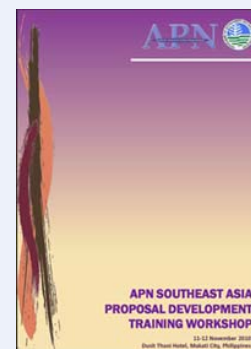
Proceedings of the International Symposium

This publication compiles documentation from the International Symposium on 'Coexistence with Nature: Biodiversity and People – Hyogo Dialogue for the Future' that convened in Kobe, Japan on 9 September 2010. Contained in the Proceedings are: lecturers' profile, abstracts, PowerPoint presentations, and summary of the discussion. Attracting 350 participants, the symposium provided a platform for understanding and discussing the importance of biodiversity and a venue to share knowledge derived from various activities in the region. The event consisted of four parts: Keynote Speech; Session 1 – "Importance of Ecosystem Conservation and Services"; Session 2 – "Involvement of Citizens and Non-Governmental Organisations/Non-Profit Organisations (NGOs/NPOs) for Biodiversity Conservation"; and Panel Discussion. The APN is grateful to the Hyogo Prefectural Government and all partners for their support in realising a successful Symposium.



Proceedings of the SEA Proposal Development Training Workshop

The workshop proceedings include copies of the PowerPoint presentations, workshop report, agenda, resources used and some photos. First in the sub-region, the Proposal Development Training Workshop (PDTW) was a great success, providing an opportunity for early-career scientists in Southeast Asia (SEA) to increase their capacity to submit a competitive proposal to APN for its Annual Calls for Proposals in key scientific areas for sustainable development in the Asia-Pacific region. The cooperation of the trainees, invaluable expertise of resource persons, and the support of the local host/ Secretariat during the workshop contributed to the overall success of the PDTW. We take this opportunity to again thank everyone for their input and to our trainees, we expect that you will continue to collaborate and submit a proposal to APN next year.



NEWS FROM THE SECRETARIAT

from page 5 - Project Update on the APN Website

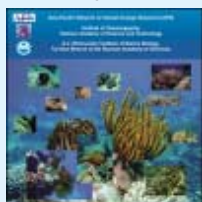
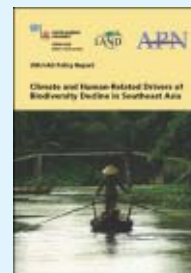
Final Project Reports

- CBA2009-01CMY-Ailkun, *Capacity Building for Drought Monitoring and Studying in Monsoon Asia under the Framework of Asian Water Cycle Initiative (AWCI)*
- CBA2009-02CMY-Ishida, *The Global Earth Observation System of Systems Asian Water Cycle Initiative Observation Convergence and Data Integration (GEOSS/AWCI/OCDI)*
- CIA2009-01-Snidvongs, *Climate Change Vulnerability Assessment and Urban Development Planning for Asian Coastal Cities*
- CIA2009-06-Duc, *Capacity Development for Adaptation to Climate Change in the Rural Coastal Zone of Viet Nam*



Policy Report

- ARCP2009-06CMY-Braimoh: *Climate and Human-Related Drivers of Biodiversity Decline in Southeast Asia*. This report was launched at CBD COP10 in Nagoya, in October 2010. It documents the salient biophysical characteristics of Southeast Asia, the current state of biodiversity and the attendant climatic and anthropogenic drivers of biodiversity decline in the region. Specifically, the role of international trade and the expanding oil palm plantations to meet increasing biofuel demands, as well as impact of urbanisation and land tenure management systems and changing climatic patterns on biodiversity are clarified.



Proceedings of International Conference

- ARCP2010-18NMY-Lutaenko, *Coastal Marine Biodiversity of Viet Nam: Regional and Local Challenges and Coastal Zone Management for Sustainable Development*

Website

- CBA2010-07NSY-Stone, *Web-based 'Discussion-support' Agricultural-Climate Information for Regional India*



Workshop Report/Programme and Abstracts

- CBA2010-15NMY-South: *Global Change and Coral Reef Management Capacity in the Pacific – Engaging Scientists and Policy-Makers in Fiji, Samoa, Tuvalu and Tonga*
- CBA2010-05NSY-Lorrey: *Improving Pacific Island Meteorological Data Rescue and Data Visualisation Capabilities through Involvement in Emerging Climate Research Programmes*
- ARCP2010-07CMY-Bai: *Asian Coastal Ecosystems: An Integrated Database and Information Management System for Assessing Impact of Climate Change and its Appraisal (Training Workshop on Climate Change and Data Information Management System Development, Kuala Lumpur, Malaysia, 1-3 December 2010)*

APN Proposal Development Training Workshop and 2nd South Asia Sub-Regional Cooperation Meeting and Training Workshop on Downscaling of South Asia Climate Projections, Pune, India, 1-5 November 2010

The APN conducted the Proposal Development Training Workshop (PDTW) and 2nd South Asia Sub-Regional Cooperation (SA-SRC) Meeting back-to-back with the Training Workshop on Downscaling of South Asia Climate Projections in Pune, India on 1-5 November 2010, in cooperation with the Indian Institute of Tropical Meteorology (IITM), India.

Proposal Development Training Workshop

With the main objective of providing an opportunity for early-career scientists in South Asia to increase their capacity to submit a competitive

proposal to APN for its Annual Calls for Proposals in key scientific areas, the PDTW was organised on 1-2 November 2010.

The workshop was attended by early-career scientists, nFPs and SPG Members in SA countries (Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka), and representatives from APN Secretariat and IITM Secretariat. With a dynamic participation, the workshop provided an ideal opportunity to discuss and exchange information on common global change issues and strengthen regional collaboration for scientific research, capacity development and policy-relevancy.



Prof. B.N. Goswami, Director at IITM, India's SPG Member, officially opened the PDTW providing opening remarks and welcoming the participants. Brief information about the APN was presented by Dr. Linda Anne Stevenson, APN Secretariat Executive Science Officer, who also discussed the workshop objectives and provided information on the APN's Annual Calls for Proposals process.

To share useful experiences in writing and developing a competitive proposal for the APN, Mr. Dhiraj Pradhananga, APN Project Leader and expert at the Department of Meteorology, Nepal, was invited to deliver a presentation. He shared some lessons learned in the APN's Calls for Proposals submission and review process. The title of his

continued on page 7 ...

NEWS FROM THE SECRETARIAT

from page 6 - APN Proposal Development Training Workshop and 2nd ...



APN project is *Graduate Conference on Climate Change and People* with reference number CBA2010-12NSY-Pradhananga.

Dr. Madan Lall Shrestha, SPG Member for Nepal and Academician at the Nepal Academy of Science and Technology and Prof. Goswami shared their thoughts and advice for proposal writing. The presentation on the roles of SPG Members and the nFPs in the APN proposals process was given by Dr. Stevenson. According to the APN Framework Document, the SPG is mandated to review research proposals received by the APN, especially those in response to the Annual Calls for Proposals, and based on this review, recommends to the Inter-Governmental Meetings (IGMs) proposals for APN funding. The IGM, participated by nFPs of each member country, reviews and approves projects and activities to be undertaken or supported by the APN, based on recommendations made by the SPG.

In the afternoon, the trainees were given two main tasks. Task One was writing a summary proposal. The participants gathered in their working groups and discussed proposals they had been collaborating on in previous weeks prior to the workshop. With mentorship from assigned APN members, each group of trainees spent the afternoon writing their four-page summary proposals based on the criteria provided by the APN and earlier presentations on guidelines and advice on proposal writing.

Task Two was group oral presentations. A member from each group provided a 10-minute presentation highlighting the main aspects of his/her group's proposal. Five-minute 'Question and Answer (Q&A)' session followed each presentation. Based on the feedback from SPG Members and other participants, the groups revised the proposals for submission the following day.

Day 2 commenced with a brief explanation from Dr. Stevenson of the criteria to be used for the review of the summary proposals. Task Three (Review Process) immediately followed where each group was asked to perform a review on the summary proposals of their respective peer groups with approximately 15 minutes per proposal. They prepared a PowerPoint presentation summarising the results of the review and also indicating the best proposal stating the reasons for choosing it as the best among the completed summary proposals. The group oral presentations of their reviews comprised Task Four (10 minutes for each group). Following the presentations is a discussion on the writing and review process addressing issues of concern and steps for improvement.

The participants were asked to complete a questionnaire on how they viewed the workshop. This questionnaire was developed to generate responses on specific comments and suggestions for improvement. Prof. Goswami concluded the workshop and invited the participants for a group photograph.

2nd SA-SRC Meeting

APN members/delegates from SA (Bangladesh, Bhutan, India, Nepal, Pakistan, Sri Lanka), representatives from IITM and APN Secretariat actively participated and gave full support to realise a successful Meeting. It commenced with an official opening and welcome remarks from Dr. Subodh Sharma, nFP for India. He emphasised that the formation of a SA-SRCom is a very important approach to focus on issues of global change research on topics, which are receiving great international attention such as the harsh impacts of climate change and associated vulnerability. He further noted that APN is a vehicle of cooperation, participation and exchange of information and scientists over the years have participated in important regional projects under the aegis of the network, which has led to advancing frontiers of knowledge.

Dr. Stevenson gave an introduction explaining the background of APN SA-SRC and Meeting objectives. Items discussed included the APN's Institutional mechanisms; APN Calls for Proposals; criteria for determining successful science-policy linkages and other important issues. In looking at a framework for science-policy interactions, it was considered that APN needs to look at the scope of development, influence and relevance of policy and the context of the project activities. Policy-relevancy is the most important utility for the APN and the ascertainment of the relevancy of the outcomes of an APN activity. Projects should be encouraged to mainstream their results into policy-relevant issues such as food security and water resources, which are very important for South Asia.

Before concluding the meeting, it was reiterated by all members their strong support to developing and intensifying SRC activities in the region and offering more opportunities to exchange and build on relevant issues and strengthen capacities in South Asia.

The Chair and Vice-Chair concluded the Meeting noting the enthusiasm of the SA-SRCom members to continue their collaboration. They highlighted their hopes for future meetings supported by the APN and agreed that the regional partnerships among member countries are growing in strength.

Training Workshop on Downscaling of South Asian Climate Projections

Early-career scientists from the SA region nominated by the APN nFPs and SPG Members actively engaged in the Downscaling Workshop. The discussions at the workshop focussed on two main aspects. One was on the development of regional and sub-regional climate scenarios and ways to improve access to, and application of climate model outputs. The other was on the analysis of availability and applicability of climate model outputs and downscaled data for policy-makers.

The extensive lectures from excellent resource persons and hands-on training on model simulation that composed the three-day Downscaling Workshop are keys to the development of regional and sub-regional climate scenarios to support policy-relevant impact and vulnerability assessments in respective countries. The Downscaling Workshop provided the opportunity for the participants to share their experiences and perspectives in the area and helped in establishing a strong network of scientists in the region. All the participants noted that the Climate Downscaling Workshop is timely and highly important particularly to address the impacts of climate change and associated vulnerability in the South Asia region.

The APN is preparing the PDTW and Downscaling Workshop Proceedings to include the PowerPoint presentations, summary of the discussion/workshop report, resources used and some photos. This will be uploaded on the APN website in due course.

NEWS FROM THE SECRETARIAT

APN 3rd SEA Sub-Regional Cooperation Meeting and Proposal Development Training Workshop, Manila, Philippines, 9-12 November 2010

The APN in cooperation with the Department of Environment and Natural Resources (DENR) of the Philippines through the Ecosystems Research and Development Bureau (ERDB) successfully convened the 3rd Southeast Asia Sub-Regional Cooperation (SEA-SRC) Meeting back-to-back with a Proposal Development Training Workshop (PDTW) in Makati City, Philippines, on 9-12 November 2010.



3rd SEA-SRC Meeting

With full support and active participation of APN members/delegates from SEA (Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Philippines and Thailand), representatives from DENR-ERDB and APN Secretariat who attended the Meeting, many fruitful outcomes resulted. The meeting commenced with welcome remarks from Mr. Eriberto C. Argete, the APN national Focal Point (nFP) for the Philippines and Director of the Planning and Policy Studies Office of DENR. Following this, Mr. Marcial C. Amaro, Jr., the Scientific Planning Group (SPG) Member for the Philippines and Director of ERDB officially opened the 3rd SEA-SRC Meeting and further gave a short introduction. Dir. Amaro was nominated as Chair of the Meeting.

Ms. Peryln Pulhin, Programme Officer for Communications and Development, APN Secretariat gave a brief presentation about the background of APN SRC, an update on SEA-SRCom issues and related activities to date and Meeting objectives. This was succeeded by a presentation on the highlights of the 2nd SEA-SRC Meeting delivered by Dr. Subramaniam Moten, SPG Member for Malaysia and Head of Research Division, Malaysian Meteorological Department. In revisiting the discussions at the second Meeting, the SEA-SRCom was reminded of the SWOT (strengths, weaknesses, opportunities and threats) analysis. It was stressed that SEA-SRCom should look at how identified strengths can be further enhanced and how the weaknesses could be addressed at the national and sub-regional levels.

Focussing on emerging research priorities, scientific trends and issues in the Southeast Asia sub-region with regard to global environmental change/climate, new thematic areas and research gaps were identified and the group agreed on steps to be taken to address these gaps as well as how plans could be integrated into a regional effort. The Meeting also suggested additional areas of scientific focus:

- Integrated waste management in urban communities;
- Climate vulnerability and adaptation for agricultural-based communities; and
- Community-based adaptation in forest ecosystems focussing on biodiversity and sustainability

Another important item on the science front that was discussed in the Meeting was devising criteria that define successful science-policy

linkage(s). Suggestions were noted such as 'when the project outcomes were used as basis in crafting of laws' but it is difficult to identify the most effective ways and robust criteria that can be used to define successful science-policy linkages(s) as approaches and strategies are different from one country to another.

The remaining items discussed future plans/activities including the 4th SEA-SRC Meeting and strategies to enhance the flow of information and to identify mechanisms or communication channels towards improved relations among the nFPs, SPG Members, project leaders/collaborators, and global change partners in SEA. Deadlines on the submission of concept papers for future activities were set and issues that need immediate follow-up were noted.

Some delegates gave brief presentations on behalf of partner organisations: East-West Center University, Global Change System for Analysis, Research and Training (START), and World Wildlife Fund. The presentations contained proposed activities that require strong partnerships in the region. The SEA-SRCom will closely communicate with partner organisations in pursuing collaborative activities with shared roles.

With the success of the two-day Meeting, the SEA-SRCom conveyed earnest appreciation to the Chair, Mr. Amaro Jr., together with the staff of ERDB; the Philippines nFP, Mr. Argete representing DENR. The APN Secretariat extended sincere gratitude to all the participants and the ERDB Secretariat for realising the fruitful two-day Meeting. The members welcomed a clear direction and comprehensible steps to address the needs and bridge the gaps in global change research and capacity development in the region. The SEA-SRCom has a more important role to play in promoting and strengthening regional collaboration towards the attainment of APN goals.



SEA Proposal Development Training Workshop (PDTW)

First in the sub-region, the PDTW was a great success providing an opportunity for early-career scientists in the SEA to increase their capacity to submit a competitive proposal to APN for its Annual Calls for Proposals in key scientific areas for sustainable development in the Asia-Pacific region. The Workshop was also instrumental in putting APN one step forward in empowering the SPG Members who shared their knowledge on the APN proposal submission/review process and were exposed in the conduct of PDTW so they can impart the learning and experiences they gained to constituents, back in their home countries.

A perfect forum to discuss and exchange information on common global change issues and strengthen regional collaboration for scientific research, capacity development and policy-relevancy, the workshop

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was attended by 16 young scientists from SEA (Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Philippines, Thailand, and Viet Nam); SPG Alternate/Members for Indonesia, Lao People's Democratic Republic, Malaysia, Philippines, and Thailand; Project Leader, Dr. Nestor Baguion; and representatives from APN Secretariat and ERDB Secretariat.

The workshop began with opening and welcome remarks from Mr. Amaro, Jr. and APN Secretariat Director, Mr. Tetsuro Fujitsuka. Brief information about the APN was presented by Ms. Pulhin while Ms. Garcia discussed the workshop objectives and provided information on the selected outstanding APN-funded projects of the second phase evaluation and the Annual Calls for Proposals.

Dr. Baguion, Professor in the University of the Philippines Los Baños, shared his experience in writing and developing a competitive proposal for the APN. He stressed on the relevance of strong regional collaboration and noted that a well-organised proposal team is basic to a successful research proposal application. A team of experts with different technical background needs levelling-off from the very start of writing the proposals so that targets/objectives are clearly set. Expected outcomes should be beneficial for both the APN and the proponents.

Scientific contribution and institutional support from collaborating organisations are also very important factors to consider in developing a strong proposal according to Dr. Baguion. Exploring additional funding sources to support the project is an immediate task that the research team should be able to work out at the early stage. It is also crucial, Dr. Baguion advised, that the team pay close attention on the initial feedback from the APN reviewers. An effective feedback mechanism in the case of his project was achieved through close communications with the APN Secretariat and the members of the research team, complementary consultations and mutual support among the participating institutions.

He concluded his presentation by sharing the lessons learned in the APN's Calls for Proposals submission and review process. The title of his APN project is *Collaborative Studies on Tropical Asia Dendrochronology, Addressing Challenges in Climatology and Forest Ecology* with reference number ARCP2008-03CMY-Baguion.

The presentation on guidelines and advice for proposal writing was given by Dr. Moten and the SPG Member for Thailand and Associate Professor in Chulalongkorn University, Dr. Jariya Boonjawat. From the perspective of a reviewer, Dr. Boonjawat stressed that there is high chance of being funded if the proposal has a good idea that is well expressed, gives a clear indication of methods for pursuing the idea and evaluating the findings, and provides well thought out plan for

making the information known to intended readers. She enumerated helpful key questions to guide the early-career scientists on determining long-term research aims, preparing to do the research, and identifying potential funding sources.

Dr. Moten explained a number of reasons why APN declines a proposal. If it is due, however, to budgetary limitations keeping in mind that APN awards are highly competitive, proponents are strongly encouraged to resubmit in the next Calls for Proposals. Co-financing arrangements are necessary. The higher the matching fund, the stronger the proposal will be.

He noted that for the Annual Regional Call for Research Proposals (ARCP) in particular, proponents should ensure the relevance of the project not only at the regional level but also at a global scale. Proposals should also demonstrate strong links to governments, stakeholders and policy-makers.

Dr. Adiningsih presented on the role of SPG Members and nFPs in the APN proposals process, noting that the SPG is mandated to review research proposals and, on the basis of this review, recommend to the IGM proposals for APN funding. The IGM, participated by nFPs of each member country, reviews and approves projects and activities to be undertaken or supported by the APN, based on recommendations made by the SPG.

The afternoon session was divided into two main tasks. Task One was the review of summary proposals submitted by workshop participants to the APN. Four working groups were formed and they discussed the proposals they have been collaborating on in previous weeks prior to the workshop. Group oral presentations comprised Task Two, with assigned rapporteurs from each working group providing a 10-minute presentation highlighting the main aspects of the group's proposal.

Task Three involved each group performing a review of the summary proposals of their respective peer groups. They prepared a presentation summarising the results of the review. Task Four comprised group oral presentations on the general strengths and weaknesses of the summary proposals, suggestions for improving the proposals, and selection of best proposal stating the reasons for choosing it as the best among the completed summary proposals.

A discussion session followed which accommodated the recommendations from resource persons and fellow-trainees on improving the proposals based on the writing and review process that were discussed earlier. Insightful comments were provided by the invited speakers on which areas need to be addressed and the trainees expressed profound gratitude to them for the mentorship.

Finally, Mr. Amaro Jr. concluded the Workshop congratulating and thanking the trainees, resource persons and the Secretariat for the active participation. The cooperation of the trainees, invaluable expertise of resource persons, and the support of the Secretariat during the workshop contributed to the overall success of the Workshop. On behalf of the Secretariat, Ms. Pulhin thanked everyone for their inputs in the workshop and encouraged the trainees to continue the collaboration and submit a proposal to APN next year.

The Workshop Proceedings is available for download on the APN website: <http://www.apn-gcr.org/newAPN/resources/proceedings/AndMeetingReports.htm>

NEWS FROM THE SECRETARIAT

START Executive Director Visits the APN Secretariat

Dr. Hassan Virji, Executive Director of the Global Change System for Analysis, Research and Training (START) International Secretariat, visited the APN Secretariat Office in Kobe, Japan on 14 January 2011. This visit provided a strategic and perfect opportunity for both APN and START to update each other on initiatives and ongoing efforts in global change research, capacity building and strengthening science-policy linkages, particularly in the Asia-Pacific Region and also to discuss potential partnership activities ahead. Dr. Virji expressed his sincere gratitude to the APN for its strong collaboration and support towards START activities in the past including the funding provided in a number of projects and activities such as those organised by the START Regional Centres.



Dr. Hassan Virji, START Executive Director (third from right)

Specific activities and plans were discussed and the APN Secretariat positively welcomed the proposed strategies to further enhance the partnership between APN and START. Concept papers on targeted activities will be developed for comments and further input by the APN Steering Committee before presenting at the 16th APN Inter-Governmental Meeting (IGM)/Scientific Planning Group (SPG) Meeting in April for IGM's approval. Both APN and START are committed to engage more actively in each other's activities to strengthen their partnership on global change-related endeavours in the future.

APN OUT AND ABOUT

Workshop on Integrated Studies of Environmental Change in Tibet-Himalayan Region, Kathmandu, Nepal, 13-15 September 2010

The Workshop on Integrated Studies of Environmental Change and Climate Adaptation Responses in the Tibet-Himalayan Region was held jointly by the Australian National University (ANU), Australian Government Overseas Aid Program (AusAID), Institute for Development and Innovation (IDI), Nepal, and Monsoon Asia Integrated Regional Study (MAIRS), China, on 13-15 September 2010, in Kathmandu, Nepal. This workshop, attended by 40 experts, is part of the activities of an APN-supported project entitled 'Impacts of Global Change on the Dynamics of Snow, Glaciers and Runoff over the Himalayan Mountains and their Consequences for Highland and Downstream Regions.' The project is being led by Dr. Kedar Lal Shrestha, IDI President. Mr. Yukihiro Imanari, APN Secretariat Executive Manager delivered a presentation highlighting the network's major activities and its role in supporting regional collaboration and promoting global change research in the Asia-Pacific region.

Building upon a couple of presentations on the current status of research in the Tibet-Himalayan region, workshop participants tried to identify gaps, by particularly looking at the following areas:

- Water resource changes;
- Land/ecosystem changes;
- Climate governance and water/land management; and
- Regional collaboration framework.

The participants explored the option of establishing a committee to coordinate research activities and possible regional/sub-regional collaboration. Joint efforts are crucial: the fragile ecosystems and the diverse patterns of land use in the Tibet-Himalayan region are additionally endangered by the complicated topography, economical and political pressure, and lack of scientific infrastructure in many basic areas. To achieve a tangible output, the participants discussed the development of a strategic framework or road map that will guide a clear research agenda with shared visions, goals, strategic objectives and projects for the Tibet-Himalayan region.

Knowledge and information sharing comprised Session 5. The Session Chair led the discussion to determine an effective mechanism to enhance knowledge sharing in the region. The region's need for a Knowledge Management System or a web-based Geographic Information System (GIS) Decision Support System was emphasised as well as the important role of media and other organisations in keeping civil society well informed.

A brief Wrap-up Session discussed next steps that must be taken to address challenges in climate change adaptation specifically in the Tibet-Himalayan region. More information will be included in the final project report to be uploaded on the APN website in due course: <http://www.apn-gcr.org/newAPN/resources/list2009projects.htm>.



APN OUT AND ABOUT

APN at the Storm Surges Congress on Risk and Management of Current and Future Storm Surges, Hamburg, Germany, 13-17 September 2010

The Institute for Coastal Research at the GKSS Research Centre Geesthacht, in cooperation with Hamburg KlimaCampus (Climate Campus) at Hamburg University and further national and international partners, hosted the international "Storm Surges Congress 2010" from 13 to 17 September at the University of Hamburg. The Congress was organised through the global Earth system research project "Land-Ocean Interactions in the Coastal Zone" (LOICZ), which investigates changes to coasts and the social consequences worldwide.

LOICZ, a joint core project of International Human Dimensions Programme on Global Environmental Change (IHDP) and International Geosphere-Biosphere Programme (IGBP), is active worldwide and concerns itself with the processes of global change in regard to the coasts of the world. Since 1993, over 1,000 LOICZ researchers have been working on, among other topics, the influence of humans on coastal zones as well as the feedback that humans experience from the quick changes of nature. The main objective of the investigations is the vulnerability of the coast to environmental change. The goal is to develop adjustment strategies and sustainable concepts for integrated coast and river management in times of global change. Since 2006, the international coordination office of LOICZ located at the GKSS Research Centre. Further information on LOICZ can be found at: <http://www.loicz.org/>

Cooperation Across Borders and Disciplines is Essential

Storm surges are destructive. They regularly lead to casualties and substantial economic damages. In 2008, Myanmar in the Indian Ocean was hit by the tropical cyclone Nargis and the associated storm surge left a trail of destruction. More than 100,000 people lost their lives. In 1953 and 1962, the Netherlands, England, and Hamburg were severely affected by storm surges. The goal of the Storm Surges Congress was to support the exchange of knowledge and experiences in handling storm surges through a global dialogue between representatives from science, economics, public institutions and politics.

Academics from 30 countries presented perspectives from the natural and social sciences, and illuminated regional aspects of storm surges. Central questions of the Congress addressed, among others, the predictability of storm surges and further developments of possible protective and mitigation measures.

Storm Surges – Research for the Future

Through the effects of climate change and extensive human use of coastal areas, storm surge risks could rise worldwide. By means of mathematic models, GKSS coastal researchers have investigated what effect the constantly increasing amount of greenhouse gases in the atmosphere could have on storm surges along the North Sea Coast. "Between 2070 and 2100 rises in maximum storm water levels in the range of three to eleven decimeters are conceivable along the entire German North Sea coast", Professor Hans von Storch, Director of the GKSS Institute for Coastal Research, explained. Up to 2030, the existing concepts for coastal protection in northern Germany should remain as effective as they are today. By the end of the century, however, rising storm surge levels could require action. "Recent predictions of the Organisation for Economic Cooperation and Development (OECD) assume that the risk of being hit by a so called one in hundred years flood will be multiplied for large harbour cities worldwide by the year 2070", highlighted Professor Robert Nicholls from the University of Southampton, UK. "This could mean that the number of humans



threatened worldwide could rise from about 40 million to 150 million; additionally, possible economic losses will bring significant challenges to society."

During the Hamburg Congress, researchers from Boulder University in Colorado, USA, explained that, particularly, cities in delta regions of rapidly developing economic areas in the tropics and subtropics could be affected by future storm surges. Increasing urbanisation also raises the risk of storm surges. This is due to subsidence in the course of massive extractions of ground water and sand as well as the damming of rivers and streams. The European Space Agency (ESA) made a presentation at the "Storm Surge Congress" in Hamburg on how the prediction of storm surges could be improved with the help of satellite technology and how the technology is user-driven.

Panel Discussion

For the Panel Discussion (in which APN was invited panel member) on The Role of Risk and Vulnerability Aspects in Current Research Ageans, the following points were discussed:

What do we know about environmental, economic and social risk and vulnerability of coastal systems and communities to storm surges - do current research agendas address these issues adequately?

- *What do we know about today's risk?*
- *What do we know about tomorrow's risk?*
- *What are the scientific gaps to properly address these questions?*
- *Do we have a good handle on today's risk?*
- *What are the features of vulnerability versus resilience of coastal systems including communities/economies/science-policy gaps/public awareness?*

For the panel discussion, a 5-minute statement was made by the APN, which was drawn from a full paper, available upon request to Dr. Linda Anne Stevenson of the APN Secretariat. The statement is outlined below:

Neil Adger noted that by resilience, we mean the capacity of linked social-ecological systems to absorb recurrent disturbances such as hurricanes or floods so as to retain essential structures, processes, and feedbacks. Resilience reflects the degree to which a complex adaptive system is capable of self-organisation and the degree to which the system can build capacity for learning and adaptation. The concept of resilience is a profound shift in traditional perspectives, which attempt to control changes in systems that are assumed to be stable, to a more realistic viewpoint aimed at sustaining and enhancing the capacity of social-ecological systems to adapt to uncertainty and surprise. Also, while the IPCC assessments of climate change have received wide

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attention and its global aspects have been generally understood and well-recognised leading to policy development at the global level, there are still *considerable gaps in the knowledge-base at the regional level* owing to lack of capacity among regional stakeholders in accessing, interpreting and producing regionally more relevant information.

The intensity of coastal-zone use in the Asia-Pacific region and the rapidly growing coastal population reinforces the need for accurate predictions of future climate changes as a basis for forecasting impacts and developing appropriate response strategies. For the coastal zone, the most important climate change variables include: increases in air temperatures and sea-surface temperatures; sea-level rise; and changes in the magnitude, frequency and distribution of interdecadal (e.g. Pacific Decadal Oscillation), interannual (e.g. El Niño Southern Oscillation or ENSO) and seasonal extreme events (e.g. typhoons/cyclones and droughts).

Another important issue for the whole region is to identify sectors and areas most vulnerable to these climatic and oceanic conditions using a multisectoral and integrated approach to managing and living on the coast. Methods for tackling these issues lie in the context of the internationally accepted approach of Integrated Coastal Management (ICM) and the need to recognise the diversity of coastal management practices in the Asia-Pacific region.

This is all fine on paper and yes, it appears that we understand the risks. However, there is a major gap between the people who produce the scientific knowledge that determines vulnerability and informs adaptation and the people who need and/or apply that knowledge. While there is persistent need for data and information of high quality and consistency (set by international standards), better communication is also needed to promote more effective integration of climate change and variability into the development agenda. In this sense too, managing communications and presenting uncertainties in consistent ways are crucially important. For example, state-of-the-art technology comprised of storm surge numerical model and Geographic Information System (GIS) tools gives a good view of potentially vulnerable areas to storm surge events. This may provide local residents with valuable information for enhancing their awareness toward coastal vulnerability, although capacity to do this urgently needs to be developed.

The frequency of flooding in the coastal areas of Asia has tripled in the last thirty years, with the problems exacerbated by increasing urbanisation and by population growth. The coastal zone is expected to become the home for 75% of the population of Asia by 2025. Bangkok (Thailand) and Dhaka (Bangladesh) are already facing severe flooding problems owing to substantial amounts of activity in low-lying urban areas. Indeed the growing numbers of mega-cities along the coasts of



Asia are increasingly vulnerable to the impacts of severe weather events such as storm surges.

Drawing on a recent activity by the Global Change System for Analysis, Research, and Training (START) and the East-West Center and funded by the APN focussing on coastal mega-cities; the main workshop brought together scientists, both natural and social, urban planners, practitioners and decision-makers. The activity to date has involved a review of the science of climate change impacts on coastal cities of Asia, and consideration of the vulnerabilities and risk management strategies associated with those impacts. Some of the recommendations that were generated from that included the need to:

- Recognise the urgent need to address the disconnect between the geographic and time scales at which the scientific and planning/policy communities are working
- Encourage the urban planning community to take a comprehensive view of climate risks, including variability
- Recognise and promote the importance of identifying an "entrepreneur" or "champion" in coastal urban governments to help make climate change a priority
- Acknowledge knowledge gaps and invest in learning strategies
- Communicate science, and vulnerability in particular, more effectively
- Urgently build capacity for individual and institutional participation in responding to climate change in Asia's coastal mega-cities
- Understand that effective governance at the systemic level is essential in mainstreaming adaptation strategies

Finally, in order to advance in this area and reduce the risk of climate-associated hazards, there is a tremendous need to build scientific capacity in the most vulnerable areas. That is to develop and enhance the scientific and technical capacity, transfer the necessary skills, tools and knowledge-base needed, particularly in coastal developing countries in the Asia-Pacific region, to cope with the increasing vulnerability and risks associated with disasters. The science is there it seems, but it needs to be effectively communicated and transferred. This means that a strengthened and steady path towards integrated approaches needs to be adopted to ensure that science is effectively translated and communicated; and skills are developed and applied at the coastal community levels. To manage this effectively, there is a need to promote and strengthen links between scientists, engineers and technologists, urban planners and policy-makers to enhance the integration of knowledge across sectors.

Asian coastal mega-cities has been identified by the Intergovernmental Panel on Climate Change (IPCC) as global 'hot spots' of disaster vulnerability arising from the combined effects of sea level rise, climate change, and continued urban growth in areas subject to coastal and riverine flooding and storm surges. *It is paramount that risk reduction becomes part and parcel of urban planning* (United Nations Strategy for Disaster Reduction, 2009). Unfortunately, this is not the case at present.



APN OUT AND ABOUT

APN at the Global Land Project 2010 Open Science Meeting: Land Systems, Global Change and Sustainability, Arizona, USA, 17-19 October 2010



The Open Science Meeting 'Land Systems, Global Change and Sustainability' successfully brought together large parts of the international research community working on land change issues. It showcased the width and scope of ongoing research, helped build a community in this highly interdisciplinary field, inspired new research and facilitated review, theory building and extrapolation. A major theme running throughout both the Urbanisation and Global Environmental Change (UGEC) and Global Land Project (GLP) conferences, and the focus of the overlapping day are the linkages among urbanisation, land and landscapes, and climate change. The themes embedded in these linkages, constitute one of the next phases of emphasis in global change and climate change science as registered by major agenda-setting reports forthcoming in the USA and internationally.

Project Overview

GLP is a joint research project for land systems for the International Geosphere-Biosphere Programme (IGBP) and the International Human Dimensions Programme for Global Change Research (IHDP). GLP Science Plan represents the research framework for the coming decade for land systems. This development of a research strategy is designed to better integrate the understanding of the coupled human-environment system. These integrated science perspectives reflect the recognition of the fundamental nature of how human activities on land are affecting feedbacks to the earth system and the response of the human-environment system to global change. GLP Science Plan has been defined by scientists sponsored by the IGBP and the IHDP.

Scope of the Meeting

The Meeting aimed at advancing the science of land systems and their change for analysis and response to global change and sustainability. Human transformations of the land surface of the planet are among the largest sources of change on Earth. The rapidly accelerating change of the land systems is closely related to the last decades' unprecedented transformation of the terrestrial structure and functioning of the coupled human-environmental systems. The exploration of the coupled environment system can provide needed insight to better develop strategies for future sustainability of the land system. The transdisciplinary field of 'Land Change Science' has emerged as a fundamental component of global environmental change and sustainability research, and is at the heart of the GLP Science Plan. The land systems approach requires the integration of social, ecological and geographical information/Earth observation sciences, and faces various data, methodological and analytical challenges.

Programme

The Open Meeting was organised around a number of themes, emerging from the GLP Science Plan. While important in their own right, the themes also provided conceptual and methodological insight that will be useful to investigate dynamics and resilience of land systems at local, regional or larger scales as result of the new exposures to global change.

The 2010 GLP/UGEC joint day: Sustainable Land Systems in the Era of Urbanisation and Climate Change was also held on 17 October 2010. This joint day explored the numerous interactions between land-change, urbanisation and climate change. The joint Conference day built contacts and networks among urban and land-change specialists to foster more collaboration worldwide, expanding the range of issues addressed.

For more details, please visit: <http://www.glp2010.org/>.

APN Representation

Dr. Linda Anne Stevenson, APN Secretariat Executive Science Officer attended the Open Science Meeting on behalf of the APN. Some current and former APN project leaders, collaborators and external reviewers and collaborating institutions also showcased their research activities through oral presentation and poster session. APN information materials such as CD-ROMs and selected publications that highlight the network's major activities and approved projects were distributed to the participants.

Below are the selected compiled abstracts of the oral presentations delivered by APN current and former project leaders and external reviewer.

Ailikun, *Monsoon Asia Integrated Regional Study (MAIRS) International Project Office, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China*

Dryland Research in MAIRS

MAIRS dryland study is the enhancement of semi-arid research, which includes a larger area of arid and semi-arid regions in East Asia and South Asia. The scientific issues mainly focus on: 1) interaction among global warming, climate variability and aridity trends in dryland Asia; 2) atmosphere, land and ecosystem interaction under changing land-use patterns and ecosystem services; 3)

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vulnerability of dryland environment and adaptation strategies; 4) dust aerosols, hydrological cycle and regional climate. MAIRS has developed two (2) working groups in dryland research; one is 'observation and land surface processing group', which is mainly focussed on the integrated observation in dryland region and research of land surface processes. Another is 'Coupled Human-Environment (CHE) group' which is mainly focussed on the vulnerability assessment and adaptation strategies for the sustainable development. The presentation introduced the detailed activities under MAIRS.

T Chuluun¹, D Ojima³, M Altanbagana², S Davaanyam², B Tserenchunt²

¹Department of Environmental Policy and Science, Ulaanbaatar, Mongolia, ²Dryland Sustainability Institute, Ulaanbaatar, Mongolia, ³NREL Colorado State University, Fort Collins, CO, United States

Vulnerability and Resilience of Pastoral Social-ecological Systems in Mongolia

Vulnerability of pastoral human-environmental systems to climate and land use changes have been assessed at community, river basin and country scales. Vulnerability assessment of pastoral communities in different ecological and economic regions showed that riparian ecosystems are key resources for coupled rangeland systems due to shrinking water resources as a result of climate change. Key stakeholders of the Tuin river basin, indicate that water resource reduction has already crossed a threshold boundary. Currently only three (3) tributaries flow into the Tuin River, out of over 20 which flowed historically into the river basin.

Traditional river communities, such as Ogoomor Ortomt community living along the Ortomt River (one of three remaining rivers), should be considered as key pastoral social-ecological systems for whole river basin. Hovd, Dundgov', and Uvs aimags, located in the Gov', were the most vulnerable both socially (based on the poverty) and ecologically (based on drought, white and black zud, and stocking rate relative to carrying capacity) at the country level. Education of herders in marketing, rangeland and livestock management, strengthening traditional communities with modern technologies such as renewable energy and wireless communication, restoration and traditional 'cultural landscape', protection of water sources and riparian ecosystems, communal use of otor and reserve pastures in order to cope with variability and extremes, enlargement of administrative-territorial units, diversification of economy, development of ecological and cultural tourism, and intensification of livestock industry in peri-urban areas and in productive ecological regions are resilience building options for the pastoral social-ecological systems.

Indrila Guha¹, Rajarshi Banerji²

¹Vidyasagar College for Women, Kolkata, India, ²The Seafood Exporters' Association of India, Kolkata, India

Community Adaptation to Inundation of Islands Induced by Climate Change: An Exploratory Study from Indian Sundarbans, A World Heritage Site



Climate change induced sea level rise will exacerbate changes in landmass/landuse pattern in the coastal zone through inundation, storm surge, erosion, etc. Vital infrastructure and facilities that support the livelihood of island and coastal communities will be threatened. To design adaptive strategies it is important to know the magnitude of damages, associated costs and benefits. The study focusses on Sagar Block in the Sundarban Biosphere Reserve, which is a World Heritage Site located along the Bay of Bengal on the largest active delta of the world and covers approximately 10,000 sq.km. It constitutes the largest contiguous area of mangrove forest in the world.

Two islands, Lohachhara and Suparibhanga, have already disappeared under the waves. Other adjoining inhabited islands have also lost land. While this study does not probe into the geomorphological reasons of inundation, the loss of agricultural land, fisheries and property and the consequent distress is obvious. Our objective is to trace and analyse responses of the affected population. Reactive and proactive actions are analysed to assess private and social cost.

Assessment and cost estimates are based on secondary information, as also field level information gathered through Focussed Group Discussions and Rapid Rural Appraisal. Data on physical changes over time in the selected case study areas through conjunctive use of Geographic Information System (GIS) technique and Survey of India topographic sheets used. The study wants to use the results to assess impact on poverty of predicted climate change induced risk of inundation and recommend policies for a balanced community adaptation strategy.



NEWS FLASH (APN Partner Organisation) EMECS 9: Managing for Results in our Coastal Seas – Global Summit on Coastal Seas, Baltimore, Maryland, USA, 28-31 August 2011. The purpose of EMECS 9 is to improve

ability to manage coastal seas in all their ecological, economic, and cultural dimensions. The conference will work to cross barriers of discipline and culture by bringing together experts and stakeholders from

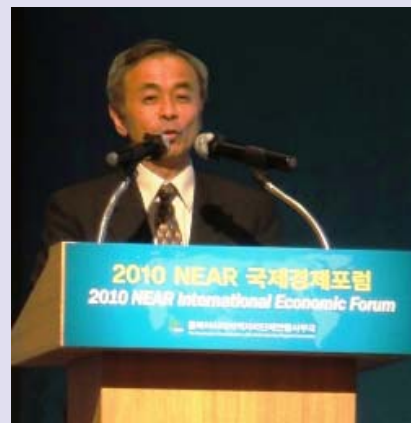
different backgrounds to share information, insights, and lessons learned. Deadline for submitting the abstract was extended to 25 February 2011 and sponsor/exhibitor opportunities are also available. Visit: <http://www.conference.ifas.ufl.edu/emecs9/>

www.conference.ifas.ufl.edu/emecs9/

APN OUT AND ABOUT

APN Joins the 2010 NEAR International Economic Forum Gyeongju, Republic of Korea, 25-27 October 2010

The 2010 Association of North East Asia Regional Governments (NEAR) International Economic Forum convened on 25-27 October 2010 in Gyeongju, Republic of Korea. This was organised by the NEAR Secretariat in an effort to discuss progress in addressing climate change, global disasters, ecological degradation among other environmental issues and identify mechanisms to promote green growth and green energy development as countermeasures to resolve those problems. The APN Secretariat Director, Mr. Tetsuro Fujitsuka, attended this Forum and delivered a presentation on Climate Change and Disaster.



NEAR Overview

NEAR is an international organisation founded by 29 governments from four (4) Northeast Asian countries including South Korea, China, Japan and the Russian Federation. It was established in September 1996 in Gyeongju, South Korea. This organisation adopted a Charter based on the ideology of co-prosperity of Northeast Asia and carried out extensive exchange and cooperation projects in various fields ranging from economy and trade, education and cultural exchanges, environment, disaster prevention, cross-border cooperation, science and technology, ocean and fisheries to tourism.

With the participation of North Korea and Mongolia and accession of new member governments, NEAR is growing as a representative regional diplomacy and cooperative organisation of Northeast Asia with 70 member governments from six (6) countries. Any local government located in the Northeast Asian region sharing the founding purpose of NEAR can join through the NEAR General Assembly.

The International Economic Forum

Delegations of NEAR members participated in the 2010 NEAR International Economic Forum. To commence, a keynote speech titled, 'Regional Collaboration on Green Growth in Northeast Asia' was given by Mr. Hyung-Kook Kim, Former Chairman of the Korean Presidential Committee on Green Growth. Aside from the keynote speech, the Forum also consisted of plenary sessions, a special presentation session and round table discussion.



The keynote speech was followed by presentations provided by renowned environment experts from five Northeast Asian countries (China, Japan, Mongolia, Republic of Korea, and Russian Federation) as well as international organisations including APN, United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and United Nations Development Programme Great Tumen Initiative (UNDP-GTI). Themes of the plenary session focussed on the following main topics: Climate Change and Global Disaster; Green Growth and Clean Energy; and World Environmental Issues and Change of Ecosystems. For more information and to view the presentation materials please visit <http://www.neargov.org>.

NEWS FLASH (APN Partner Organisations)



Call for Abstracts for 22nd Pacific Science Congress, Kuala Lumpur, Malaysia, 14-17 June 2011. The Congress provides an interdisciplinary platform for scientists from the region to assess and prioritise issues requiring scientific research; brings together scientists from more remote states; and catalyses international and cross-disciplinary collaboration and to announce and establish new research initiatives. The Pacific Science Association (PSA) focusses on those countries bordering the Pacific Ocean and the islands of the Pacific basin.

Visit: <http://22ndpsc.net/>

First Call: Young Land-Ocean Interactions in the Coastal Zone (LOICZ) Forum 2011 – Enhancing Capacities for Global Change Mitigation in Asia-Pacific Coastal Zones, Yantai, China, 8-15 September 2011. This special event for early-career scientists and managers aims to build strategic capacities for sustainable coastal zone management and effective responses to global environmental change in the Asia-Pacific region. For more details, download the official flyer: <http://www.apn-gcr.org/newAPN/news/globalChangeAnnouncements/10-12-01/YLF-Flyer.pdf>



APN OUT AND ABOUT

APN at the IGFA Annual Meeting, Cape Town, South Africa 28-29 October 2010

This year's International Group of Funding Agencies for Global Change Research (IGFA) Annual Meeting was held in Cape Town, South Africa on 28-29 October 2010. It extensively discussed the 'Belmont Challenge' – how to achieve the objectives of aligning international resources to accelerate delivery of the environmental science-derived knowledge and capabilities, and underpinning of research and organisational challenges needed to deliver them. The IGFA Annual Meeting also exchanged views and opinions on how the four global change research programmes and Earth System Science Partnership (ESSP), Global Change System for Analysis, Research and Training (START) and the inter-governmental networks for global change research, the APN and Inter-American Institute for Global Change Research (IAI), could support the Belmont Challenge.



Belmont Forum/New IGFA

The Belmont Group convened in Elkridge, Maryland, USA, in June 2009 to discuss ways of re-structuring IGFA to make it better respond to the needs and high priority issues (new challenges) of global change research. The meeting was organised by National Science Foundation (NSF), USA, and Natural Environment Research Council (NERC), UK, and was attended by some officials from the 'most active national agencies that fund global change research,' the International Council for Science (ICSU) Executive Director and the IGFA Chair.

The 2009 IGFA Meeting endorsed the recommendations of the Belmont Group in that:

- a high level and policy group (or Council of Principals of IGFA) be established;
- the Belmont Group (now called Belmont Forum) be the IGFA Council of Principals (CoP), (i.e. not all IGFA members are represented at the CoP, however ICSU is now an official member of both CoP and IGFA);
- the IGFA Chairperson also be the Chair of CoP

The overall thinking behind the Belmont Challenge is to deliver knowledge needed for action to avoid and adapt to deleterious environmental change including extreme hazardous events. To fulfil these objectives the following activities are needed, according to the Belmont Forum: 1) regional and decadal analysis and prediction; 2) advanced observing systems; 3) integration with social sciences; and 4) effective coordination mechanisms; in the priority foci of the following:

- coastal vulnerability;
- freshwater security;
- ecosystem services;
- carbon budgets; and
- most vulnerable societies

The APN stressed that since its launch it has always been active, in the Asia-Pacific region, in the identified foci of the Belmont Forum, having manifold collaborations with a number of global change organisations and initiatives, as well as with many research projects, largely by providing financial support, among other activities. As the Belmont Challenge places strong emphasis on research, the APN strongly recommended the new IGFA to approach and communicate with developing countries, with their policy-makers and the science community. The APN is ready to be a strong partner in this endeavour.

IGFA via the Belmont Forum is also considering the establishment of 'Collaborative Research Actions (CRAs),' as high priority groups of experts, in order to promote collaboration between funding agencies by mapping existing activities and identifying opportunities for collaboration. Some areas were identified as CRAs in the January 2010 Meeting of the Belmont Forum, including climate services; coastal zone vulnerability; water security; carbon cycling – forests and agriculture; carbon cycling – ocean acidification; securing the biodiversity baseline; human health; bio and renewable energy; geoen지니어ing; and land use trade-offs.

The most important objective of the CRAs is to identify hot issues where IGFA member agencies may be interested to financially support, if possible collaboratively.

ICSU Grand Challenges in Global Sustainability Research

Dr. Deliang Chen, ICSU Executive Director, briefly presented on the recent discussions on the Grand Challenges and ICSU's way forward to respond to these challenges. While some remarkable overlap with Belmont Challenges has been identified (in the importance of observation, prediction and analysis, interaction with social sciences, effective coordination, etc.) the institutional structure of how to tackle the Grand Challenges is still not clear and needs further discussions within and outside of ICSU. Dr. Chen confirmed the importance of collaborating with inter-governmental networks, such as the APN and IAI, in addressing the challenges, being well aware of the crucial role these networks undertake.

NEWS FLASH (APN Partner Organisation) 3rd iLEAPS Science Conference, Garmisch-Partenkirchen, Germany, 18-23 September 2011. Prior to the Science Conference, iLEAPS organises the **Early Career Scientist Workshop (ECSW) entitled "Challenges and Chances of Interdisciplinary Collaboration in Land Ecosystem - Atmospheric Processes (LEAP) Science" on 16-17 September 2011.** A Post-Conference Workshop, "Challenges and Chances of Integrated Long-term LEAP Observatories" is organised right after the Science Conference on 25-26 September 2011 (by invitation only). For details: http://www.ileaps.org/science_conf_2011/

APN OUT AND ABOUT

APN at the Seventh Plenary Session and Ministerial Summit of the Group on Earth Observations (GEO-VII), Beijing, China, 3-5 November 2010

The Asia-Pacific Network for Global Change Research (APN) participated in the Seventh Group on Earth Observations (GEO-VII) Plenary Session and Beijing Ministerial Summit held on 3-5 November 2010 at the China National Convention Centre (CNCC), Beijing, China. APN was represented by Tetsuro Fujitsuka, APN Secretariat Director and Lizhier Coralde, Programme Fellow. This year's meeting attracted the most number of participants, with 54 delegations and 448 individuals.

Highlights of the Plenary Session and Beijing Ministerial Summit

With the theme "Observe, Share and Inform," the Ministerial Summit marked the first half of the Group on Earth Observation System of Systems (GEOSS) ten-year implementation for 2005-2015. In its first five years, GEO made significant progress demonstrated by the increased coordination of Earth Observation systems and by the accelerated trend towards the full and open sharing of data, and improved access to a broad range of data and information. However, there are still challenges that lie ahead and much work remains to be done.

On the first day of the Plenary Session, opening remarks were delivered by the session Chair, Zheng Guogong, Administrator of China Meteorological Administration, People's Republic of China; Manuela Soares, Director of the Environment (DIR-I), Directorate-General for Research, European Commission; Philemon Mjwara, Director-General of the Department of Science and Technology, Republic of South Africa; Sherbune Abbott, Associate Director for Environment, Office of Science and Technology, USA; and lastly by Jose Achache, GEO Secretariat Director.

The draft Beijing Declaration was disseminated for comments followed by the Report on Progress for information. Both documents were prepared for the Ministerial Summit. The next session proceeded with a discussion on GEOSS Implementation progress and highlights as well as preparation for the 2012-2015 Work Plan and GEO Committees.

On the second day, a consensus on the draft Beijing Declaration was reached and was succeeded by the acceptance and adaptation of reports and recommendations.

On the last day, the Beijing Ministerial Summit was held and Wan Gang from the Ministry of Science and Technology, China, delivered the Keynote Speech. He briefly reviewed the development of GEO, reported the major achievements in GEOSS implementation and enumerated new challenges facing its implementation. Finally, he encouraged GEO member states and participating organisations to



take more active steps and make more substantive contributions for the fulfilment of GEO missions.

The Beijing Declaration was presented followed by an introduction to the exhibition. The ministers visited the exhibit area and the summit continued with a presentation on GEOSS implementation progress and statements from Ministers, GEO members, Heads of participating organisations and by the GEO Co-chair Ministers. It successfully ended with the adoption of the declaration and closing remarks.

Side-events

Prior to the Plenary Session and Ministerial Summit, several side-events took place. APN was able to attend the "User Engagement Session" held 1-2 November 2010, organised by the Geo User Interface Committee. The goals of the side-event were to: 1) try to engage users in the processes involved in identifying and acting on their Earth Observation needs; 2) provide an opportunity to hear about what the other users are doing and how they are handling these challenges; and 3) provide an opportunity to discuss future directions. They invited speakers from the nine (9) Societal Benefit Areas namely, disaster, health, energy, climate, agriculture, ecosystems, biodiversity, water and weather to share what they do and eventually identify how GEOSS could help them perform it better.

APN also attended the "Symposium on the Data Sharing Action Plan for GEOSS and the Benefits of Data Sharing" held 2 November 2010. The symposium is part of an APN-funded project under **CBA2010-10NSY-Chen** entitled *Promoting a Data Sharing Environment within the Earth Observation System of Systems: The Asia-Pacific Perspective*. This project is led by Dr. Robert Chen, and is in close collaboration with the International Council for Science (CODATA) and Center for Earth Observation and Digital Earth (CEODE). The project highlights and promotes the importance of data sharing within and between Earth observation systems in the Asia-Pacific region for research and applications in GEO's key societal benefit areas. It aims to bring together major stakeholders in this region from both the scientific and policy communities to identify barriers to data sharing and appropriate strategies for overcoming them. Aside from this symposium, the project will also organise a workshop in the Asia-Pacific region in the next few months. The APN was duly acknowledged as one of the key sponsors of the side-event.

APN Representation

APN showcased its contributions and support to the GEOSS Implementation at the exhibition held in parallel with the plenary session and ministerial summit. Flyers and CD-ROMS were distributed containing all the recent APN information materials and publications. A special poster was produced highlighting the APN participation to GEO meetings, organised workshops and symposia and other completed activities conducted. It also summarised the completed and ongoing

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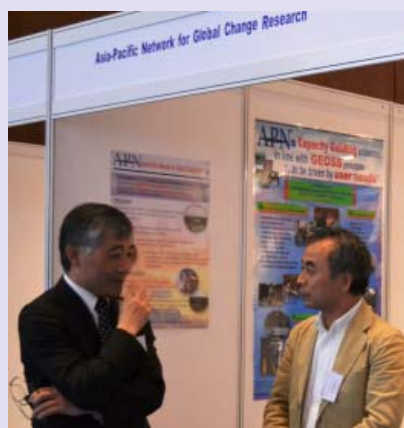
APN OUT AND ABOUT

GEOSS-related projects that the APN had funded which were aimed particularly at promoting better data collection, analysis and dissemination, open access to existing and new datasets and access to research materials and sites. As part of its contributions to GEOSS, the APN is now in the process of strategically incorporating these data sharing principles in the new dynamic component of the APN website which will be launched early in 2011.

The event provided an excellent opportunity for APN to strengthen its relationship with the GEO Community and other organisations and to promote its activities not only in the Asia-Pacific Region but also in the wider international arena. They were also able to meet with some of the project leaders and collaborators who expressed their deep appreciation for APN's strong support to their activities.

APN will continue to support the goals of GEO by continuing to strengthen its policy on data access and data sharing/management; sustain its support in promoting GEOSS-related programmes; strategically collaborate with key organisations who have similar goals; and continue to engage in GEOSS-related events.

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(from left) Dr. Toshio Koike, APN project leader and Professor at the University of Tokyo, Japan and APN Secretariat Director, Mr. Tetsuro Fujitsuka at the booth

Updated Information on Emerging Scientific Findings and Research Outcomes

SBSTA33 Side Event

Cancun, México, 2 December 2011

The APN participated in the 33rd Meeting of the Subsidiary Body for Scientific and Technological Advice (SBSTA33), held in conjunction with the 16th Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC COP16), held December 2010 in Cancun, Mexico. In a United Nations Framework Convention on Climate Change (UNFCCC)-coordinated Side Event on 2nd December entitled "Updated Information on Emerging Scientific Findings and Research Outcomes," regional and international research organisations highlighted emerging scientific findings to an audience of 150 participants. The Side Event featured research activities of the Earth System Science Partnership (ESSP), represented by its Global Carbon Project (GCP); the Global Change Programmes (World Climate Research Programme [WCRP] representative), the Inter-American Institute for Global Change Research (IAI), the European Union Seventh Framework Programme for research and technological development (EU FP7), the Intergovernmental Panel on Climate Change (IPCC) and the APN.



The floor was opened by the Chair of the Session, Mr. David Warrilow, who invited Ms. Rocio Lichte, the UNFCCC Secretariat



representative, to welcome the participants and to introduce the event as an informal dialogue between Parties and scientific research programmes and organisations.

The first speaker, Dr. Ghassem Asrar, Executive Director of WCRP presented the emerging science from WCRP, the International Programme on Biodiversity Sciences (DIVERSITAS) and the International Geosphere-Biosphere Programme (IGBP). He stressed current and future research activities of the Global Environmental Change (GEC) programmes.

The Co-Director of the Woods Hole Research Center, Dr. Richard Houghton, summarised the last findings of the Carbon Budget, a core project of the Global Carbon Project. He showed where current and expected carbon dioxide (CO₂) emissions are with respect to the IPCC Fourth Assessment Report (AR4) emission scenarios. Moreover, he analysed the pattern of changing emission intensities for different group of countries. The end of his talk he dedicated to CO₂ sinks and possible future path of CO₂ emissions.

IAI Principal Investigator, Dr. Kam-Biu Liu, of the collaborative research network (CRN) project on "Paleotempestology in the Caribbean Region," summarised recent findings from his project. He also talked about his collaboration with another project led by Graciela Binimelis de Raga, from Universidad Nacional Autónoma de México that deals

with track prediction of tropical cyclones in the North Eastern Pacific basin. Together, their studies provide important scientific insight that are useful for decision-makers engaged in the prevention of hurricane hazards and the assessment and reduction of vulnerabilities to cyclones.

Dr. Elisabeth Lipiatou of the European Commission spoke on behalf of the EU FP7. She spoke

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about recent scenario developments related to ocean acidification in the European Project on Ocean Acidification (EPOCA) project. In particular, Dr. Lipiatou highlighted that the pH of the Iceland sea has declined by 1.5 times that of temperate Atlantic ocean and some coastal upwelling systems appear as vulnerable as polar regions. Most notable alterations on cold water spider crab, for example, in the next decades are likely to be in community composition and respiration rates; caused by the combined effect of temperature rise and CO₂.

Prof. Jean-Pascal van Ypersele, Vice Chair of the IPCC and Dr. Ramón Pichs, Co-Chair of Working Group III both spoke on behalf of the IPCC. The IPCC presentation focussed on emission scenarios and plans for the IPCC 5th Assessment Report (AR5). In particular, the IPCC representatives highlighted that the work of the IPCC will aim to provide the best science assessments for the policy arena while, at the same time, ensuring that the information provided is policy-relevant and not policy-prescriptive.

Following the presentations, the Chair allowed an intervention from Dr. Linda Anne Stevenson of the APN. Dr. Stevenson pointed out that, in its most recent submission to SBSTA33 the APN provides key information on a number of the outcomes of its special focus activities on Scientific Capacity Building for Climate Impact and Vulnerability Assessments. In particular, the information draws attention to two key areas: Capacity Building on the Integration of Science and Local Knowledge for Climate Impact and Vulnerability Assessments in Southeast Asia using SimCLIM modeling techniques; and Climate Change Vulnerability Assessments and Urban Development Planning for Asian Coastal Mega-Cities, organised by Global Change System for Analysis, Research and Training (START) and the East-West Center, USA. She noted that the latter, in particular, provides key information with regards to knowledge gaps and recommendations for future research, which were identified by scientists and urban planners in five mega-cities of Asia - Mumbai, Ho-Chi Minh City, Bangkok, Jakarta and Manila.

The Side Event also had the participation of the Chair of SBSTA, Mama Konaté and the UNFCCC Executive Secretary, Christiana Figueres. In her concluding remarks, Ms. Figueres highlighted the



APN with the key partners in the global change community

important value of science at three levels: to raise public awareness of the issues; to guide policy-making at the national level; and to guide policy-making at the regional and international levels. "The history of this Convention proves that the policy response is always trying to catch up with science and that science is always a step ahead of policy-makers so you need to show them the way," she said. The fact that climate change science is so heavily attacked shows, according to her, its growing importance. She emphasised the need to strengthen the research dialogue under SBSTA so that the Convention can receive scientific input from research organisations more regularly and in between reports provided by the IPCC, the leading international body for the assessment of climate change. "The period between IPCC reports is 5 years; what do we do in between, when we meet at in 6-month periods? We need much faster, more timely input from science." And, stressing the important work of research organisations, she added, "Rest assured, we'll be knocking on your door repeatedly."

SBSTA Chair, Mama Konaté, pointed out that there are a number of science topics that are of great importance at the regional level, such as vulnerability assessments and adaptation, sea-level rise, ocean acidification and pathways regarding scenarios. He also focussed on the need to strengthen communications with policy-makers and called attention of the participants to the dialogue meeting and pre-workshop to be held at the next SBSTA session, in June 2011.

More information on this side-event and presentations are available at: http://unfccc.int/methods_and_science/research_and_systematic_observation/items/5847.php

This report was prepared by Lone Anderson (IAI), Linda Anne Stevenson (APN) and Ada Ignaciuk (ESSP).

ICSU/ESSP Side Event, Cancun, Mexico, 3 December 2010

The International Council of Sciences (ICSU) and the Earth System Science Partnership (ESSP) organised a Side Event held in conjunction with the 16th Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC COP16), on the 3rd December in Cancun, Mexico. In this event entitled "Emerging Scientific Findings and Research Outcomes," joint projects of the ESSP and Climate, Agriculture and Food Security (CCAFS), the collaborative research project with the consultative Group on International Agricultural Research (CGIAR) community, highlighted emerging scientific findings to an audience of over 100 participants, ranging from negotiators, scientists, inter-governmental organisations (IGOs), non-governmental organisations (NGOs) to engineers.

The floor was opened by Dr. Ada Ignaciuk, ESSP Science Officer, who welcomed the participants on behalf of ICSU and the ESSP. She introduced the audience to the partnership and talked about the structure

and purpose of the side event, which was an informal step toward the ongoing successful dialogues between parties and the research community. Dr. Ignaciuk then introduced one of the Co-Chairs of the event, Dr. Bruce Campbell, Executive Director of the CGIAR/ESSP joint initiative Climate CCAFS. Dr. Campbell introduced CCAFS as a collaborative initiative between ESSP and CGIAR, pointing out that CCAFS is a unique Challenge Program that links agricultural specialists and global change researchers. Its goal is to enhance the understanding of food security issues in changing world.

Mr. David Warrilow, the other Co-Chair of this session, expressed his views of European Union (EU) representation concerning the future of science-policy dialogues. He briefly sketched the history of the ongoing dialogue, noticing an increasing interest of parties in their participation in the ongoing dialogue with researchers and expressed his gratitude

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Ione Anderson (IAI) and Linda Anne Stevenson (APN) at UNFCCC COP16

to those researchers for being open and willing to continue to raise awareness of the importance of climate change science. He expressed his hope of the international science institutions continuing to provide an unbiased advisory service to the negotiating process.

Importantly, he noted, this would be complimentary to the assessment processes of the Intergovernmental Panel on Climate Change (IPCC). Towards the end of his presentation, Mr. Warrilow advocated the organisation of a workshop by the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat, to be held in Bonn prior to the 34th Session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 34), as an excellent opportunity to strengthen the dialogue further, in particular in widening the base of the presenters; identifying key issues of interest ahead of the dialogue meetings; broadening the appeal of the dialogue; more routine relevant news from the research community to the UNFCCC and vice versa; and introducing more about solutions-based technologies and research on responses.

After hearing the views of the parties, Dr. Campbell invited the first speaker, Dr. Richard Houghton, Co-Director of the Woods Hole Research Center and representative of the Global Carbon Project. Dr. Houghton introduced the emerging findings from the most recent Carbon Budget.

The new data available confirmed that emissions are on the high end of the IPCC Fourth Assessment Report (AR4) scenarios. There was, however, a slight decrease of emissions in 2009, attributed to the global financial crisis. He noted, however, that the emission patterns are expected to rebound strongly in 2010 due to global economic recovery. He also talked about the large increase in carbon dioxide (CO₂) emissions per capita of the developing nations compared with a drop for AnnexA countries per capita in 2009.

Land Use emissions decreased due to a slower rate of deforestation and the introduction of afforestation programs. He noted that the variability of sinks is large but, on average, they absorb around half of human-induced CO₂ emissions. To this end he expressed his opinion that, with current and continuous inaction, the probability of stabilising temperatures by 2100 to less than a 2°C increase compared to pre-industrial times, is not possible.

The second speaker, Prof. Diana Livermann, Chair of the Global Environmental Change and Food Systems Programme (GECAFS), advocated strongly that research must be conducted in food systems in a holistic manner, in order to both feed the growing population and to reduce the negative impacts of whole production systems. She stressed that around 40% of emissions attributed to food come from sources

other than production, namely; consumption, disposal, distribution and processing. In addition, she noted that increasing food prices are a large concern to the GECAFS Programme.

Currently, the increase in world prices for basic grains has placed millions of people at risk of extreme poverty. She also pointed out those areas where further research will be conducted concerning issues related to both food systems and food security. Finally, Prof. Liverman noted the GECAFS message:

A food systems approach identifies two-way interactions between Global Environmental Change (GEC) and food security and allows the analysis of multiple food system outcomes, which will result in food security, ecosystem services and social welfare.

The third speaker, Dr. Ebi, Executive Director of the IPCC Working Group (WG) II Technical Support Unit, opened her talk with a general slide on how climate change can affect human health as outlined in the IPCC AR4. With very high confidence, the impacts will include: increasing malaria; increasing malnutrition; injuries attributed to extreme climate events; more cardio-respiratory diseases; and changes in vector borne diseases; all of which are attributable to our changing climate. She stressed that the most vulnerable are children up to 5 years old and old people.

Dr. Ebi also stressed that there are many ways in which global environmental change will affect health; including via urbanisation; changing atmospheric conditions; and changing food production and consumption patterns. If the system can be better understood, better attribution of the impacts of climate change to human health can be determined. A system-based approach is very likely to improve the understanding of projections of future health risks and help to identify the need for additional adaptation. She stressed that inaction will likely result in costs double that of the current health system by 2030.

Following the presentations, the floor was opened for discussion. In addition to the opinions expressed from the floor, Mr. Warrilow invited the participants to think of ways to better formulate and strengthen the future. In this context, an Engineering Researcher from Cambridge University in the United Kingdom (UK) expressed the importance of solutions, particularly as, for example, the UK aims to reduce its emissions by 80% in 2050; in order for engineers to fit into the equation of solutions-based responses, more integration is needed.

Acknowledgement: The ESSP expressed its sincere gratitude to the speakers for sharing their experiences at this successful side event. In addition, ESSP thanked Ione Anderson of the IAI and Linda Anne Stevenson of the APN who helped organise the smooth running of the side event vis-à-vis photography, note-taking and catering.



APN Executive Science Officer, Dr. Linda Anne Stevenson (left) meets ESSP Science Officer, Dr. Ada Ignaciuk (right)

FEATURED SCIENTIST/RESEARCHER

Involvement in APN Project Results in Winning Research Proposals on Climate Change Adaptation Science

My major field is in Environmental Science and a cognate in Agricultural Economics provided strong foundation in interdisciplinary/transdisciplinary research frameworks and approaches such as agroecosystem analysis, environmental impact assessment (EIA) and ecosystem services assessment and valuation. These require the integration of biophysical and socio-economic research methods and the use of analytical tools and software such as Geographic Information System (Arcview/ArcGIS), and the STELLA dynamic simulation model.

The first climate change research I conducted was a re-entry project as a graduate Philippine Council for Agriculture, Forestry, and Natural Resources and Development (PCARRD) scholar in 2007 titled "Assessment and valuation of greenhouse gases mitigation of climate-friendly farming practices in lowland rice agroecosystems in Isabela, Philippines." Assessment of methane (CH₄) based on the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines was conducted in 30 selected Irrigators Associations in National Irrigation Administration-Magat River Irrigation System District 2 covering 7,789.34 hectares (ha) service area in 2008. Existing farming practices (continuous flooding and incorporation of 4-5 tons/ha rice straws) emits 5,882.93 tons CH₄/yr.

Mid-season drainage results to 2,823.81 tons CH₄/yr or 48% emission reduction; aerobic composting results to 3,756.44 tons CH₄/yr or 64% emission reduction; and simultaneous drainage and composting results to 4,777.16 tons CH₄/yr or 81% emission reduction. Values of emission reductions based on 2009 World Bank price of US\$12/ton CO₂e using P48/\$ exchange rate are P34.16 million/yr, P45.44 million/yr, and P57.78 million/yr for mid-season drainage, aerobic composting and simultaneous drainage and composting, respectively.

In 2008, I was referred by PCARRD to Dr. Linda Peñalba (APN Project Leader) to join as research partner for Isabela in their APN-project titled "Enhancing the Adaptive Capacity of Local Government

Units (LGUs) and Scientists in the Philippines." This action research not only opened an opportunity to practice and apply the integrated research methods, but also provided insights on the importance of partnerships among the LGUs and their constituent communities as well as researchers/scientists

from various academic disciplines for climate change vulnerability assessment and adaptation planning. In 2009, two fora to raise climate change awareness and present research results were held at the Municipality of Ilagan, Isabela which was attended by LGU officials and staff and a "Regional Climate Change Forum" at Isabela State University, Echague Campus which was attended by students, faculty and researchers of the Cagayan Valley Agriculture and Resources Research and Development Consortium (CVARRD).

As an off-shoot of my involvement in the above-mentioned APN-supported project and with my strong theoretical, methodological and practical application in transdisciplinary research and earth system science, several of my climate change adaptation research proposals were accepted for funding support by various donor institutions such as the following: "Climate change vulnerability mapping and geo-spatial analysis in Cagayan River Basin, Philippines" funded by Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)-Seed Fund for Research and Training (SFRT); "Climate change vulnerability and impact assessment of agriculture, forestry and natural resources (AFNR) Sectors in Cagayan Valley" funded by Department of Science and Technology (DOST)-PCARRD; and "Climate change research, adaptation, advocacy and awareness building in Cagayan Valley" funded by the Commission on Higher Education (CHED).



Januel P. Floresca

This year's ten (10) SFRT grant recipients, including Dr. Januel Floresca, were announced during the SEARCA's 44th Anniversary Celebration held on 19 November 2010 at SEARCA. Launched in 2005, the SFRT is a competitive SEARCA grant open to researchers and scientists from Southeast Asia. It aims to contribute to the development of the region by providing seed funding for research and knowledge dissemination initiatives. So far, SEARCA has given 50 SFRT grants to research proposals coming from Cambodia (2), Indonesia (8), Lao People's Democratic Republic (3), Malaysia (1), Myanmar (3), Viet Nam (14), and the Philippines (19).

Dr. Januel Floresca obtained his PhD in Environmental Science and MS in Environmental Studies at the School of Environmental Science and Management (SESAM), University of the Philippines Los Baños in 2007 and 2000, respectively. He graduated with a BS in Agricultural Engineering at Visayas State College of Agriculture VisCA and now Visayas State University (VSU), Philippines in 1991. He is currently holding the position of Assistant Professor III at the Isabela State University, Echague, Isabela, Philippines.

NEWS FLASH (APN Announcement) APN Call for Poster Presentation Abstracts in Global Change Research.

The APN is inviting poster presentation abstracts for its *Networking and Poster Session* that will be held on 6 April 2011, Wednesday, on the occasion of the APN 16th Inter-Governmental Meeting (IGM) and Scientific Planning Group (SPG) Meeting, which is officially being hosted by the Ministry of Environment, Government of Sri Lanka, at the Taj Samudra Hotel, Colombo, Sri Lanka. The Session will provide up to 20 young scientists with an opportunity to display and present their research work to invited esteemed members of the scientific and policy communities from within and outside of the Asia-Pacific region. Winning poster will have the opportunity to present a 20-minute PowerPoint presentation to the 16th IGM/SPG Meeting on Friday, 9 April 2011. For more information on this Call and to view eligibility criteria and guidelines for abstract submission, visit the APN website: <http://www.apn-gcr.org/newAPN/news/globalChangeAnnouncements.htm>

ARCP2010-01CMY-Sthiannopkao: Collaborative Research on Sustainable Urban Water Quality Management in Southeast Asian Countries: Analysis of Current Status and Development of a Strategic Plan for Sustainable Development, Dr. Suthipong STHIANNOPKAO

3rd GIST-APN Joint Meeting on Sustainable Urban Water Quality Management in South East Asian Countries, Quezon City, Philippines, 15-16 November 2010

The Gwangju Institute of Science and Technology (GIST), together with the United Nations University (UNU) and the University of the Philippines (UP) College of Engineering gathered water professionals across the South-East Asia Region for the "3rd GIST and APN Joint Meeting on Sustainable Urban Water Quality Management in Southeast Asian Countries," which took place at the National Engineering Center AVR-A, University of the Philippines, Diliman, Quezon City, Philippines, on 15-16 November 2010.

This joint meeting brought together leaders in research, practice, academia and policy-making from across the region. The participants and speakers are renowned experts in their fields and represent some of the leading institutions and political units in the region.

The joint meeting was third of a series. The first meeting was held in Bangkok Thailand and participants discussed plans on how to strategically conduct the project activities. The second was a workshop held in Ho Chi Minh, Viet Nam and focussed on Strategic *Policies for Sustainable Urban Water Quality Management*. The next meeting is planned to be held in Bali, Indonesia. All four meetings are project activities of the APN-supported project ARCP2010-01CMY-Sthiannopkao led by Dr. Suthipong Sthiannopkao of GIST who expressed sincere gratitude and acknowledged APN for its support.

Dean Aurea Matias of the College of Engineering provided welcoming remarks and highlighted the significance of sustainable urban water quality management to address not only water quality issues but other cross-cutting issues as well like waste management and climate change. Ms. Kristine Garcia, Coordinator of the APN Secretariat reinforced the message of Dean Matias by informing the participants that the issue is highly important in the Southeast Asia sub-region in particular as this was identified by the APN members as a priority issue under the broader framework of *low carbon society aiming at green growth through sustainable development focusing on integrated waste management in urban communities* in the APN 3rd Southeast Asia Sub-regional Cooperation Meeting that was held also in the Philippines previous to the joint meeting. The joint meeting was officially opened by Dr. Sergio Cao, UP Chancellor.

Scientists, policy-makers, and national organisations from six countries (Cambodia, Indonesia, Philippines, Republic of Korea, Thailand and Viet Nam) presented on recent developments in researches and policy-making processes on urban water quality management and other cross-cutting issues in selected rivers and watershed areas in their respective countries.

A special session for Philippines participants was allotted to share success stories of initiatives and policy implementation related to water quality issues across some areas in the country. One of the session highlights was the notable improvement in some tributaries of previously proclaimed biologically dead river, the



Pasig River. Ms. Gerald Samson, Deputy Director of the Alto Broadcasting System-Chronicle Broadcasting Network (ABS-CBN) Foundation in the Philippines, noted that the project would not be successful without close collaboration among the stakeholders, policy-makers, institutions and local communities who reside within the river boundaries. The commitment of local government units as well as institution leaders is also one of the key factors for effective project implementation.

Professors from the School of Environmental Science and Engineering (SESE) of GIST shared opportunities and cutting-edge research of their institutions on water quality management in Korea in another special session. They encouraged participants to have stronger collaboration with them and APN to continually enhance research and effectively address governing issues.

Prof. Hor-Gil Hur, Coordinator of UNU-GIST Programme officially closed Day 1 of the meeting by thanking everyone for sharing recent research developments, new ideas and for their dynamic participation in the joint meeting. The following day was allotted for a closed meeting among the APN project members to plan the next steps in implementing succeeding project activities and recruit new members to the Asia-Pacific Network Southeast Asian Water Environmental Database (APN-SEAWED).

APN-SEAWED (<http://www.apn-seawed.com/>) is a collaborative research project between scientists and policy-makers in the Southeast Asia region. Focussing on sustainable urban water quality management, the main objectives are to: 1) build a database, as well as project participants' capacity; and 2) provide data analytical tools to both scientists and policy-makers in Southeast Asia. This project is supported by the APN and International Environmental Research Center (IERC) and endorsed by Urbanisation and Global Environmental Change Project (UGEC) of International Human Dimensions Programme on Global Environmental Change (IHDP).

Please feel free to also visit: <http://www.apn-gcr.org/newAPN/news/apnUpdates/2010/apnUpdates-022.htm>.

ARCP2010-09NSY-Patankar: Enhancing Adaptation to Climate Change by Integrating Climate Risk into Long-Term Development Plans and Disaster Management, Dr. Archana M. PATANKAR

It is now widely accepted that impacts of future climate change will often be observed through changes in the magnitude and frequency of existing climate-related hazards. Therefore, disaster risk reduction and management are important strategies for integrating or mainstreaming adaptation into decision-making. With this in view, the APN is supporting a research project entitled *'Enhancing adaptation to climate change by integrating climate risk into long-term development plans and disaster management'* being carried out in three Asian cities of Mumbai (India), Bangkok (Thailand) and Manila (Philippines).

The project aims to undertake a comparative analysis of the immediate to medium-term post-disaster recovery scenario in the aftermath of extreme weather events of flooding faced by vulnerable cities in the above-mentioned countries and examine the impacts on the magnitude and direction of the development trajectory of these cities. Secondary data pertaining to the selected extreme events of flooding and their resultant physical, economic, environmental and social impacts in the case study cities will be analysed. The comparative analysis will then be carried out to understand the policy implications of extreme weather events for disaster management, adaptation strategies, city resilience and development planning in the long term.

The research project was formally launched in December 2010. As the inception activity, the project collaborators from Mumbai, Dr. Archana Patankar, K. J. Somaiya Institute of Management Studies and Research (SIMSR) and Prof. Anand Patwardhan, Indian Institute of Technology Bombay (IIT-Bombay) jointly conducted a workshop on 'Climate Change Vulnerability and Adaptation Planning for Urban Areas' in Mumbai, India on 17-18 December 2010. The workshop brought together experts from academia, local government authorities, urban planning, corporate organisations and non-governmental organisations to discuss and deliberate upon the vulnerability of cities to climate change and efforts at mainstreaming adaptation strategies into long-term development planning of the cities. During the two-day workshop, invited experts discussed different themes such as, urban challenges and climate risks, vulnerability assessment, specific aspects related to economic and social vulnerability and mainstreaming adaptation and linkages with development planning.

The workshop was inaugurated by the Additional Municipal Commissioner Mr. Aaseem Gupta, Municipal Corporation of Greater Mumbai (MGCM). Mr. Gupta, in his inaugural speech, welcomed the inputs that will come from the APN research project for the development plan that the city administration is currently preparing for implementation in 2014. The workshop sessions began with the presentation of the findings of the study sponsored by the Organisation for Economic Cooperation and Development (OECD) titled 'Flood Risks, Climate Change Impact and Adaptation Benefits in Mumbai'. This study characterised the vulnerability associated with the 2005 catastrophic flooding event in Mumbai. The report of this study is a good starting



Flooding in Mumbai, India

point for the APN project in order to characterise the response to the 2005 event and similar events in Bangkok and Manila and also examine the recovery process to learn important policy lessons for adaptation planning in the three (3) cities.

The technical session on urban challenges and climate risks began with the presentation by an eminent urban planner from MMRDA, Mr. Vishwas Patil who gave an overview of the urban planning process in Mumbai and the focal areas of planning. Mr. Patil also stressed on the fact that climate risks have never been accounted for separately and specifically in the urban plans. This session also saw active participation and presentation from the officials of MCGM, in particular, the Disaster Management Cell and Environment and Solid Waste Division. The participants learned about the urban local body's efforts at augmenting the storm water drainage network keeping in view the frequent flash flooding that Mumbai is subjected to.

"...with millions of people residing in vulnerable cities in the Asian developing countries, the risk to life and property increases manifold with vulnerability to extreme weather events such as flooding. Disaster risk reduction and management are important strategies to integrate or mainstream adaptation into decision-making..."

The session on vulnerability assessment witnessed discussion on vulnerability indices, hazard assessment and vulnerability assessment case studies for Metro Manila (presented by Prof. Emma Porio, project collaborator, Ateneo de Manila University) and for the city of Ahmedabad in the state of Gujarat

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ARCP-Funded Project

ARCP2010-09NSY-Patankar: Enhancing Adaptation to Climate Change by Integrating Climate Risk into Long-Term Development Plans and Disaster Management, Dr. Archana M. PATANKAR

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in India (presented by Dr. Ajay Katuri, Centre for Environmental Planning and Technology). Dr. Anupa Ghosh, associated with the Global Change Research Centre at Jadavpur University, Kolkata emphasised on how existing adaptation strategies were ad-hoc in nature and it was mostly local adaptation that happened with the community initiative.

The sessions on economic and social vulnerability and mainstreaming adaptation planning saw a wide range of presentations including characterising informal sector vulnerability (Prof. K. Narayanan, IIT Bombay), social vulnerability assessment in Thailand (Dr. Wijitbusaba Marome, project collaborator, Thammasat University) and notable presentations by industry representative on infrastructure development and climate risks and civil society representative on the societal perspective of adaptation and development. At the concluding session, the proposed methodology of the project was presented to the participants for their further inputs. There was keen interest in the project activities and the participants gave good suggestions on the methodology for comparative analysis in the three cities.

Overall, the inception workshop for the project was a success in terms of the interest that the theme has generated among the academia, industry and most importantly, the

Researchers to study how cities can cope with climate change

SOLUTION Experts say local adaptation is needed to solve flooding problem

HT Correspondent
timesofindianexpress.com

MUMBAI: Researchers in Mumbai, Manila and Bangkok will soon study how to enhance the capacity of the three cities to adapt to climate change.

The research project, which will be funded by Asia Pacific Network (APN) for Global Change, was launched at a two-day conference held in the city on Friday. It will be carried out in coordination with the Indian Institute of Technology-Bombay (IIT-B), the Somajit Institute of Management Studies and Research (SIMSR) and the universities of Thailand and Manila.

"The problems in these cities are similar being coastal cities and financial capitals of their respective countries," said Dr Archana Patankar, assistant professor, SIMSR, during a two-day conference on Friday. She added that the study would be completed in a year.

The conference, Climate change vulnerability and adaptation planning for urban areas, was organised in the city by SIMSR and IIT-B. Experts from

CASE STUDY REPORT



- Climate risks and adaptation planning: Case Study of Mumbai, a report prepared by Archana Patankar and Anand Patwardhan records that Mumbai is likely to be highly vulnerable to climate change with a majority of its population living in flood prone and reclaimed land.
- Quoting recent international studies, the report states: "The most damaging scenario for the city would be the predicted sea-level rise of 50 cm by 2050."
- A 2008 study by Organization for European Economic Cooperation and Development places Mumbai among the top 20 cities with greatest exposure to extreme sea-level and with greatest exposure to wind damage from tropical cyclones.

India, Philippines and Thailand discussed the impact climate change in South East Asian countries.

Dr Anupa Ghosh, an expert of global climate change at Jadavpur University Kolkata said "Only relief and rescue would not put an end to the flood-related problems we need local adaptation to the problem of flooding".

Discussing the health concerns from pollution, Dr Amrita Athavale, head of the department of environment, pollution research centre at KJ Somaiya Hospital, Parel, said "Asthma in the city is as high as 40% in some areas where 10-20% at other depending on trigger factors like dumping

grounds, construction sites, low lying areas causing dampness." Two years ago, Dr Athavale had conducted detailed study in Ghera changing ground region, which has huge number of asthma cases.

The Greater Mumbai Disaster Management Action Plan prepared by the state government in 2007 to identify the risks and vulnerabilities associated with floods, cyclones, earthquakes and outline the measure to deal with these vulnerabilities was also discussed. "The DMAP" though comprehensive on paper does not provide any scientific timeframe for achieving the mitigation measures. No specific attention is given to adaptation strategies which may be more important in the short to medium term to deal with the climate risks of flooding, storms and cyclones," said Patankar in a paper circulated during the conference.

The second day of the workshop will have three technical sessions discussing adaptations and solution to the climate-related problems. Also experts will throw some light on the methodology of the APN project.

The project was featured in a major Northern Indian English Language Daily Newspaper in India, Hindustan Times

local government authorities. The project team is thankful to APN for providing the financial support to pursue an interesting research theme. The team members sincerely hope that the project output will contribute to greater understanding of the adaptation planning to cope with extreme weather events and mainstreaming such efforts into the long-term development plans of the vulnerable cities.

ARCP2010-18NMY-Lutaenko: Coastal Marine Biodiversity of Viet Nam: Regional and Local Challenges and Coastal Zone Management for Sustainable Development, Dr. Konstantin LUTAENKO

International Conference on Marine Biodiversity of East Asian Seas: Status, Challenges and Sustainable Development Nha Trang, Viet Nam, 6-7 December 2010

The APN Project ARCP2010-18NMY-Lutaenko is studying marine biological diversity in coastal zones of the South China Sea with emphasis on Viet Nam, its modern status, threats, recent and future modifications due to global climate changes and human impact, and ways for its conservation. The project involves participants from three countries (Republic of Korea, Russian Federation and Viet Nam) and they are expected to contribute in developing recommendations for policy-makers, to attract young scientists in biodiversity studies which is especially important for the "thin-layered" taxonomic community, and to prepare a summary book. As a part of the planned project activities, the International Conference *Marine Biodiversity of East Asia Seas: Status, Regional Challenges and Sustainable Development* was held at the Institute of Oceanography, Vietnam Academy of Science and Technology in Nha Trang on 6-7 December 2010.

Over 30 participants attended the meeting and among them were scientists from five countries (Germany, Japan, Republic of Korea, Russian Federation, Viet Nam), representatives of some Vietnamese government agencies (Ministry of Agriculture and Rural Development and Vietnam Administration of Seas and Islands) and international organisations (SCOR – Scientific Committee on Oceanic Research). The meeting included four sessions (Physical forcing to marine biodiversity: sea water chemistry, water motion, currents; Climate/global environmental changes and possible effects on marine biodiversity in East Asia; Marine biodiversity; Physiology and reproduction of the marine organisms). Forty-seven (47) full-length papers submitted by the participants were published prior to the meeting (T.N. Dautova and K.A. Lutaenko [Eds.]. Proceedings of the International Conference *Marine Biodiversity of East Asian Seas: Status, Challenges and Sustainable Development*, Nha Trang, Vietnam, December 6-7, 2010. 202 pp.).

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ARCP2010-18NMY-Lutaenko: Coastal Marine Biodiversity of Viet Nam: Regional and Local Challenges and Coastal Zone Management for Sustainable Development, Dr. Konstantin LUTAENKO

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The main topics discussed were global climatic and environmental changes in the basin of the South China Sea, coral reefs ecosystems, their state, diversity and management, biodiversity of various animal and plant groups, especially fish, molluscs, soft corals, barnacles, amphipods, echinoderms,

intertidal macrobenthic communities, and ecology and physiology of marine organisms. Dr. Vo Si Tuan (Institute of Oceanography, Vietnam Academy of Science and Technology [VAST], Viet Nam) in his presentation emphasised the importance of restoration and management of coral reef ecosystems in Viet Nam: these ecosystems are the most productive, benefitting and contributing to the Viet Nam economy but the overheating of the corals in shallow waters leads to the bleaching and subsequent death of corals, and more than 30% of coral reef ecosystems in Viet Nam coastal waters are under threat from human and natural processes.

Prof. Nguyen Chu Hoi, Chairman of ASEAN Working Group on Coastal and Marine Environment, presented an overview of threats to ecosystem services of tropical peatlands and mangroves in Southeast Asia, and proposed that the following actions be implemented in order to effectively conserve and sustainably use the peatland and mangrove ecosystems: encouraging the actions at national and local level with technical assistance from the international and regional programmes such as Mangroves for the Future (MFF), Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), Associations of the Organisation of Southeast Asian Nations (ASEAN) Centre for Biodiversity (ACB); improving the regional policy and institutional framework of coastal and marine biodiversity management in a new climatic regime; increasing exchange of experiences and lessons learnt from both sides of ASEAN and dialogue countries, especially Europe; developing and



implementing an Asia-Europe joint programme on peatland and mangrove sustainable use; and developing coastal green corridors to capture carbon and protect coastal areas.

Dr. Konstantin Lutaenko's (Institute of Marine Biology, Far Eastern Branch, Russian Academy of Sciences, Vladivostok) provided information on bivalve molluscan biodiversity in the South China Sea as one of the most rich groups in the tropics with more than 1,200 species in the region and highlighted the importance of the concept of high biodiversity in the so-called "East Indies Triangle," or Coral Triangle: the ranges of many tropical marine species overlap in a centre of maximum biodiversity located in the Indo-Malayan region (Malaysia, the Philippines, Indonesia, and Papua New Guinea). However, there are many problems in understanding tropical marine biodiversity such as the lack of taxonomic expertise in many countries surrounding the South China Sea including Viet Nam. Challenges confronting biodiversity specialists in the region include lack of literature, difficulties in disseminating data, and general lack of governmental commitment to develop biodiversity research to its full potential.

Capacity building in biodiversity science is very important and to assure the future development of Viet Nam and the management of biodiversity, young scientists must be trained. The conference was concluded with a discussion on future collaboration and a preparation of an overview book summarising to some extent the knowledge of the state of coastal marine biodiversity in Viet Nam and recommendations for policy-makers. The exchange

of research findings and views on coastal zone management with respect to biodiversity among scientists and governmental representatives was very productive and also helped in identifying potential authors of the synthesis book. Proceedings of the conference can be downloaded at: http://www.imb.dvo.ru/misc/vietnam/index.php?option=com_content&view=article&id=53&Itemid=59 or at the APN website: http://www.apn-gcr.org/newAPN/activities/ARCP/2010/ARCP2010_18NMY_Lutaenko/ProceedingsBiodivNhatrang2010.pdf.



ARCP-Funded Project

ARCP2010-07CMY-Bai: Asian Coastal Ecosystems: An Integrated Database and Information Management System for Assessing Impact of Climate Change and its Appraisal, Dr. V. Ramani Bai

ARCP-Funded Project

Training Workshop on Climate Change and Data Information Management System Development, Kuala Lumpur, Malaysia 1-3 December 2010

Introduction

The Asian coastal region is defined by environmental and economic conditions that transcend state and country boundaries, representing a host of critical integrating and conflicting factors such as mineral resources, fisheries production, ecological habitats for marine life and waterfowl, and human demands with subsequent anthropologic impacts. As more research is being conducted in the region to help understand these conditions and factors, it becomes crucial to make research results, information, and data accessible to all. Understanding the Asian coastal region's ecosystems and its changes is dependent on the quality of documenting and modelling the interrelationships of physical, chemical, and biological parameters.

The Project

The APN-funded project on Asian Coastal Ecosystem: An Integrated Database and Information Management System (DIMS) for Assessing Impact of Climate Change and its Appraisal (Project Reference: ARCP2010-07CMY-Bai) led by Dr. Ramani Bai Varadharajan, Department of Civil Engineering, University of Nottingham in Malaysia aims to create data information management system for the Asian coastal region through implementation of a data driven website and relational database consisting of climatic, geologic, ecologic, biologic (both quality and quantity) information, and spatial data. The integrated database will be searchable by keyword, data type, location, and other criteria as the data dictate. Important element of database information management system is to have coastal resource. This usually requires a great deal of data, and an information system that can provide tremendous assistance in organising, managing, understanding, and reporting this information.

Together, relational databases and Geographic Information System (GIS) provide powerful tools for organising and analysing environmental data. The information system is being designed to be simple, yet flexible. The database structure allows for variation in the level of detail provided for each variable and country. In addition to the ability to view, query and report monitoring data, the DIMS also allows users to display the data spatially using GIS. DIMS can be used by two broad groups: regular end users (e.g., scientists and project leaders) and system administrators.

Climate Change and DIMS Technology Workshop

To fully address the project's objectives, a workshop on *Climate Change and DIMS Technology* was held on 1- 3 December 2010 in The University of Nottingham Kuala Lumpur Teaching Center, Royal Chulan Tower, Kuala Lumpur Malaysia. The workshop was co-organised by the Department of Civil Engineering of The University of Nottingham Malaysia Campus and Trity Technologies Sdn Bhd. About 50 individuals from various disciplines such as government officials, non-government organisations representatives, engineers, consultants, postgraduates, scientists and researchers participated in the workshop.

To complement the overall objective of the project, the workshop aimed to: 1) meet with the challenges imparted by swirling winds of change in climate and hence to visualise the role of officials and graduates in professional schools in climate science; 2) use methods of climate change modelling and prediction effectively in making the environment a better and safe place; and 3) have better understanding and practical familiarity with current methods and modern approaches to climate change models and database creation.

The plenary session was commenced by Prof. Andy Chan, Director of Research in Engineering, Director of Studies in Civil Engineering, University of Nottingham (Malaysia Campus) who welcomed all participants to the workshop and expressed his appreciation to all organisations and individuals involved in organising the workshop particularly to the support provided by the APN through the project ARCP2010-07CMY-Bai.

Keynote speaker Mr. Matthias Gelber, founder of Eco Warriors Malaysia delivered a presentation on *Climate Change: Our Challenge and Opportunity*. He emphasised in his talk that modelling plays an important role in implementing technology, business and environment together in a sustainable manner.

Next to keynote speech was the presidential address from Prof. Sayed Azam Ali, Vice - Provost of Research and Internationalisation of the University of Nottingham in Malaysia. Prof. Azam-Ali summarised his talk on *Climate, Change Changes and Crops* in three key points: 1) future climates will be more

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volatile and more complex; 2) future systems will need to be more complex to be resilient to climate; and 3) models/decision support system can provide important tools to manage complexity and identify resilience.

Three technical sessions followed the plenary, which were distributed over two days of the workshop. First of two presentations under Technical Session I: Climate Change and DIMS was delivered by Prof. S. Mohan, Director of the National Institute of Technical Teachers Training and Research, Chennai and he talked about *Climate Change and its Impacts on Water Resources: Indian Scenario*. Prof. Mohan summarised his presentation into three key messages: 1) climate change contributes to increased water stress in the country; 2) climate change increases urgency for more sustainable water policy and investment choices; and 3) political focus on climate change offers opportunities to invest for reduced uncertainty and improved results in water management.

The second presentation on *Systems Approach to Understand Meso-scale Coastal Responses to Climate Change* was delivered by an expert from University College London, Prof. Jon French. In his presentation, Prof. French noted that systems framework can provide a basis for qualitative models formulated at scales relevant to coastal and estuary management. He further noted that network models suited to complex systems for which functional relationships between morphological components and driving processes cannot be specified in physically realistic way.

Before the start of the next session, Ms. Kristine Garcia provided a presentation on behalf of the APN Secretariat. She talked about selected research projects funded by the APN with emphasis on those that involved climate modelling. Ms. Garcia also provided information on opportunities with the APN particularly on the types of activities which can be supported by the network under its Annual Calls for Proposals. She encouraged the participants to use the workshop as a platform to create collaboration and submit a proposal to APN in the future.

Technical Session II which focussed mainly on DIMS and GIS included presentations on: 1) *Database Development and Management*; 2) *DIMS, GIS and its Applications for Climate Prediction*; and 3) *Coastal Ecosystem and its Impact on Climate*. Speakers for Session II made a demonstration on the initially developed compendium of information system which will be made available online in the future for climate change studies. Referring to the presentations, Ms. Garcia said that the outcome of the project, specifically the database that will be developed, is certainly useful for the APN in its efforts to promote better data collection, analysis and dissemination. She also noted that the



network aims to have the data collected and generated using APN funds be shared on a full and open flow.

Concerning the development of the database, Ms. Garcia clarified with the speakers if national data issues concerning data access of those countries were considered during data collection. The speakers responded that all proper government bodies in all countries included were consulted.

Day 1 of the workshop ended with a very exciting group discussion facilitated by Prof. S. Mohan wherein he asked all participants to write down their understanding of what climate change is. It was very interesting to note that the understanding on climate change of most of the participants is focussed more on its impacts on different sectors.

The next day of the workshop started with presentations under Technical Session III: Climate Change Modelling and consisted of: 1) *Coastal Flood Modelling and Modelling Adaptations to Sea-Level Rise*; 2) *Methods and Application of Downscaling Global Climate Change*; 3) *Flood Prediction and Water Quality Modelling*; 4) *Coastal Mapping Models of Estuary-Coast Offshore Interaction*; and 5) *Adaptation Strategies*.

The workshop was also honoured by Yang Berhormattan Sri Datuk Seri Panglima Joseph Krup, Deputy Minister of Natural Resources and Environment, Malaysia. The Deputy Minister talked on the impacts of climate change not only in Malaysia but also in its neighbouring countries. He emphasised that research projects on climate change such as this APN-funded project are greatly needed to continue combat the impacts of climate change.

Overall, the workshop served as a platform to facilitate creation of new knowledge and methodologies through the exchange of ideas, strategies and innovations in some areas of climate change and database development technologies. The workshop also provided opportunities for networking among academic, scientists, and researchers in paving their way for wider and more intensified knowledge in climate change and its environmental impact.

The workshop proceedings can be downloaded at www.apn-gcr.org.

CBA2010-04NSY-Dhakal: **Carbon Governance in Asia: Bridging Scales and Disciplines**, *Dr. Shobhakar DHAKAL*

**Capacity Building Workshop on Carbon Governance in Asia
Yokohama, Japan, 1-3 November 2010**



CAPaBLE Programme Updates

Overview

Asia is a key region which is rapidly growing economically. Asian contribution is already dominating the global carbon emissions. It will play a greater role for global carbon management in the foreseeable future. However, within Asia, huge differences in welfare, governance systems, and carbon emission trajectories exist and thus poses a carbon governance challenge.

A better understanding of the carbon management challenges across multiple scales is necessary for Asia, which is less understood as of now. Such understanding will provide important insights to design an optimised carbon governance structure. In order to address this, a Capacity Building Workshop on Carbon Governance in Asia: Bridging Scales and Disciplines was held in Institute of Advanced Studies of the United Nations University (UNU-IAS), Yokohama, Japan on 1-3 November 2010.

The workshop, which was funded by APN (Project CBA2010-04NSY-Dhakal) under APN's capacity development programme, CAPaBLE, brought together leading scientists from multiple disciplines from United States, Australia, Japan and China, policy-makers, local and national government agencies, international organisations, and young researchers in the Asia-Pacific region to discuss the challenges and opportunities for carbon governance in Asia.

The workshop was organised by the Global Carbon Project (GCP), Earth System Governance Project (ESG) of the International Human Dimensions Programme on Global Environmental Change (IHDP), and UNU-IAS which were represented by Dr. Shobhakar Dhakal, Mr. Ruben Zondervan, and Dr. Jose Antonio Puppim de Oliveira, respectively. On behalf of the APN, Mr. Tetsuro Fujitsuka

provided welcoming remarks and Ms. Kristine Garcia gave a short presentation highlighting the opportunities that the participants could benefit from and the past and ongoing collaborations among APN and the workshop organising institutions.

Workshop Objectives and Structure

The workshop was structured with plenary and working group sessions. Plenary session was ordered as follows: 1) Introduction on Governance and Carbon Management; 2) Governance and Carbon Management; 3) National Regimes on Carbon Management; 4) REDD Regime in Carbon Governance Context; 5) Climate Change Sociology and Network Analysis; 6) International and Sub-national Regimes on Carbon Governance; 7) Policy Maker Perspectives; and 8) Reports from Working Sessions. On the other hand, working group session was divided into two main groups with three sub-topics for each group. Working group 1 focussed on Mechanisms and Frameworks for Carbon Management with sub-topics: a) REDD and Carbon Governance; b) REDD and Community Forest Management; c) Frameworks to Manage Carbon in Asia. Working group 2 tackled Institution and Building Analysis focussing on a) Carbon Governance; b) Network and c) Transition to Low Carbon Economies.

Dr. Dhakal, Executive Director of GCP provided a brief workshop overview and explained the objectives and framework to the participants prior to main workshop sessions. The overall aim of the workshop is the capacity building of Asia-Pacific young researchers and to discuss the issues and opportunities for carbon governance for developing low carbon societies in Asia. Specifically, the workshop aimed to: 1) bring together leading Asian-Pacific researchers from various natural- and social sciences to stimulate dialogue and initiate disciplinary synergies toward sustainable

"...huge differences in welfare, governance systems, and carbon emission trajectories exist within Asia and pose a carbon governance challenge. A better understanding of carbon management challenges across multiple scales is therefore necessary to provide important insights in designing an optimised carbon governance structure..."

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CBA2010-04NSY-Dhaka: Carbon Governance in Asia: Bridging Scales and Disciplines, Dr. Shobhakar DHAKAL

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development; 2) initiate the implementation of the Flagship Activity on Earth System Governance and the Climate System as developed by the ESG Project of IHDP and the GCP and outlined in the ESG Project Science and Implementation Plan; and c) stress the importance of multi-level governance of carbon including actors such as cities and municipalities in designing an optimised carbon governance regime.

Leading scientists and guest speakers made presentations during the plenary sessions. Selected early career researchers on their potential to become the future academic leaders in the region were provided an excellent opportunity to present their researches and receive feedback and support from established experts. The workshop also brought them in contact with the regional and global research communities and projects to explore future collaborations.

Key Message

The key message from the workshop is that pathways of regional development are sequences of interrelated changes in social, economic and governance systems. They vary from place to place and over time, are based on different drivers and problem perceptions in ways that are likely to have different consequences on how carbon governance is being shaped. Carbon governance takes place at local, national and regional level and between these levels.



APN Secretariat Director, Mr. Fujitsuka and Coordinator, Ms. Garcia provided input at the Capacity Building Workshop

Thus, it is a multilevel governance challenge that includes actors and agents at all levels. These actors are increasingly non-state actors like environmental advocacy groups, businesses, and scientific networks. The workshop emphasised that this multilevel characteristic requires a better scientific understanding and political awareness of norms and standards in carbon governance. Norms that are compatible between levels and policy domains while in parallel reflect that carbon governance is embedded in different cultural, social, economical, and political contexts.

The Workshop which was held prior to the Asia-Pacific Economic Cooperation (APEC) Meeting held in the same venue wrote a summary and message to APEC Meeting. Full versions of the message as well as the proceedings are available from this link: <http://www.gcp-urcm.org/CG/HomePage>.

CBA2010-12NSY-Pradhananga: Graduate Conference on Climate Change and People, Mr. Dhiraj PRADHANANGA

Climate change poses several negative impacts resulting from unsustainable consumption of natural resources and waste generation. Climate change and other related phenomena are of growing concern and among the most important issues for the sustainability of mankind, particularly for those living in the most vulnerable areas of the Asia-Pacific region, including low-lying coastal areas and the high Himalayas. Coping with climate change and its impacts requires, indeed demands, that decision-makers, gatekeepers, and stakeholders draw their expertise from a wide-range of fields, from science to policy to ethics and to equity.

Graduate students of universities and colleges today will be involved in climate-sensitive decision-making within a few years after graduation. Given the sharp increase in the level of concern about global warming and its impacts on society and ecosystems, it is urgent that the upcoming (near term) generation of decision-makers in industry, government, education, and civil society be fully prepared to address climate-sensitive human activities and ecological processes.

The "International Graduate Conference on Climate Change and People," a regional-scale project, mainly focussed on scientific capacity building of graduate students from different academic majors/disciplines through their knowledge- and experience-sharing with experts in climate affairs. Coupled with climate change knowledge, the focus was directed on regional climate change-related concerns. Targeting graduate students (mainly master/doctoral) in Greater South Asia, this project aimed to develop the capacity of students in the region to become climate leaders and climate agents in their respective fields of endeavour.



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CBA2010-12NSY-Pradhananga: Graduate Conference on Climate Change and People, Mr. Dhiraj PRADHANANGA



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A key question that was addressed during the conference was how to cope with variability, extremes, and changes in weather, climate, water, and societal interactions. The major conference objectives were:

- **To build** the awareness and scientific capacity of graduate students from multiple disciplines, while fostering and enhancing networks for sustainable development in the region
- **To equip** graduate students with usable knowledge on the importance of multidisciplinary activities in addressing climate change, regardless of their base academic disciplines
- **To enable** participants to formulate a multi-national networking group to develop baseline skills needed to understand climate change mitigation, adaptation and prevention measures
- **To create** awareness among communities and social leaders for identifying their roles in effectively combating the effects of a changing climate.

First of its kind, the *International Graduate Conference on Climate Change and People (IGCCCP)*, a five-day long programme, was organised in Nepal, the roof of the world, from 15 to 19 November 2010. In the conference, 17 experts from a wide variety of fields such as social science, biodiversity, water resources, climate change science, natural hazards, policy, equity and ethics etc., shared their experiences and opinions among 130 delegates representing 17 countries from Greater South Asia and beyond. The conference focussed on multidisciplinary capacity building of youth wherein the graduate students participated in lecture sessions, interacted with experts, group discussions, panel discussions and formed a network for communicating climate change issues. The participants were from backgrounds of climate science, hydrology, sociology, journalism, law, etc. The conference was jointly organised by The Small Earth Nepal (SEN) and the Consortium for Capacity Building (CCB), University of Colorado, USA with base funding from the Asia-Pacific Network for Global Change Research (APN).

The Vice Chairperson of the National Planning Commission (NPC), Government of Nepal, Honorable Dr. Jagadish Chandra Pokhrel was the chief guest for the formal inauguration session. Dr. Pokhrel shared that today's youth are tomorrow's policy-

makers so it is essential to capacitate them. He expressed the commitment of the Government of Nepal to consider youth and climate change while formulating policy in days ahead. In the session, Dr. Surendra Raj Kafle, Vice-Chancellor of Nepal Academy of Science and Technology (NAST), Mr. Umakant Jha, Secretary of Ministry of Irrigation, Prof. Gordon Young, President of International Association of Hydrological Sciences (IAHS), Dr. Madhav Bahadur Karki, Deputy Director General of International Centre for Integrated Mountain Development (ICIMOD), Dr. Robert Monro, Country Director of the British Council Nepal, Prof. Futaba Kazama, University of Yamanashi were the speakers during the Opening Session. The Session was chaired by Prof. Michael H. Glantz, Director, CCB and Dhiraj Pradhananga, President of SEN, who also delivered a welcome speech to the participants. The session was attended by more than 300 people including national and international high-profile dignitaries.

At the end of the conference, the *Eco Generation Network* was initiated among the delegates and beyond to share information regarding research findings related to climate change and society. A newsletter, *The Eco Generation*, was published every day of the conference, which was a key attraction among the participants. The newsletter, published in six issues, was widely circulated to the concerned people at national and international levels through email groups. They are also available at www.smallearth.org.np.

The conference concluded with a declaration which is a collaborative statement from the students who attended the conference. The declaration calls on world leaders attending the United Nations Framework Convention on Climate Change Sixteenth Meeting of Conference of the Parties (UNFCCC COP16) to hear the voices of the Eco-Generation, which is the younger generation of concerned student-scientists and future policy-makers. The declaration is divided into seven Themes of Action: Listen, Understand, Act, Engage, Empower, Embrace and Impart. It demands that policy-makers *listen* to the voices of youth, to stakeholders at all scales, and to vulnerable and marginalised communities; to *understand* the urgent action needed to create preventative and mitigation policy; to *act* to develop and promote programmes that encourage more sustainable development; to *engage* with local communities to better address

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CBA2010-12NSY-Pradhananga: Graduate Conference on Climate Change and People, Mr. Dhiraj PRADHANANGA

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local needs; to *empower* marginalised communities and indigenous knowledge systems to help cope with growing change; to *embrace* intergenerational representation; and finally to *impart* knowledge to the global community through both informal and formal communication channels.

The declaration was brought to and distributed at Cancun, Mexico during the COP16. In Nepal, the declaration was handed over to the government representatives and other appropriate persons organising a policy-relevant programme to celebrate the Global Day of Action on 4 December 2010. The declaration was also sent to concerned ministries of the Government of Nepal.

As part of the conference, an e-discussion was conducted among the delegates after completion of the conference. Mr. Sundar

Layalu, Researcher of SEN coordinated the discussion. It was designed to have a Virtual COP16 with involvement of the conference participants and presenters. All together, 122 members were available in the group as contributors, readers and followers.

Dr. Glantz was updating from COP16 and Mr. Layalu was updating through Media Camera which had covered more than 55 news items from international media. In addition, many posts and discussions were carried out and Forgotten Group "Twenty Something" was proposed. The discussion was conducted from 29 November to 11 December 2010.

For more information about the conference, please log in to www.gradconference.wordpress.com

Why the Graduate Conference?

- **Research facts are too scientific and needs to be transformed into a societal model**
- **The impacts of climate change vary according to age, time and location and so needs to be discussed in a single platform**
- **Climate change should be addressed on a multi-sectoral basis**
- **Youth are ambassadors of information and are future decision-makers and so their capacity should be enhanced**

Feedback from APN-Funded Participants on International Graduate Conference on Climate Change and People in Nepal

It was one of the important and effective conferences I have ever attended relating to climate change. The wisdom and knowledge I gained through the conference is helping me now to protect my environment and educate my community about climate change. The discussions we had and the voices that we, the graduates, raised were heard by the international community in Cancun during the 16th Conference of the Parties (COP16) summit, due to the hard work of Mickey Glantz. Therefore, I would like to thank the organisers and the sponsors who gave me the opportunity to be part of such a wonderful conference. Furthermore, I would like to express my heartiest gratitude to Mickey and Dhiraj for their immeasurable hard work and dedication for making the conference a grand success and also reaching our voices to the COP16 summit.

I feel very much privileged to be part of such success and would like to thank the entire team of the Small Earth Nepal (SEN) and the University of Colorado for their support and endless kindness bestowed upon me. Besides the amicably designed programmes, we would have added few more discussions on the organisation of regional advocacy campaigns and symposium in the future, related to climate change. We could have raised the voices with appropriate slogan organising a Nature Walk in the beautiful Kathmandu Valley similar to awareness or awakening demonstration. Thank you all for everything was so marvellous. I look forward in the future to being part of similar conferences and contributing my views and raising my country's concerns about climate change. - *Trishna Jaishi, Lecturer in Environmental Studies, BHUTAN*

The SEN, a growing organisation in climate and environmental-related sectors, organised a great conference that gathered young professionals to share their ideas and develop strategies in climate change aspects. The support from co-organisers, sponsors, and the public contributed to the success of the programme. I got the chance to participate and share ideas through presentation. This boosted my interest on agricultural aspects of climate change among other participants that increased my strength and confidence as well in pursuing climate action and setting a mission and long-term vision.

The link that was established among the participants at the international level was a milestone for implementing future activities in climate change mitigation and adaptation. Furthermore, it has sparked pressure on developed countries to raise green funding and for developing countries to remain eco-friendly. Thank you very much. - *Anjan Neupane, Researcher and student, Institute of Agriculture and Animal Science (IAAS), NEPAL*



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CBA2010-12NSY-Pradhananga: Graduate Conference on Climate Change and People, Mr. Dhiraj PRADHANANGA

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Feedback from APN-Funded Participants on International Graduate Conference on Climate Change and People in Nepal

It was one of the most splendid events I have ever experienced. I attended this great international event, which further built my confidence and I also learned a lot. I realised that time has changed and climate issues are getting more attention. The people are becoming more concerned about their lives, businesses and many things. They are asking its leaders to be serious in saving the next generation from climate problems.

The conference provided opportunities to youth from different backgrounds, culture and mind-set to tackle issues that will impact future lives: rising earth temperature, severe impact on the oceans, big floods, etc. Thanks to the conference for providing such opportunities and I am personally very thankful to the organisers for partially funding my participation. - **Aamer Khan, Institute of Management Sciences, PAKISTAN**



The conference was very fruitful for graduate youth like me. We had great opportunities to learn from and share latest information and research among graduates from different countries and background. Moreover, direct interaction with veteran scientists and researchers from various parts of the world was really inspiring for me. I also had great opportunities to learn and analyse the perspectives of youth towards climate change and current international negotiations regarding this. Graduates from different background have different perspectives towards the current negotiation but the young generation do not like 'blame game' and they really want ground level action from themselves. This was the consensus among the delegates and was also included in the conference declaration.



I found The Eco-Generation Newsletter, the official newsletter of the five-day conference, very attractive and most liked by the delegates. The five-day conference remained memorable in terms of conference venue, resource persons, hospitalities, and also highlights from various media in Nepal and beyond. - **Dilli Ram Bhattarai, M.Sc in Environmental Science, Centreal Department of Environmental Science, Tribhuvan University, NEPAL**

I feel very privileged to have presented and participated in the conference attended by 130 experts and science graduates from 17 countries. The conference covered a rich diversity of topics – from biodiversity, climate change science, water resources

and natural hazards to policy equity, ecological economics and anthropology which speaks to the multi-faceted challenge that climate change poses in the South Asian region. As a climate activist, I felt really inspired and excited by the discussions with the well-informed, articulate and motivated participants, who came from top-notch academic institutions in the region. I was particularly glad that the conference went beyond information sharing to determination and action.

I would like to congratulate the conference organisers: SEN and The Consortium for Capacity Building (CCB), University of Colorado; and the conference sponsor APN for successfully achieving the aim of multidisciplinary capacity building of graduate youth in South Asia. The conference has two further important outcomes: 1) a concise and powerful conference declaration prepared by youths that has been brought to the Cancun climate negotiation, which United Nations Children's Fund (UNICEF) also shared with its youth network; 2) the formation of a network of graduates, activists and senior researchers to nurture youth climate knowledge and activism capacity.

I am excited and look forward to working with my fellow participants in 2011, to continue learning and taking action to stop climate change. The challenge may be great, but as cultural anthropologist Margaret Mead rightly said, "Never doubt that a small group of thoughtful people could change the world. Indeed, it's the only thing that ever has." Thank you very much again for all your hard work and thoughts you have put into the conference. - **Iris Cheng, Greenpeace International Climate and Energy Campaigner, HONG KONG/CHINA**



The conference concluded with a declaration which is a collaborative statement from the students who attended the conference. It demands that policy-makers **listen** to the voices of youth, to stakeholders at all scales, and to vulnerable and marginalised communities; to **understand** the urgent action needed to create preventative and mitigation policy; to **act** to develop and promote programmes that encourage more sustainable development; to **engage** with local communities to better address local needs; to **empower** marginalised communities and indigenous knowledge systems to help cope with growing change; to **embrace** intergenerational representation; and finally to **impart** knowledge to the global community through both informal and formal communication channels.

CBA2010-11NSY-DeGuzman: Capacity Building for Research and Monitoring of Marine Protected Areas: An Adaptive Mechanism for Climate Change in the Asia-Pacific Region, Dr. Asuncion DE GUZMAN

Project Overview

The introduction of Marine Protected Area (MPA) systems are considered as a potential measure for climate change adaptation, particularly in buffering the threat of coral bleaching resulting from increasing ocean temperatures and hastening recovery from both climate-induced stresses and overfishing. Effective MPA management, however, is constrained by weak monitoring programmes due to inadequately trained manpower. The project seeks to build the capacity of MPA managers and technical staff of local government units (LGUs) in selected coral reef-rich countries such as the Philippines and Indonesia.

As members of the Coral Triangle Initiative in the Asia-Pacific region, these two countries have established a large number of MPAs as adaptive mechanisms for natural and anthropogenic impacts. Training of MPA monitoring teams will employ scientifically sound research and assessment methods of coral reef, seagrass, and mangrove communities. Developing a pool of MPA researchers and monitoring and evaluation (M&E) practitioners will hopefully help member countries increase their ability to adapt to climate change and human-induced stresses and contribute to the sustainable development of coastal ecosystems in the Asia-Pacific region.

The project aims to:

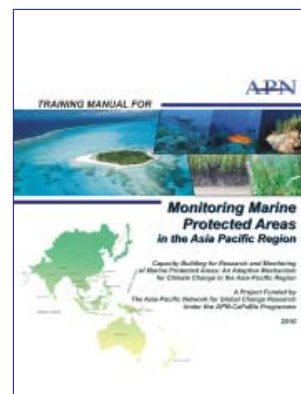
- Enhance the capacity of MPA researchers through technical training in coral reef, seagrass, and mangrove assessment and monitoring;
- Train participants in data management, report preparation and communicating results; and
- Assist participants in formulating an MPA monitoring and evaluation plan

Progress in Project Implementation

On 26 July 2010 a Project Meeting convened at the Center for Coastal and Marine Resource Studies (CCMRS), Bogor Agricultural University, Bogor, Indonesia. Dr. Asuncion De Guzman, project leader, met with CCMRS Director, Prof. Dr. Tridoyo Katsumastanto, main project collaborator, Dr. Ruddy Suwandi, Ms. Isdaharti and other CCMRS staff. The meeting discussed plans for the Regional Training in MPA Monitoring. Participants were screened and the project team developed a programme of activities.

Local Training in MPA Monitoring took place from 23-27 August 2010 in Mantangale Alibuag Dive Resort, Balingoan, Misamis Oriental, Philippines. The activity was attended by 20 participants from all over Mindanao Island of the Philippines and composed LGU staff and representatives of non-governmental organisations (NGOs), and academia. The training ran smoothly and all participants provided positive feedback about the usefulness of the training in their work.

A Training Manual in MPA Monitoring was produced, which was further improved in time for the regional training activity. Details about the regional training and more project updates will be reported in the next edition of the APN Newsletter. Training report/proceedings will also be made available through the APN website.



Second Announcement

WCRP Open Science Conference – ‘Climate Research in Service to Society’, 24-28 October 2011, Denver CO, USA

<http://conference2011.wcrp-climate.org/>



The World Climate Research Programme (WCRP) Open Science Conference (OSC) will represent a unique opportunity to assemble the large international scientific community to focus on key challenges and opportunities in advance understanding and prediction of variability and change of Earth's climate system on all space and time scales. The OSC will assist WCRP and its partners to identify and develop the climate information required to address climate-related challenges facing all citizens of the planet.

Conference Programme

The WCRP OSC is organised around daily themes that reflect integrative aspects of the WCRP programme, as well as connections to other international research programmes. Each day will consist of plenary presentations and discussions by leading scientists and conference participants who are informed by community-based position papers. The plenary sessions will be followed by parallel and poster sessions, which will be the primary means for conference participants to present their research findings. The poster sessions will have their own dedicated time for viewing and one-on-one discussions with authors, thus avoiding overlap with the plenary and parallel sessions. Moreover, groups are encouraged to self-organise and submit cluster of posters addressing a specific topic, preferably as part of one of the planned sessions. All sessions are structured to foster discussion and dialogue.

Deadline for submitting abstracts is on 30 April 2011. For more information, contact info.conf2011@wcrp-climate.org.

CBA2009-01CMY-Ailikun: Capacity Building for Drought Monitoring and Studying in Monsoon Asia under the Framework of Asian Water Cycle Initiative, Dr. AILIKUN

APN CAPaBLE project "Capacity Building for Drought Monitoring and Studying in Monsoon Asia under the Framework of Asian Water Cycle Initiative (AWCI)" is a two-year capacity building project which formally started from 2008 and was recently completed. The objectives of this project were to: 1) share and improve the drought monitoring capability in various Asian countries; 2) set up a drought monitoring and research network in related Asian countries using remote sensing and ground observations; and 3) help develop an early warning system of drought hazards in related countries. AWCI of the Global Earth Observation System of Systems (GEOSS) promotes observation convergence by designing seamless access to data from earth observation satellites, in-situ reference site networks, and operational observation systems; integrating the observed data, numerical weather prediction model outputs, geographical information, and socio-economic data; and disseminating usable information for sound decision-making of water resources management against floods and landslides; drought and water scarcity; water pollution and ecosystem degradation; and impacts of climate change on water.

With strong support from APN, about 20 members from 11 countries in Asia have joined the AWCI drought monitoring working group. From the beginning of 2009, the project team started planning a training workshop based on the previous activities in collaboration with Japan Aerospace Exploration Agency (JAXA), the University of Tokyo, Hiroshima University, Monsoon Asia Integrated Regional Study (MAIRS), and AWCI flood/water quality/climate

change working groups. On 17-18 December 2009, a joint training workshop on "Application of Remote Sensing Products on Drought Monitoring in Asia" successfully convened at the University of Tokyo, Japan. About 40 trainees attended this joint workshop.

The topics of this training workshop covered recent progress of remote sensing technology and latest products being used in natural resource and disaster monitoring. In this workshop, several important satellites related to drought monitoring were introduced, such as: AQUA/AMSR-E Mission; the Advanced Land Observing Satellite (ALOS); Chinese FengYun-II meteorological satellite (FY-II); and the application of Remote Sensing Products on Drought Monitoring in Asia. The trainees showed high interest in the application of the new remote sensing products on drought and other disaster monitoring in their own countries. They would like to learn about and master more of the techniques and methodology in using the AMSR-E, ALOS and FY-II products, and transfer this information to more scientists.

Day 1 of the training workshop composed of presentations on the introduction of ALOS and AQUA/AMSR-E mission and FY-II satellite and data application as well as the integrated observation and prediction of water cycle coupled with passive and active microwave sensors. Day 2 consisted of presentations on the following: estimation of soil moisture by AMSR-E and its satellite algorithm base and data assimilation; validation and observation of soil moisture by AMSR-E; principle and methodology of microwave remote sensing soil moisture measurements; retrieval of soil moisture index from Moderate Resolution Imaging Spectroradiometer (MODIS) in dryland areas; and drought monitoring and drought indices in drylands of China. For details, you may download the final project report from the APN website: <http://www.apn-gcr.org/newAPN/resources/list2009capable/projects.htm>.



NEWS FLASH (APN Vacancy Announcement) The deadline for submitting applications for the positions of **Programme Officer for Communications and Development** and **Programme Fellow for Science and Institutional Affairs** is approaching. Send your curriculum vitae and cover letter by email to Mr. Yukihiro Imanari, Executive Manager at the APN Secretariat (application@apn-gcr.org) by **24 January 2011, Monday**. For position description, specific duties and qualifications that we are looking for, visit www.apn-gcr.org. Potential applicants are encouraged to carefully read the announcement details and additional information posted on the APN website.

CBA2009-02CMY-Ishida: The Global Earth Observation System of Systems Asian Water Cycle Initiative Observation Convergence and Data Integration (GEOSS/AWCI/OCDI), Mr. Chu ISHIDA

Demonstrating Integrated Water Resource Management in River Basins in Asia - Global Earth Observation System of Systems Asian Water Cycle Initiative Observation Convergence and Data Integration

The historic floods in Pakistan affected more than 20 million people and 25% of the entire national land. Nargis flood in Myanmar in 2007 is still vivid in our memory. Droughts in Australia and Northern China seem to be becoming worse year by year. The severity and frequency of water-related extreme events are increasing in Asia.

The Global Earth Observation System of Systems Asian Water Cycle Initiative Observation Convergence and Data Integration (GEOSS/AWCI/OCDI) Project introduced the Integrated Water Resource Management (IWRM) to the Asia Pacific region. This is a very unique endeavor in: a) it covers the entire Asia region involving 18 international and national river basins in 20 countries; b) it connects space data, in-situ data, model output data and socio-economic data, producing essential information for decision-making support for regional, national and local water resources management, and c) it connects scientists and researchers, engineers, water resource managers and practitioners, and policy-makers. The OCIDI project has been organised under the GEOSS AWCI that promotes integrated water resources management by making usable information from GEOSS in order to address common water-related problems in Asia.

Since its inception at the 1st Asian Water Cycle Symposium, Tokyo, 2005, AWCI successfully organised the International Coordination Group (ICG) consisting of national representatives and technical experts. So far, seven (7) ICG meetings and two (2) Asian Water Cycle Symposia have been held in Japan and other countries with APN financial support.

The initiative has accomplished a number of significant achievements including: a) establishment of the ICG - very successful regional institutional arrangements for planning and coordinating the initiative; b) AWCI data policy for data collection, data sharing and data rights; c) AWCI Implementation Plan for demonstration projects for water resource management in each river basin; recently, d) initiation of the AWCI climate change assessment and adaptation study; and lastly, e) linkage with other substantial projects such as the Data Integration and Analysis System (DIAS) and GEOSS.

The ICG members contributed remarkably to activities of data collection, data quality check, and archiving at DIAS. The University of Tokyo developed a data quality check system which provides automatic quality control (QC) services for the submitted data as an incentive. Japan Aerospace Exploration Agency (JAXA) has provided more than 1 million scenes of satellite data to the DIAS. All retrieved climate model output data have also been archived at DIAS. These data can be a basis for monitoring and predicting water resource situations in any part of the world.

The demonstration projects are being implemented with various funding sources under the ICG that is being supported by the

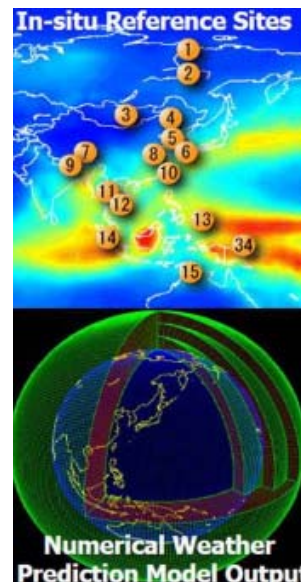
APN. The APN funding provides crucial support for the ICG meetings and workshops, including support for the ICG members travel in Asia. JAXA has implemented demonstration projects in Viet Nam, Cambodia, and Pakistan in collaboration with the local water resources management authorities and the University of Tokyo.

JAXA is also coordinating demonstration projects in Viet Nam, Bangladesh, and Philippines with support from the Asia Development Bank (ADB). In the Viet Nam case, an optimum dam operation scheme was developed and demonstrated how the flood peak can be reduced in Huong River. In Cambodia, the precipitation pattern around the Tonle Sap Lake is being analysed to assess its impact on agriculture. AWCI acted very promptly in case of the historical flood in Pakistan in 2010 in response to the request from the Pakistan agency. Inundation maps generated from JAXA's Advanced Land Observing Satellite (ALOS) Phased array type L-band Synthetic Radar (PALSAR) sensor data was provided for a number of successive days.

The AWCI has also developed its capacity building programme by analysing the regional requirements while identifying available resources in the region. The programme concept is based on a number of training modules that are tailored and implemented according to the actual needs. Seminars on drought and soil moisture monitoring, and training on metadata and data quality check were held at the 5th ICG meeting in Tokyo and the 6th ICG meeting in Bali, respectively.

Another challenge is being made at nominated river basins in which climate change impact assessment and adaptation studies will be carried out using climate model output data. A hydrological model adapted for the basins and forced by the climate model output can be utilised in order to assess impacts of future climate on flow regimes and water resources availability. Impact on socio-economic activities will be analysed and adaptive measures will be devised.

The GEOSS/AWCI/OCDI project greatly contributed to the reception of the Japan Water Prize in 2010 for its contribution to international cooperation for water resources management and also to one of the GEOSS showcases in 2010. AWCI has been successfully demonstrating promotion and application of IWRM practices and continues to maintain a high level of activities being implemented by the ICG members and other participants.



CBA2008-09NSY-Peñalba: Enhancing the Climate Change Adaptation Capacity of Local Government Units and Scientists in the Philippines, Dr. Linda M. PEÑALBA

CAPaBLE Programme Updates

APN Project Impact Creates Another Impact: Climate Change Action Planning Course in the Philippines

A basic course on Climate Change Action Plan (CCAP) preparation was conducted by the Local Government Academy (LGA) of the Department of Interior and Local Government (DILG) and the College of Public Affairs, University of the Philippines Los Baños (UPLB). The course generally aimed to raise local government officials' awareness about climate change and to teach them basic CCAP principles and vulnerability assessment methods. Officials of the 23 Philippines provinces that are considered most vulnerable to climate change impacts participated in the course.

The LGA is the national training institution that coordinates, synchronises, rationalises, and delivers training programmes for local governments. The new Climate Change Act of 2009 (Republic Act or RA 9729) directs the DILG and LGA to facilitate the development and provision of a training programme for local government units (LGUs) on climate change, particularly on adaptive capacity enhancement and vulnerability reduction measures to develop the capability of LGUs in addressing potential climate risks.

The course format was inspired by the handbook on climate change adaptation planning, which is one of the outputs of the APN-funded action research project entitled "Enhancing the Climate Change Adaptation Capacity of Local Government Units and Scientists in the Philippines" (CBA2008-09NSY-Peñalba). This project was undertaken by a group of UPLB researchers, in partnership with some LGUs and state universities. Copies of the CCAP handbook were distributed to the participants.

The topics discussed during the course were climate science and climate patterns in the Philippines, the impacts of climate change on the agricultural, coastal and forestry sectors,



The basic course was inspired by the handbook on Climate Change Adaptation Planning

vulnerability assessment methods, climate change action planning procedures, and mainstreaming CCAP in local development planning.

Some of the UPLB researchers and an LGU partner of the APN-funded project served as resource persons and shared with the participants the experiences and lessons that they learned from the project. Dr. Juan M. Pulhin discussed the vulnerability assessment methods used by the project, Dr. Linda M. Peñalba and Ms. Dulce D. Elazegui explained the CCAP preparation procedures, while Mr. Isaas Panganiban Jr. demonstrated how their LGU applied the concepts and skills they learned from the project in preparing and mainstreaming their local CCAP. Mr. Panganiban, the Municipal Administrator of Guagua, Pampanga served as the resource person on "good climate change adaptation practices."

A total of 85 participants who came in two batches attended the course. These courses were held on 16-18 November and 1-

3 December 2010 at the LGA Training Centre, UPLB. The participants came from various provincial offices such as the provincial planning and development, environment and natural resources, agriculture, and engineering offices. Other participants include some provincial administrators and regional DILG officials.

More in-depth capacity building courses are being contemplated to develop LGU officials' capability to conduct actual vulnerability assessments and mainstream CCAP in local development plans. The researchers also plan to update the handbook in light of recent intergovernmental and governmental initiatives such as the passage of the Philippine Climate Change Act of 2009 and the Philippine Disaster Risk Reduction and Management Act of 2010 (RA 10121).

Participants listening intently to the lecture on Climate Change Adaptation Planning given by Dr. Linda Peñalba, APN Project Leader



Participants engaging actively in the discussion

ARCP 2010/11 Projects

Project Reference: ARCP2010-01CMY-Sthiannopkao

Project Title: Collaborative Research on Sustainable Urban Water Quality Management in Southeast Asian Countries: Analysis of Current Status (comparative study) and Development of a Strategic Plan for Sustainable Development

Project Leader: Dr. Suthipong STHIANNOPKAO, Gwangju Institute of Science and Technology (GIST), REPUBLIC OF KOREA; Email: suthi@gist.ac.kr; suthisuthi@hotmail.com

Project Reference: ARCP2010-02CMY-Phua

Project Title: Integrated Prediction of Dipterocarp Species Distribution in Borneo for Supporting Sustainable Use and Conservation Policy Adaptation

Project Leader: Dr. Mui How PHUA, School of International Tropical Forestry, Universiti Malaysia, MALAYSIA; Email: pmh@ums.edu.my

Project Reference: ARCP2010-03CMY-Marambe

Project Title: Vulnerability of Home Garden Systems to Climate Change and its Impacts on Food Security in South Asia

Project Leader: Prof. Buddhi MARAMBE, Faculty of Agriculture, University of Peradeniya, SRI LANKA; Email: bmarambe@pdn.ac.lk

Project Reference: ARCP2010-04CMY-Wang

Project Title: Building Asian Climate Change Scenarios by Multi-Regional Climate Models Ensemble

Project Leader: Dr. Shuyu WANG, Institute of Atmospheric Physics, Chinese Academy of Sciences, CHINA; Email: wsy@tea.ac.cn

Project Reference: ARCP2010-05CMY-Luck

Project Title: The Effects of Climate Change on Pests and Diseases of Major Food Crops in the Asia Pacific Region

Project Leader: Dr. Joanne Elizabeth LUCK, Cooperative Research Centre for National Plant Biosecurity, AUSTRALIA; Email: jo.luck@dpi.vic.gov.au

Project Reference: ARCP2010-06CMY-Schaefer

Project Title: Quantifying the Role of Dead Wood in Carbon Sequestration

Project Leader: Dr. Douglas SCHAEFER, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, CHINA; Email: xiedaoan@xtbg.ac.cn

Project Reference: ARCP2010-07CMY-Bai

Project Title: Asian Coastal Ecosystems: An Integrated Database and Information Management System (DIMS) for Assessing Impact of Climate Change and its Appraisal

Project Leader: Dr. V. Ramani BAI, University of Nottingham Malaysia Campus, MALAYSIA; Email: Ramani-Bai.V@nottingham.edu.my

Project Reference: ARCP2010-08NSY-Freeman

Project Title: Impact of Climate Change on Food Security and Biosecurity of Crop Production Systems in Small Pacific Nations

Project Leader: Dr. Angela FREEMAN, Department of Primary Industries, AUSTRALIA; Email: angela.freeman@dpi.vic.gov.au

Project Reference: ARCP2010-09NSY-Patwardhan

Project Title: Enhancing Adaptation to Climate Change by Integrating Climate Risk into Long-Term Development Plans and Disaster Management

Project Leader: Prof. Anand PATWARDHAN, Indian Institute of Technology, INDIA; Email: anand@iitb.ac.in

Project Reference: ARCP2010-10NMY-Koike

Project Title: River Management System Development in Asia Based on Data Integration and Analysis System (DIAS) under the GEOSS

Project Leader: Prof. Toshio KOIKE, The University of Tokyo, JAPAN; Email: tkoike@hydra.t.u-tokyo.ac.jp

Project Reference: ARCP2010-11NMY-Asanuma

Project Title: Intercomparison of Landsurface Process Modelling at Asian Drylands

Project Leader: Dr. Jun ASANUMA, Terrestrial Environment Research Center, University of Tsukuba, JAPAN; Email: asanuma@suiri.tsukuba.ac.jp

Project Reference: ARCP2010-12NMY-Uprety

Project Title: Community Based Forestry and Livelihoods in the Context of Climate Change Adaptation

Project Leader: Dr. Dharam Raj UPRETY, International Forestry Resources and Institutions (IFRI) and Forest Action, NEPAL; Email: forestaction@wlink.com.np; dharam.uprety@gmail.com

Project Reference: ARCP2010-13NMY-Bae

Project Title: Climate Change Impact Assessment on the Asia-Pacific Water Resources under AWCI/GEOSS

Project Leader: Prof. Deg-Hyo BAE, Sejong University, REPUBLIC OF KOREA; Email: dhbae@sejong.ac.kr

Project Reference: ARCP2010-14NMY-Li

Project Title: Analysis on Urban Land-Use Changes and its Impacts on Food Security in Different Asian Cities of Four Developing Countries using Modified Cellular Automata (CA)

Project Leader: Prof. Jianlong LI, The Global Change Research Institute, College of Life Science, Nanjing University, CHINA; Email: jli2008@nju.edu.cn; jianlongli@sina.com.cn

Project Reference: ARCP2010-15NMY-Han

Project Title: The Impact of Spatial Parameters on Greenhouse Gas Emissions: A Comparative Study between Cities in China and India

Project Leader: Dr. Sun Sheng HAN, The University of Melbourne, AUSTRALIA; Email: sshan@unimelb.edu.au

Project Reference: ARCP2010-16NMY-Huda

Project Title: Food Security and Climate Change in the Asia-Pacific Region: Evaluating Mismatch between Crop Development and Water Availability

Project Leader: Prof. Samsul HUDA, University of Western Sydney, AUSTRALIA; Email: s.huda@uws.edu.au

Project Reference: ARCP2010-17NMY-Towprayoon

Project Title: Strategic Rice Cultivation for Sustainable Low Carbon Society Development in Southeast Asia

Project Leader: Assoc. Prof. Dr. Sirintornthep TOWPRAYOON, King Mongkut's University of Technology, THAILAND; Email: sirin@jgsee.kmutt.ac.th

Project Reference: ARCP2010-18NMY-Lutaenko

Project Title: Coastal Marine Biodiversity of Viet Nam: Regional and Local Challenges and Coastal Zone Management for Sustainable Development

Project Leader: Dr. Konstantin LUTANEKO, Institute of Marine Biology, RUSSIAN FEDERATION; Email: lutaenko@mail.primorye.ru; lutaenko@mail.ru

CAPaBLE 2010/11 Projects

Project Reference: CBA2010-01CMY-Sang-arun
Project Title: Promoting Sustainable Use of Waste Biomass in Cambodia, Lao People's Democratic Republic and Thailand: Combining Food Security, Bio-energy and Climate Protection Benefits
Project Leader: Dr. Janya SANG-ARUN, Institute for Global Environmental Strategies, JAPAN; Email: sang-arun@iges.or.jp

Project Reference: CBA2010-02CMY-Togtohyn
Project Title: Dryland Development Paradigm (DDP) Application for the Most Vulnerable to Climate and Land Use Change of Pastoral Systems in the Southern Khangai Mountains of Mongolia (DDPPaS)
Project Leader: Dr. Chuluun TOGTOHYN, Institute for Dryland Sustainability (IDS), National University of Mongolia, MONGOLIA; Email: chuluun@nrel.colostate.edu

Project Reference: CBA2010-03NSY-Indrawan
Project Title: Developing the Capacity for Teaching Biodiversity and Conservation in the Asia-Pacific Region
Project Leader: Dr. Mochamad INDRAWAN, University of Indonesia, INDONESIA; Email: jamblang@cbn.net.id

Project Reference: CBA2010-04NSY-Dhakal
Project Title: Carbon Governance in Asia: Bridging Scales and Disciplines
Project Leader: Dr. Shobhakar DHAKAL, Global Carbon Project (GCP), National Institute for Environmental Studies (NIES), JAPAN; Email: shobhakar.dhakal@nies.go.jp

Project Reference: CBA2010-05NSY-Lorrey
Project Title: Improving Pacific Island Meteorological Data Rescue and Data Visualisation Capabilities through Involvement in Emerging Climate Research Programmes
Project Leader: Dr. Andrew LORREY, National Institute of Water and Atmospheric Research, Ltd., NEW ZEALAND; Email: a.lorrey@niwa.co.nz

Project Reference: CBA2010-06NSY-Kench
Project Title: Improving Understanding of Local-Scale Vulnerability in Atoll Island Countries: Developing Capacity to Improve In-Country Approaches and Research
Project Leader: Assoc. Prof. Paul KENCH, The University of Auckland, NEW ZEALAND; Email: p.kench@auckland.ac.nz

Project Reference: CBA2010-07NSY-Stone
Project Title: Web-based 'Discussion-support' Agricultural-Climate Information for Regional India
Project Leader: Prof. Roger STONE, University of Southern Queensland, AUSTRALIA; Email: stone@usq.edu.au

Project Reference: CBA2010-08NSY-Salinger
Project Title: Addressing the Livelihood Crisis for Farmers: Weather and Climate Services for Sustainable Agriculture – Development of Tools
Project Leader: Dr. Jim SALINGER, University of Auckland, NEW ZEALAND; Email: j.salinger@auckland.ac.nz

Project Reference: CBA2010-09NSY-Okayama
Project Title: Scientific Capacity Development of the Trainers and Policy Makers for Climate Change Adaptation Planning in Asia and the Pacific
Project Leader: Dr. Toshinao OKAYAMA, UNEP Regional Resource Centre for Asia and the Pacific, THAILAND; Email: Toshinao.Okayama@rrcap.unep.org

Project Reference: CBA2010-10NSY-Chen
Project Title: Promoting a Data Sharing Environment within the Earth Observation System of Systems: The Asia-Pacific Perspective
Project Leader: Dr. Robert S. Chen, CODATA/CIESIN, Columbia University, USA; Email: bchen@ciesin.columbia.edu

Project Reference: CBA2010-11NSY-De Guzman
Project Title: Capacity Building for Research and Monitoring of Marine Protected Areas: An Adaptive Mechanism for Climate Change in the Asia-Pacific Region
Project Leader: Dr. Asuncion DE GUZMAN, Mindanao State University, PHILIPPINES; Email: sony_deguzman@yahoo.com

Project Reference: CBA2010-12NSY-Pradhananga
Project Title: Graduate Conference on Climate Change and People
Project Leader: Mr. Dhiraj PRADHANANGA, The Small Earth Nepal (SEN), NEPAL; Email: dhirajmet@hotmail.com; smallearth@wlink.com.np

Project Reference: CBA2010-13NMY-Kawai
Project Title: Capacity Building of Biodiversity Research in the Coastal Zones of the Asia Pacific Region: Phycology Taxonomy Analysis Training Using Genetic Marker
Project Leader: Prof. Hiroshi Kawai, Environmental Management of Enclosed Coastal Seas (EMECS) Secretariat, JAPAN; Email: kawai@kobe-u.ac.jp; furukawa@emecs.or.jp

Project Reference: CBA2010-14NMY-Kaihotsu
Project Title: Drought Monitoring System Development by Integrating In-situ Data, Satellite Data and Numerical Model Output
Project Leader: Prof. Ichiro KAIHOTSU, Hiroshima University, JAPAN; Email: kaihotu@hiroshima-u.ac.jp

Project Reference: CBA2010-15NSY-South
Project Title: Global Change and Coral Reef Management Capacity in the Pacific: Engaging Scientists and Policy Makers in Fiji, Samoa, Tuvalu and Tonga
Project Leader: Prof G. Robin SOUTH, Institute of Marine Resources, University of the South Pacific, FIJI; Email: robin.south@orda.com.au; south_g@usp.ac.fj

Project Reference: CRP2010-01CMY-Weber
Project Title: Vulnerability Mapping as a Policy Tool in Developing Countries
Project Leader: Dr. Eberhard WEBER, The University of the South Pacific, FIJI; Email: weber_e@usp.ac.fj

Project Reference: CRP2010-02CMY-Pereira
Project Title: Strengthening Capacity for Policy Research on Mainstreaming Adaptation to Climate Change in Agriculture and Water Sectors
Project Leader: Dr. Joy Jacqueline PEREIRA, Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia (UKM), MALAYSIA; Email: joy@ukm.my



CAPaBLE - SCBCIA 2009/10 Projects

Project Reference Number: CIA2009-01-SNIDVONGS

Project Leader: Dr. Anond Snidvongs, (anond@start.or.th) Southeast Asia (SEA) Global Change System for Analysis, Research, and Training (START) Regional Center, Chulalongkorn University, Thailand
Project Title: Climate Change Vulnerability Assessment and Urban Development Planning for Asian Coastal Cities

Project Reference Number: CIA2009-02-PULHIN

Project Leader: Dr. Juan Pulhin (jmpulhin@uplb.edu.ph), Department of Forestry and Forest Governance, College of Forestry and Natural Resource, University of the Philippines Los Baños, Philippines
Project Title: Capacity Development on Integration of Science and Local Knowledge for Climate Change Impacts and Vulnerability Assessments

Project Reference Number: CIA2009-03-LUN

Project Leader: Dr. Yin Lun (lun.yin@gmail.com), Centre for Tibetan Regional Sustainable Development, China
Project Title: Climate Change in Eastern Himalayas: Advancing Community-Based Scientific Capacity to Support Climate Change Adaptation

Project Reference Number: CIA2009-04-GAOL

Project Leader: Dr. Jonson Lumban Gaol (jonsonrt@yahoo.com), Department of Marine Science and Technology, Bogor Agricultural University, Indonesia

Project Title: Increasing Capacity of Local Scientists for Climate Change Impact and Vulnerability Assessments in Indonesia Archipelagos: Training in In-Situ/Satellite Sea Level Measurements

Project Reference Number: CIA2009-05-JITPRAPHAI

Project Leader: Dr. Somrudee Jitpraphai (somdeem@yahoo.com), SEA START Regional Center (SEA START RC), Thailand
Project Title: Building Research Capacity on Assessing Community Livelihood Vulnerability to Climate Change Impacts in Central Viet Nam and the Mekong River Delta

Project Reference Number: CIA2009-06-DUC

Project Leader: Dr. Do Minh Duc (ducdm@vnu.edu.vn), Faculty of Geology, Hanoi University of Science, Viet Nam
Project Title: Capacity Development for Adaptation to Climate Change in the Rural Coastal Zone of Viet Nam

Project Reference Number: CIA2009-07-LOTIA

Project Leader: Ms. Hina Lotia (hlotia@lead.org.pk), Programme Development Department, Leadership for Environment and Development (LEAD), Islamabad, Pakistan
Project Title: Capacity Development of the Scientific Community for Assessing the Health Impacts of Climate Change

APN 2010/11 Projects on Key Focus Area

FOCUS 1: ECOSYSTEMS, BIODIVERSITY and LAND USE

EBLU2010-01NSY(R)-Suneetha, Evaluation of Trade-offs Between Conservation and Development-Case of Land Use Change in Malaysia and Indonesia, *Dr. M.S. Suneetha*

Carbon-dioxide emissions due to deforestation and forest degradation are linked to increasing drought, destructive floods, and sea level rise. Activities to reduce such emissions therefore provide a compelling justification for their inclusion in international environmental policy. This research focusses on land change from forestry to large-scale plantations in Malaysia and Indonesia, mega-biodiversity hotspots of Southeast Asia. Impacts of plantation types on biodiversity and carbon flux are assessed as well as the role of large-scale agricultural plantations on rural livelihood and the global economy. Trade-offs in conservation and economic development priorities within the context of Reducing Emissions from Deforestation and Forest Degradation (REDD) is evaluated.

EBLU2010-02NMY(R)-Takeuchi, Critical Analysis of Effectiveness of REDD+ for Forest Communities and Shifting Cultivation Based on Lessons Learnt from Conservation Efforts in Lao PDR and Thailand, *Dr. Kazuhiko Takeuchi*

The research will assess the potential social and economic impacts of Reducing Emissions from Deforestation and Forest Degradation in developing countries (REDD+) on local and indigenous forest communities. It will analyse the unintended effects of policy-driven land use change under the name of forest conservation, focussing on areas where land rights are uncertain or state-owned. Lessons will be drawn from forest conservation policies studied by the United Nations University (UNU) project on Sustainable Land Management in Mountainous Region of Mainland Southeast Asia (SLM-MMSEA) – an area where REDD+ has not yet been tried.

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

The proposed activity is to develop, test and disseminate the outcomes of participatory approaches to involve forest-dependent communities in forest carbon stock estimation and monitoring, and other aspects of forest management, to achieve real, long-term emissions reductions, biodiversity conservation and sustainable development outcomes, including livelihood creation. At the action research sites, the Proponent and Collaborators will work with the local communities to establish permanent sample plots reflecting Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance (GPG), and to gather data on basic forest parameters from these plots to enable accurate estimation and monitoring of forest carbon.

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APN 2010/11 Projects on Key Focus Area

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EBLU2010-04NMY(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, *Dr. David L. Skole*

The project will emphasise: 1) training and capacity building in basic concepts of REDD, REDD+ and Measurement, Reporting and Verification (MRV) systems; 2) development and testing of scalable MRV methods based on current IPCC guidelines using remote sensing satellite data and geospatial technologies; and 3) technology transfer of national level MRV systems for REDD+.

EBLU201005NMY(C)-Haruyama, Capacity Building of ALOS Satellite Data to Support Mapping and Monitoring Deforestation and Degradation in Indonesia, *Mr. Yukio Haruyama*

Training in forest monitoring using remote sensing satellite data using Advanced Land Observing Satellite (ALOS). Capacity being developed in Indonesia.

FOCUS 2: RESOURCES UTILISATION AND PATHWAYS FOR SUSTAINABLE DEVELOPMENT

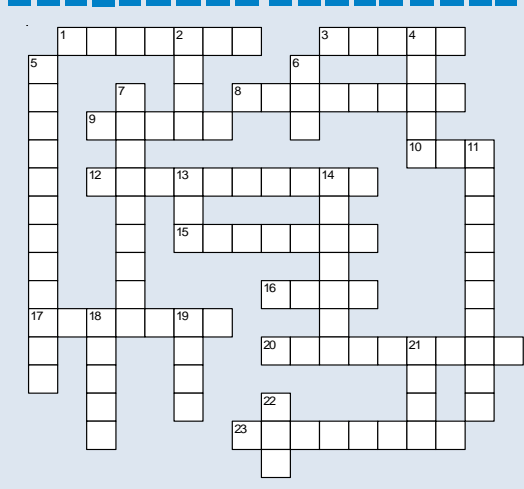
RUSD2010-01NMY(R)-Surjan, Advancing Locally-Based Green Practices to Realise Establishment of Sound Material Cycle Society in Asian Cities, *Dr. Akhilesh Surjan*

Multi-country research will review urban expansion and economic growth vis-a-vis time-series analysis of life-styles to ascertain changing material flows in domestic and industrial sectors as well as prevailing reuse and recycle practices which may be considered as precursor to the ideas of establishing Sound Material Cycle Society. Further, field realities from the selected cities of India, Indonesia, Viet Nam as well as Japan will be captured to arrest minuscule and oft-ignored dimensions of cyclicity of the materials at the household, community and city level. Multidisciplinary research team will also investigate associated looming urban environmental stresses and their interlinkages with urban material flows to focus attention on notions of integrated and synergistic application of scientific research in the society.

RUSD2010-02NMY(C)-Sun, Assessment and Promotion of Japanese Strategies and Techniques for Biomass Use in Countryside of China – Concentrating on Agricultural Straw Residue, *Dr. Hongwen Sun*

The aim of this study is to promote the advanced experience in recycling and reusing the agricultural straw residue from Japan experience such as building 'Biomass Town' through transferring of scientific know-how and technology from developed country (Japan) to developing country (China), and helping Chinese scientists to conduct initiative study on reusing agricultural straw. The project team will first understand current status of agricultural straw residue production, reusing and disposal pattern in a demonstrating area (the suburb of Tianjin) in China and make a comparison to the pattern of recycling and reusing the agricultural straw in Japan to find the gap in China. Then, the applicability of the agricultural straw recycling strategy and techniques of Japan in China countryside will be assessed.

CROSSWORD CHALLENGE



Across

- 1 MAIRS ____ study is the enhancement of semi-arid research, which includes larger area of arid and semi-arid regions in East Asia and South Asia
- 3 A joint core project of IHDP and IGBP, active worldwide and concerns itself with the processes of global change in relation to the world's coasts (abbrev.)
- 8 Vulnerability assessment of pastoral communities in different ecological and economic regions showed that ____ ecosystems are key resources

- 9 for coupled rangeland systems due to shrinking water resources as a result of climate change ____ transformations of the land surface of the planet are among the largest sources of change on Earth
- 10 Is mandated to review research proposals received by the APN, especially those in response to the Annual Calls for Proposals and, on the basis of this review, recommends to the IGM proposals for APN funding (abbrev.)
- 12 Reflects the degree to which a complex adaptive system is capable of self-organisation and the degree to which the system can build capacity for learning and adaptation
- 15 Country in the Indian Ocean hit by the tropical cyclone Nargis in 2008, in which the associated storm surge left a trail of destruction
- 16 Host of the APN PDTW, 2nd SA-SRC Meeting and Training Workshop on Downscaling of South Asian Climate Projections (abbrev.)
- 17 The pH of the ____ sea has declined by 1.5 times that of temperate Atlantic ocean and some coastal upswelling systems appear as vulnerable as polar regions
- 20 In order for engineers to fit into the equation of ____-based responses, more integration is needed
- 23 This newsletter issue's featured scientist/researcher (last name)

Down

- 2 The frequency of flooding in the coastal areas of ____ has tripled in the last 30 years, with the problems exacerbated by increasing urbanisation and by population growth
- 4 A unique Challenge Programme that links agricultural specialist and global change

- 5 researchers to enhance the understanding of food security issues in changing world (abbrev.)
- 6 APN is organising a Gap Analysis Scoping Workshop: ____ and Ecosystem Services in Asia and the Pacific
- 7 SEAWED - A collaborative research project between scientists and policy makers in the Southeast Asia region focussing on sustainable urban water quality management (abbrev.)
- 8 State-of-the-art technology comprised of storm surge ____ model and GIS tools gives a good view of potentially vulnerable areas to storm surge events
- 9 Norms that are compatible between levels and policy domains while in parallel reflect that carbon ____ is embedded in different cultural, social, economical, and political contexts
- 10 Participated by nFPs of each member country, reviews and approves projects and activities to be undertaken or supported by the APN, based on recommendations made by the SPG (abbrev.)
- 11 The ____ zone is expected to become the home for 75% of the population of Asia by 2025
- 12 The 2012 UN Conference on Sustainable Development - Rio +20 is also called ____ Summit
- 13 This organisation adopted a Charter based on the ideology of co-prosperity of Northeast Asia and carried out extensive exchange and cooperation projects in various fields (abbrev.)
- 14 The leading international body for the assessment of climate change (abbrev.)
- 15 A joint research project on land systems by IGBP and IHDP (abbrev.)

Try the APN Crossword Challenge! All answers can be found throughout the newsletter.

APN COUNTRY REPRESENTATIVES

National Focal Points (nFP) and Scientific Planning Group (SPG) Members

AUSTRALIA

(FP) *VACANT*
(SPG) *VACANT*

BANGLADESH

A.N.Shamsuddin Azad CHOWDHURY (FP)
Joint Secretary Administration
Ministry of Environment and Forests
Tel: +880-2-7167240
Email: jsadmin@moef.gov.bd;
chowdhuryanasim@yahoo.com

Md. Giashuddin MIAH (SPG)
Professor, Department of Agroforestry
and Environment - Bangabandhu
Seikh, Mijibur Rahman Agricultural
University
Tel: +880-2-9205327
Email: giash1960@gmail.com

BHUTAN

G. Karma CHHOPEL (FP)
Head, Water Resources
National Environment Commission
Tel: + 975-2-323384
Email: gkchhopel@hotmail.com

Peldon TSHERING (SPG)
Head, Policy Coordination Services
National Environment Commission
Tel: + 975-2-323384
Email: Peldon@nec.gov.bt

CAMBODIA

Sundara SEM (FP)
Director
Department of ASEAN and
International Cooperation
Ministry of Environment
Tel: +855-23-213-462
Email: semsundara@yahoo.com;
moe_dic@yahoo.com

Khieu HOURT (SPG)
Senior Management Officer
Ministry of Agriculture, Forestry and
Fishery
Tel: +855-23-220-897
Email: hourt-2010@hotmail.com

CHINA

Sun CHENGYONG (FP)
Deputy Director General
Department of Social Development
Ministry of Science and Technology
Fuxing Road 15 B, Beijing 100862
Tel: +86-10-5888-1437
Email: suncy@most.cn

Wenjie DONG (SPG)
Executive Associate Dean
State Key Laboratory of Earth
Surface Processes and Resource
Ecology, College of Global Change
and Earth System Science, Beijing
Normal University
Tel: +86-10-5880-2219
Email: dongwj@bnu.edu.cn

FIJI

(FP) *VACANT*
(SPG) *VACANT*

INDIA

Subodh SHARMA (FP)
Adviser

Ministry of Environment and Forests
Tel: +91-11-2436-0861
Email: subodh.kumar@nic.in;
subodh14@yahoo.com

B.N. GOSWAMI (SPG)
Director, Indian Institute of Tropical
Meteorology
Tel: +91-020-2589-3924
Email: goswami@tropmet.res.in

INDONESIA

Liana BRATASIDA (FP)
Assistant Minister
The State Ministry of Environment
Tel: +62-21-8580112
Email: dokie@cbn.net.id;
lianabratasida@gmail.com

Erna Sri ADININGSIH (SPG)
Director, Aerospace Analysis and
Information Center, National Institute
of Aeronautics and Space
Tel: +62-21-31927982
Email: ernas@lapan.go.id;
ernasri@yahoo.com

JAPAN

Yutaka MATSUZAWA (FP)
Director
Global Environment Research Office
Ministry of the Environment
Tel: +81-3-5521-8247
Email: yutaka_matsuzawa@env.go.jp

Kensuke FUKUSHI (SPG)
Associate Professor
University of Tokyo
Tel: +81-3-5841-1542
Email: fukushi@ir3s.u-tokyo.ac.jp

**LAO PEOPLE'S DEMOCRATIC
RREPUBLIC**

Bountanh BOUNVILAY (FP)
Deputy Director General
Water Resources and Environment
Research Institute
Tel: +856-21-219-003
Email: boun28@yahoo.com

Oulaphone ONGKEO (SPG)
Deputy Chief of Division
Water Resources and Environment
Research Institute
Tel: +856-21-219-003
Email: oulaphone75@yahoo.com;
oulaphone@wrea.gov.la

MALAYSIA

Kok Seng YAP (FP)
Director-General
Malaysian Meteorological Department
Tel: +60-3-7967-8046
Email: yks@met.gov.my

Subramaniam MOTEN (SPG)
Head of Research Division,
Malaysian Meteorological Department
Tel: +60-3-8787-2161
Email: subra@met.gov.my

MONGOLIA

Bayarbat DASHZEVEG (FP)
Secretary for National Committee to
Combat Desertification, Ministry of
Nature, Environment and Tourism
Tel: +976-51-264627
Email: bayarbt@yahoo.com

Tsogtbaatar JAMSRAN (SPG)
Director of GeoEcology
Institute of Mongolian Academy of
Sciences
Tel: +976-11-325487
Email: geoeco@magicnet.mn

NEPAL

Meena KHANAL (FP)
Joint Secretary
Ministry of Environment
Science and Technology
Tel: +977-1-4211996
Email: meenakhanal@most.gov.np;
meenakhanal@hotmail.com

Madan Lall SHRESTHA (SPG)
Academician
Nepal Academy of
Science and Technology
Tel: +977-1-4241403
Email: madanls@hotmail.com;
malashre@gmail.com

NEW ZEALAND

Andrew MATTHEWS (FP) (SPG)
Commissioner
New Zealand National Commission
for UNESCO
Tel: +64-4-9761741
Email: wa.matthews@gmail.com

PAKISTAN

Momin AGHA (FP)
Deputy Secretary (Climate Change)
Ministry of Environment
Tel: +92-51-924-5529
Email: momin_agma@hotmail.com

Amir MUHAMMED (SPG)
Rector
National University of Computer and
Emerging Sciences
Tel: +92-51-285-5032
Email: amir.muhammed@nu.edu.pk;
amir.muhammed@gmail.com

PHILIPPINES

Eriberto C. ARGETE (FP)
Director
Planning and Policy Studies Office
Department of Environment and
Natural Resources
Tel: +63-2-925-2328
Email: ecappodir@yahoo.com

Marcial AMARO Jr (SPG)
Director
Ecosystems Research and
Development Bureau (ERDB)
Tel: +63-49-536-3628
Email: erdb@denr.gov.ph

REPUBLIC OF KOREA

Suho SEONG (FP)
Director
Global Environmental Office
Ministry of Environment
Tel: +82-2-2110-6557
Email: seong@korea.kr

Chang-keun SONG (SPG)
Senior Researcher
National Institute of Environmental
Research
Tel: +82-32-560-7910
Email: cksong@me.go.kr

RUSSIAN FEDERATION

Andrey V. ADRIANOV (FP)
Institute of Marine Biology
Far East Branch, Russian Academy
of Sciences
Email: inmarbio@mail.primorye.ru

Alexander STERIN (SPG)
Deputy Director, Russian Research
Institute for Hydrometeorological
Information, World Data Center
(RIHMI-WDC)
Tel: +7-499-795-2467
Email: sterin@meteo.ru

SRI LANKA

R.H.S. SAMARATUNGA (FP)
Secretary
Ministry of Environment
Tel: +94-11-2877290
Email: secoffice@menr.lk

G.B. SAMARASINGHE (SPG)
Director General of Meteorology
Department of Meteorology
Tel: +94-11-2694104
Email: sbaladev_24@yahoo.com;
meteo1@sltnet.lk

THAILAND

Chote TRACHU (FP)
Permanent Secretary
Ministry of Natural Resources and
Environment
Tel: +662-278- 8544
Email: chote.t@mnre.mail.go.th

Jariya BOONJAWAT (SPG)
Associate Professor
Southeast Asia START Regional
Centre
Chulalongkorn University
Tel: +662-218-9466
Email: jariya@start.or.th

UNITED STATES OF AMERICA

Louis BROWN (FP)
Chair, USGCRP Working Group on
International Research and
Cooperation
Directorate for Geosciences
National Science Foundation
Tel: +1-703-292-7856
Email: lbrown@nsf.gov

Luis TUPAS (SPG)
National Program Leader, Global
Change and Climate, National
Institute of Food and Agriculture
U.S. Department of Agriculture
Tel: +1-202-401-4926
Email: ltupas@nifa.usda.gov

VIET NAM

Xuan Bao Tam NGUYEN (FP)
Deputy Director General
International Cooperation Department
Ministry of Natural Resources and
Environment
Tel: +84-4-7734263
Email: baotam@monre.gov.vn

Nga MAI NGOC (SPG)
Deputy Head, Environmental and
Social Studies Department, Centre
for Support of Social Development
Programmes
Tel: +84-3-9412025
Email: mnga@nea.gov.vn;
ngamaingoc@yahoo.com

APN Steering Committee (SC) Members

Elected members

1. Republic of Korea: Mr. Suho SEONG (Chair)
2. Malaysia: Dr. Kok Seng YAP (Vice-Chair)
3. Mongolia: Mr. Bayarbat DASHZEVEG
4. Sri Lanka: Mr. R.H.S. SAMARATUNGA (Host of the 16th IGM/SPG Meeting)

Ex-officio (SPG Co-Chairs)

5. Indonesia: Dr. Erna Sri ADININGSIH
6. USA: Dr. Luis TUPAS

Co-opted members

7. USA: Mr. Louis BROWN (Donor Member)
8. Prof. Roland FUCHS of East-West Center (Invited Expert)
9. Dr. W. Andrew MATTHEWS (Invited Expert)
10. Japan: Mr. Yukata MATSUZAWA (Donor Member)
11. Japan: Mr. Kazu TAKEMOTO (Invited Expert)

Invited Experts to the APN Scientific Planning Group

Congbin FU

Director, START Regional Committee for Temperate East Asia
CHINA
Email: fcb@tea.ac.cn

Kanayathu Chacko KOSHY

Professor, Centre for Global Sustainability Studies,
Universiti Sains Malaysia
MALAYSIA
Email: kanayathu.koshy@gmail.com

Chao Han LIU

Chairman, Southeast Asia START Regional Committee
CHINESE TAIPEI
Email: chliu@cc.ncu.edu.tw

APN Capacity Development (CDC) Committee Members

Erna Sri ADININGSIH, *SPG Co-Chair*

Luis M. TUPAS, *SPG Co-Chair*

Roland FUCHS, *invited expert (Senior Fellow, East-West Center) Email: Fuchsr@EastWestCenter.org*

Srikantha HERATH, *invited expert (Senior Academic Programme Officer, United Nations University) Email: Herath@unu.edu*

Andrew MATTHEWS, *nFP/SPG Member for New Zealand*

Harini NAGENDRA, *invited expert (Faculty Fellow, Ashoka Trust for Research in Ecology and the Environment) Email: nagendra@atree.org; nagendra@indiana.edu*

Yutaka MATSUZAWA, *nFP-Japan/Donor Member*

Suho SEONG, *SC Chair*

APN SPG Sub-Committee

Erna Sri ADININGSIH, *SPG Co-Chair, Indonesia*

Luis M. TUPAS, *SPG Co-Chair, USA*

Giashuddin MIAH, *SPG Member, Bangladesh*

Madan Lall SHRESTHA, *SPG Member, Nepal*

Alexander STERIN, *SPG Member, Russian Federation*

Newsletter Questionnaire

We want to hear from you! Please help us improve the APN Newsletter by filling out this [questionnaire](http://www.apn-gcr.org/newAPN/resources/newsletter/FeedbackForm.doc) and returning it by fax to the APN Secretariat at: +81-78-230-8017. Alternatively, you can download this form at <http://www.apn-gcr.org/newAPN/resources/newsletter/FeedbackForm.doc> and send it as an attachment to ppulhin@apn-gcr.org. Thank you for your cooperation.

1. How do you rate the APN Newsletter overall?
 poor fair good very good
2. How would you describe the APN Newsletter as a source for information?
 not so informative informative very informative
3. Do you still want to continue receiving an electronic copy of the APN Newsletter?
 yes no
4. If you know other people or institutions who are interested in receiving a copy of the APN Newsletter, please provide us with their contact details:
 Name: _____
 Position: _____
 Division: _____
 Organization: _____
 Postal street address: _____
 Postcode and city: _____
 Province/Region: _____ Country: _____
 Phone: _____ Fax: _____
 Email: _____ Website: _____
5. We look forward to receiving any additional remarks or suggestions about what you would like to see in the APN Newsletter.

Calendar of Global Change Events

Events in **bold** are APN or APN co-sponsored events

2011

JANUARY

9-11 JAN. International Conference: Innovation and Sustainability Transitions in Asia, Malaya University, Kuala Lumpur, Malaysia. Please visit: <http://umconference.um.edu.my/it-apn2011> or Contact: it-apn2010@ivm.vu.nl

17 JAN. International Symposium: Promoting Synergies among Adaptation Networks in the Asia-Pacific Region, Mito, Japan. Please visit: <http://www.climatejapan.org/icas/>

18 JAN. International Disaster Management Symposium on 'Challenges of Community Based Disaster Management: Road to Climate Change Adaptation', Kobe, Japan. Contact: rep@hyogo.uncrd.or.jp

FEBRUARY

1-3 FEB. International Conference on Biodiversity and Climate Change (ICBCC), Manila, Philippines. Please visit: <http://www.icbdcc.com/>

10-11 FEB. 3rd Meeting of Earth System Visioning, Paris, France. Please visit: <http://www.icsu.org>

13-15 FEB. APN Biodiversity Gap Analysis Scoping Workshop: APN Biodiversity and Ecosystems Services in the Asia-Pacific Region, Tokyo, Japan (by invitation only). Contact: info@apn-gcr.org

MARCH

11-16 MAR. Resilience, Innovation and Sustainability Conference: Navigating the Complexities of Global Change, Arizona State University, USA. Please visit: www.resilience2011.org/

13-15 MAR. 5th GEOSS Asia-Pacific Symposium, Tokyo, Japan. Please Visit: <http://geoss-ap-symposium.org>.

APRIL

3-8 APRIL. GREENHOUSE 2011, Cairns Convention Centre. Contact: Paul.Holper@csiro.au or visit www.greenhouse2011.com

4-8 APRIL. 16th APN Inter-Governmental Meeting/Scientific Planning Group Meeting and associated committee meetings, Colombo, Sri Lanka. Contact: info@apn-gcr.org

MAY

17-20 MAY. Colorado Conference on Earth System Governance: Crossing Boundaries and Building Bridges, Colorado State University, USA. Please visit: <http://cc2011.earthssystemgovernance.org/>

23-25 MAY. Annual Scientific Committee Meeting of ESSP, Wageningen, Netherlands (by invitation only). Contact: Ada.Ignaciuk@essp.org

JUNE

14-18 JUNE. 22nd Pacific Science Congress, Kuala Lumpur, Malaysia. Please visit: <http://22ndpsc.net/>

JULY

19-23 JULY. 6th World Environmental Education Congress, Brisbane, Queensland, Australia. Please visit: <http://www.weec2011.org/>

20-27 JULY. XVIII INQUA-Congress, Bern, Switzerland. Contact Prof. Christian Schlüchter: christian.schluechter@geo.unibe.ch or visit: <http://www.inqua2011.ch/>

AUGUST

28-31 AUG. EMECS 9, Managing for Results in our Coastal Seas – Global Summit on Coastal Seas, Baltimore, Maryland, U.S.A. Please visit: <http://www.conference.ifas.ufl.edu/emecs9/>

SEPTEMBER

8-15 SEPT. LOICZ 2011 Open Science Conference, Yantai, China. Please visit: <http://www.loicz-osc2011.org/>

18-23 SEPT. 3rd iLEAPS International Science Conference, Partenkirchen, Germany. Please visit http://www.ileaps.org/multisites/Science_Conference_2011/

OCTOBER

24-28 OCT. WCRP Open Science Conference, Denver, Colorado, USA. Please visit: <http://www.wcrp-climate.org/conference2011/>

Visit our website for a more extensive list of events:
<http://www.apn-gcr.org/newAPN/news/news.htm>



APN Secretariat

East Building, 4F, 1-5-2 Wakinhama Kaigan Dori, Chuo-ku, Kobe 651-0073, JAPAN

Tel: +81-78-230-8017, Fax: +81-78-230-8018

Email: info@apn-gcr.org

Website: www.apn-gcr.org

Views expressed in this newsletter do not necessarily represent those of the APN.

Newsletter Editors: Linda Anne STEVENSON (Executive Editor), Peryn PULHIN (Managing Editor)

Contributors (this issue): AILIKUN, Ione ANDERSON, Dilli Ram BHATTARAI, Iris CHENG, Anantha DURAIAPPAH, Januel FLORESCA, Ada IGNACIUK, Chu ISHIDA, Trishna JAISHI, Aamer KHAN, Konstantin LUTAENKO, Anjan NEUPANE, Jeeban PANTHI, Archana PATANKAR, Linda PEÑALBA, Dhiraj PRADHANANGA

Design and Layout Team: Peryn PULHIN, Natsuki NIIMI and Lizhier CORALDE