APN NEWSLETTER

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COMMUNICATING GLOBAL CHANGE SCIENCE

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Message from the Director

Dr. Akio Takemoto
Director, APN Secretariat

Since October 2011, a number of important events related to global change were held around the world.

From 6–7 October 2011, the APN Secretariat organized its 19th Steering Committee Meeting in Phnom Penh, Cambodia, and I would like to thank the Ministry of Environment, Kingdom of Cambodia for hosting the Meeting. During the meeting, Cambodia was faced with severe flooding due to heavy rainfall in the Mekong area. There was substantial discussion during the meeting concerning the enhancement of science-policy linkages under the APN framework such as those related to climate change activities following the Cancun Agreement. In particular, climate adaptation and low carbon development were discussed. There were also discussions related to the APN's institutional activities including the APN Website and Calendar.

APN plays an important role in enhancing research and capacity building activities on climate change, based on the outcomes of the UNFCCC/COP meetings. In October, 2011, the APN published its new Synthesis Report entitled, "Climate in Asia and the Pacific: a Synthesis of APN Activities," and organized an authors' workshop to prepare a Springer publication on climate change from 17–20 October in Kobe, Japan. The report of that workshop is available in the newsletter.

Also in October, I participated in a UNFCCC workshop on "Gaps and Challenges in Risk Management Approaches in the Face of Climate Impacts". This workshop was held in Lima, Peru (details of which are also reported in the newsletter).

There were intensive discussions among the participants including Government officials, international and regional institutions, on how to develop climate-related disaster risk management (DRM) system at international, regional, national and local scales. During the discussion, many participants stressed that capacity development of local scientists should be enhanced with the assistance of regional institutions such as the APN so that they could be involved in the decision-making process on the DEM strategy, including national adaptation plans.

On October 31, I was invited to a Workshop on the "Low Carbon Asia Research Project" in Johor Bahru, Malaysia. The workshop was organized by the LCS-RNet network, which is an international research network for low carbon society, established under the commitment of the G8 at its Environmental Minister's Meeting in Kobe, Japan in 2008. I presented on the APN's framework and highlighted APN projects related to climate change mitigation. In my presentation, I discussed the Asia Research Network for Low Carbon Development (ARNLCD), which was proposed for establishment by the Secretariat of LCS-RNet in October 2011. I suggested that collaboration between the APN and ARNLCD would be very important, and many issues must be addressed before establishing a successful network.

From 28 November to 11 December 2011, COP17 and CMP7 to the UNFCCC were held in Durban, South Africa and the APN's presence was prominent for the entire 2 weeks. A detailed report is also available in the newsletter.

At the sub-regional level, APN's twenty-second and youngest member country, Bhutan, successfully hosted the Third South Asia Sub-Regional Cooperation (SA-SRC) Meeting from 16 to 17 January 2012, where country representatives from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka worked together to identify research priorities of common interest for possible collaboration, and shared information on their efforts and needs related to global change research.

We are very excited to see Bhutan's strong support in organizing this meeting, and I am sure the active involvement of our newest member in the Network will give new dynamics to the collaborative research and capacity building activities in the region."

Jointly with DIVERSITAS, IHDP and UNU-ISP, we organized a workshop from 23 to 25 January 2012, on "Building Resilience with Common Capital: Managing Shared Resources, Meeting the Challenges of a Rapidly Modernizing World under Climate and Ecosystem Change," funded by the APN, the Hyogo Prefectural Government and UNU-ISP.

Let me take this opportunity to wish all APN members, project leaders and the larger Global Change Community a very warm and prosperous 2012, the Year of the Dragon. May it result in the continued growth and strength of the APN through strong regional collaboration among our 22 member countries and the wider international community.

Photo: Nikolai Vassiliev

Guest article

Communicating global change science to non-scientists

Martin Rice and Rik Leemans

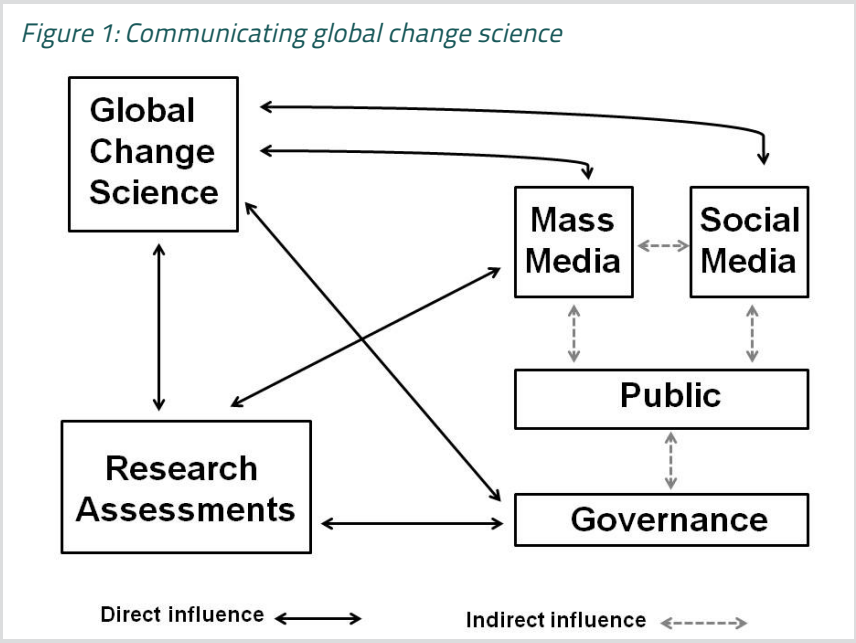
The Asia-Pacific region faces many environmental challenges including climate change, food shortfalls, water insecurity and biodiversity loss. APN scientists generate and synthesize new data to analyze and address these challenges. As science identifies and develops possible solutions, they need to be communicated. Unfortunately, negative environmental trends continue because of failing international politics to tackle them. This was exemplified by the lack of progress during the climate negotiations in Durban last December.

Scientific advisers and funding agencies throughout the world are calling for scientists to better communicate their research in order to cope with all of these challenges. Problem solving is one of the greatest societal benefits of science that the public should value more. Figure 1 (next page) shows how research findings generally are transmitted to non-scientists, such as the public and policy-makers. Policy-makers receive science information both directly through policy briefings and personal contacts with scientists, and indirectly via media reports and assessments (i.e. synthesis of scientific literature by, for example, the Intergovernmental Panel on Climate Change and the Millennium Ecosystem Assessment). The public is informed mainly through mass and social media, but this form of coverage is rarely balanced. The resulting biased perspectives often ignore the actual urgency of the problems at hand.

Scientists communicate with their peers and less with non-scientists. Effectively communicating to broader audiences is unusual. For example, scientists can at times confuse the message with technical jargon, complexity and too much (often irrelevant) detail. In doing so, they risk losing their audience. Miscommunication can also occur by not anticipating potential misunderstanding. For instance, an employee considers "positive feedback" from his or her boss beneficial to his or her career, whereas in science a "positive feedback" creates a negative vicious cycle. Concepts like "uncertainty," "theory," "risk," "error" and "values" have strongly different meanings in science and in common usage. Scientists, therefore, need to carefully consider how they craft their message and which metaphors and analogies are appropriate to describe science to lay audiences. (See also "Communicating the science of climate change" by Somerville and Hassol in Physics Today; www.physicstoday.org/resource/1/phtoad/v64/i10/p48_s1).

The Earth System Science Partnership (ESSP) also stimulates science communication. We established a journal (www.journals.elsevier.com/current-opinion-in-environmental-

Figure 1: Communicating global change science



sustainability) that synthesizes and reviews timely global change issues to broader audiences. An annual science-policy dialogue for delegates of the UN climate convention was established (with APN, IAI, START and the IPCC). This dialogue presents timely scientific findings and provides a unique opportunity for delegates to question experts. Although many of their questions are related to immediate negotiation needs, such as defining dangerous climate change or assessing the efficacy of policies, the dialogue helps to enhance the longer-term policy relevance of global change research. Finally, ESSP's Global Carbon Project provides easy-to-understand outreach material on their website (www.globalcarbonproject.org).

There are numerous opportunities for scientists to communicate science to non-scientists. For example, serve on scientific committees of organizations that engage with decision-makers and the public; participate in community activities; and use social media to share and discuss research and recent findings relevant to society.

Effective communication requires training and experience but few scientists receive formal training. It is an important skill, which should receive greater attention in curricula and career development. Being competent at handling media inquiries, clarifying a scientific debate to non-scientists and handling prickly audiences (for example, climate contrarians or judicious investigative journalists) requires training and coaching. Universities now, fortunately, establish science communication courses. And, for example, Australia has established a Climate Commission – including climate scientists, economists, business leaders and science communicators – to provide a reliable and authoritative source of information on climate change. In 2011, this Commission conducted several public events where experts explained climate change and its impacts on Australia. The US National Science Foundation recently established CAMEL (www.camelclimatechange.org) to communicate climate change science (and assist teachers with appropriate course material).

APN also has an important role to involve scientists in, and provide opportunities for, communicating research to the broader audiences as an integral component of its work. Annual APN meetings serve as excellent fora for scientists and policy-makers to exchange ideas and to identify future research needs. Facilitating outreach is important because involved scientists are crucial in communicating science and engaging with non-scientists, if necessary assisted by professionals, to help create a better, more sustainable future for the Asia-Pacific region.

About the authors

Martin Rice
Coordinator, Earth System Science Partnership (ESSP) and PhD researcher at Department of Environment and Geography, Macquarie University, Australia

Rik Leemans
ESSP Scientific Committee Chair, Environmental Systems Analysis Group, Wageningen University, The Netherlands

Guest article
Communicating science: the policy-maker perspective

Howard Bamsey

The following note about communicating science does not pretend to be science. It is merely the reflection of someone who has often bitten his tongue in frustration that important scientific findings are being obscured by those who exploit them for nefarious purposes. This is folly though; it is simply part of being human that facts alone will not be conclusive.

Communicating science is art that requires training and practice.

Most people would have no quarrel with the proposition that science is justified for its own sake – the extension of knowledge is an end in itself. For science to be used in society though, it is important that it be understood broadly by people who might be affected by the phenomena it explains or by policy responses to them. This is all the more important at the present time when patterns of human activity are having unprecedented impacts on the natural environment. Indeed, so profound are these changes that my colleague Professor Will Steffen, Executive Director of the Climate Change Institute at the Australian National University and some of his collaborators have described the time we live in as the "anthropocene" epoch. If human beings are the cause of major global change then society is bound to ask what is to be done about the situation. This is ultimately a political question but it cannot be answered unless the scientific precursor questions are dealt with.

What precisely is causing the changes? If there are several causes, how do they relate to one another and are their impacts compounded? How serious are these changes for the world we know? Are there longer term implications? What adjustments to the causes would reduce their impacts? Could they be reversed? What are the financial costs and benefits of response measures? All these and more issues are ultimately based on knowledge from the natural sciences and decision-makers have to understand them fully if they are to exercise their own roles successfully. So our discussion focuses then on how science can be conveyed to those in the policy world so that they can use it wisely.

We know that science communication is not an easy task. The evidence is there in the controversies that rage around climate change science in particular. The truth is that any new information that suggests a need for adjustment to established patterns of living is likely to encounter pushback. And climate change science has had plenty of that. While the controversy has not in any way undermined the science itself, it has confused the public almost everywhere and so has made it more difficult for governments to enact laws to respond when the responses create winners and losers.

Much of this is probably inevitable and there is certainly no guaranteed formula for success in communication of unwanted messages. Here are a few suggestions from my own experience that may make the task a little easier. If science is to be communicated effectively beyond the science community, the communications should be:

methodical: *Any project likely to result in policy-sensitive findings should incorporate a professionally-designed communications plan.* It may be that the scientists concerned are best-placed to explain their work but if any controversy is likely, they will need training. They should be aware that some media have no serious interest in their work but only in a story. They simply will be unable to cope with such a perverse agenda without systematic acquisition of skills not found at the laboratory bench or anywhere near it.

authoritative: *Clearly the scientists who have done the work will be critical in its presentation to the wider world. They may not be ideally placed though to be in the front line with the media.* Perhaps their supporting organizations could fill that role. If they come from highly reputed universities, for example, skilled communications professionals should be able to help. In Australia, the national Science Media Centre is an independent body dedicated to bringing the science community and the media closer. Similar organizations in other countries may provide this much-needed facilitative role.

> ... any new information that suggests a need for adjustment to established patterns of living is likely to encounter pushback.

simple: Complexity is the enemy of any communications effort that engages the public. This is another reason why scientists will often benefit from professional assistance in presenting their results. It is sometimes possible for outsiders to distill what will have most impact on an audience more readily than the practitioners. It is obvious but often something we neglect that those listening to us have many other things on their mind. *They ration their listening and if we want them to hear us we have to find a message that draws their attention.* That will not be something that contains all sorts of qualifications and unspecified uncertainties. It will be a clear statement of direct relevance to the reader or listener: something that says "listen to this because it affects what matters to you". This does not mean that scientific uncertainties should be disguised. Rather they should be explained in a contained way so that it is clear that they underpin rather than undermine robust science.

interactive: A message, however simplified, may not be clear enough on first hearing. One way communication anyway often appears condescending to those listening, suggesting that they are taken for granted. For these reasons *it is vital that whoever is involved in the first communication of a scientific finding be available for follow-up discussion and debate.* This will often be exasperating to the scientists involved who may feel they have discharged their obligation to explain their work and just want to return to it. None of these criteria is more important though in establishing the bona fides of the scientists and their sponsors. Again a professional effort will often pay dividends.

avoid advocacy: Scientists are entitled to feel passionate about their work and its importance to the community. Good science is the foundation of good public policy. They are not the same thing though, and science is only one part of policy development. Scientists and their sponsors should do all they can to bring their work to the attention of the policy community but they take a great risk when they move across the border. Suddenly they will find themselves confronting a few serious critics they were not aware of - and a host of special interests, grumpy old men and general dissenters who will identify them as the problem and attack them accordingly. Scientists if they are wise will keep to the science and leave policy to others.

Anyone who has been involved in informing the public about the science of global change will have experienced at the very least a frequent sense that some people don't want to hear the message. Sometimes outright hostility is displayed and courage required to respond. I hope that readers who find themselves with the literally thankless task of conveying such messages will find these reflections of my own experience occasionally useful. This is sometimes a hazardous path but never lonely. Look sideways and you will always see someone else who will have experienced predicaments similar to yours and will be keen to share their lessons.

Howard Bamsey is Adjunct Professor of Climate Change and Energy Security at the United States Studies Centre at the University of Sydney and Adjunct Professor at the Climate Change Institute of the Australian National University. He is also affiliated with the Centre for Climate Economics and Policy at the Australian National University and is Special Adviser on Sustainable Development to the Department of Foreign Affairs and Trade. He is a member of the Board of Climate Works Australia.

Until recently he was Australia's Special Envoy on Climate Change and a Deputy Secretary in the Department of Climate Change and Energy Efficiency. Mr. Bamsey was formerly head of the central Australian Government agency on climate change, the Australian Greenhouse Office. In 2006 and 2007 he co-chaired the United Nations "Dialogue on Long-term Cooperative Action on Climate Change", which launched negotiations within the Climate Change Convention

He spent over twenty years in the Australian foreign service. He served in the main United Nations centres of New York, Geneva and Vienna as well as other capitals. His positions included Ambassador to the United Nations in Geneva and Ambassador for the Environment.

Mr. Bamsey was also instrumental in organizing and successfully concluding the APN's Australian-hosted 9th IGM in Canberra, Australia in March 2004.

MESSAGE FROM YOUNG SCIENTISTS

Since September 2011, more than 80 young scientists in the Asia Pacific region have received financial support for their participation in three major international conferences and workshops in China and the United States.

Such support is regularly provided as part of APN's effort to achieve its goals of supporting regional cooperation and interaction.

Workshop "Asian development pathways in the context of transitions towards a green economy"

17–21 October 2011, Nanjing, China

The workshop is one of the most enriching training experiences I have ever had.

The approaches for analyzing pathways towards development transitions were well designed across various disciplinary analytics, issues and perspectives.

Discussions spilled over informally into meals and bus trips, creating a community of scholars open to dialogue and collaboration.

Tina Saavedra Clemente
Asian Centre, University of the Philippines, Diliman

I am grateful for having had the opportunity to attend the one week training workshop in Nanjing, China which is sponsored by APN and organized by the International Human Dimensions Programme on Global Environmental Change (IHDP).

This workshop gave me a broader perspective on the importance of integrating and incorporating adequate technological, political and social responses to achieve green economy with long term sustainability.

After retuning to our home country, we still keep in touch with other participants to share information regarding green economy and also explore further opportunities for collaboration in near future.

Joni Jupesta
United Nations University Institute of Advanced Studies

WCRP Open Science Conference

24–28 October 2011
Denver, Colorado, USA

APN granted me travel support to present my poster titled 'GPS Precipitable Water Vapor Variability over Northern Borneo Region during ENSO 2003-2007" at the WCRP Open Science Conference.

As a Ph.D. candidate from an engineering background, the conference played an important role in putting climate issues into a better perspective for me, helping me identify key issues in climate research and simultaneously establishing the necessary groundwork for my pursuit of a career in climate science.

Furthermore, the conference provided opportunities for face-to-face interaction with senior scientists which resulted in valuable suggestions and inputs that I was able to immediately incorporate into my research analysis.

Farah Hani Abdul Rahim

International Islamic University Malaysia

I am glad to have received travel grant from Asia-Pacific Network for Global Change Research (APN) to attend the WCRP OSC.

I had my poster presentation entitled 'Assessment on Aerosols Optical Properties from the Observations during AERONET Campaign over an Urban Location in India" under Session C12: Clouds, Aerosols and Climate.

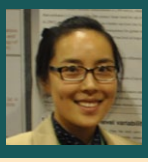
The APN not only provided an international platform to present my research work at the WCRP Conference but also gave me a networking opportunity to interact with many established and new scientists around the world. I would encourage anyone interested in getting involved in APN programmes and activities to definitely do so, and especially if you are an early career researcher to attend related seminars.

I would like to thank the APN for providing funds and giving me the opportunity to participate in the Conference and present my research work.

Sunita Verma
Birla Institute of Technology, Mesra-Jaipur Campus, India

As a post-graduate student, I was supported by APN and World Meteorological Organization (WMO) to participate the WCRP Open Science Conference, which provided me a great opportunity to communicate face to face with the most famous scientists in the world.

The Conference also provided me a platform to present our work "On the Sea Level Rising Rate Since 1993". New ideas just popped up as I talked with other scientists, and I was inspired and motivated to pursue them in the future. This feeling is great.



Ying Feng
The First Institute of Oceanography, China

I met a lot of people and enjoyed hearing the talks given by well-known scientists, which provided many ideas that could be implemented in my own research. I presented my own research paper and received very useful suggestions and comments. All of those things fueled my curiosity and determination to further deepen the present research.

I returned to work with new enthusiasm and strong desire of serving the society through quality scientific research.

Pradeep Khatri
Assistant Professor

Center for Environmental Remote Sensing, Chiba University

Young LOICZ Forum

8–15 September 2011
Yantai, China

The APN provided me with a great opportunity to attend the Young LOICZ Forum (YLF).

The intensive lectures given by a team of distinguished internationally-renowned scientists enlightened my various needs for academic and professional development in natural sciences, economics and social sciences across a wide spectrum of disciplines. Furthermore, I received substantial exposure to all aspects of coastal management.

The YLF brought together senior scholars, young scientists and coastal managers for structured training on scientific techniques and soft skills. In this way, it has provided space for academic networking among junior and senior scholars from a wide range of institutions and discipline areas, often with long-term outcomes such as collaborative research projects and joint publications. Moreover, I was greatly benefited through the Young LOICZ Forum 2011 capacity-building programme; it would be an asset to my academic career. Finally I would like to acknowledge APN for providing funding to cover my airfare to attend the Young LOICZ Forum 2011.

Mukesh Kumar
Jawaharlal Nehru University, India

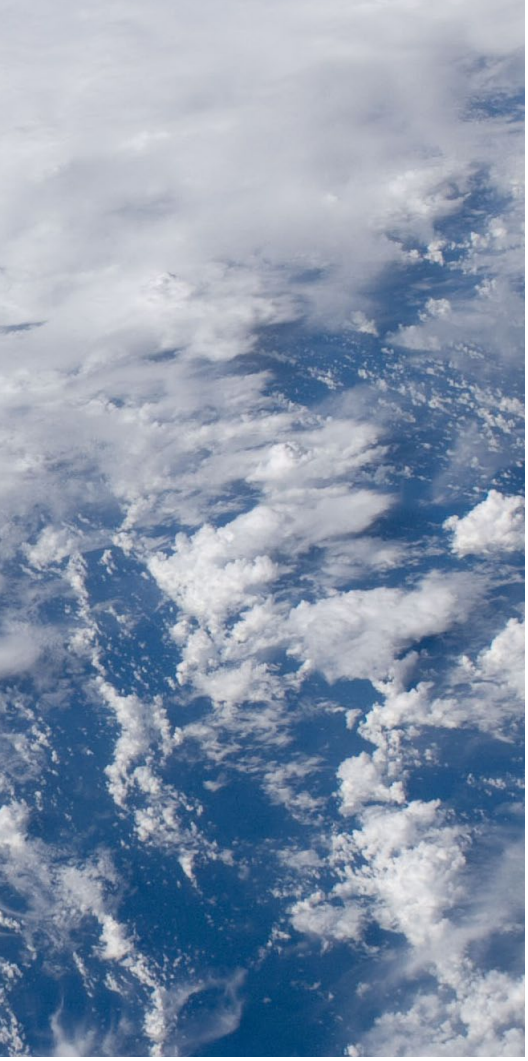
Planet Under Pressure: New Knowledge towards Solutions

Mark Stafford Smith

The United Nations Conference on Sustainable Development (Rio+20) will take place in May 2012, and will provide an opportunity for the world's nations to commit to action on the evidence of planetary stresses before them. The scientific community therefore has a significant role to play in continuing to inform on the urgency and options for action in the lead-up to Rio+20.

This is one purpose of the *Planet Under Pressure: New Knowledge towards Solutions* conference in London during 25-29th March 2012 (http://www.planetunderpressure2012.net/index.asp). Solutions to global environmental change will require application of the world's best science, but delivering it and interpreting its outcomes depends on debate and interactions among a broader group than the scientific community alone: resource managers, business, policy-makers and civil society are all critically important players. This debate needs to be worldwide as all parts of the world have important contributions to make, and a successful response will depend on unprecedented worldwide collaboration. Indeed, the developing world is being disproportionally affected by environmental change due to a combination of geographic and socioeconomic circumstances. The social, economic and political impacts of these changes, coupled with globalization, urbanization, and unequal patterns of production and consumption, could undermine the development agenda in many communities and regions and thereby derail global efforts towards sustainable development.

This conference takes place six weeks before Rio+20. In preparation, during 2011 the global change science community has developed a series of policy briefs and white papers on selected key topics and their interconnections. These white papers will be discussed and developed at the Planet Under Pressure conference and presented at Rio+20 and related meetings during the preparatory process.



Dr. Mark Stafford Smith is Science Director of the CSIRO Climate Adaptation Flagship in Canberra, Australia, and Co-chair of the Scientific Organising Committee for Planet Under Pressure 2012.

The second major purpose of the conference is to chart the direction for the next decade of global change science, building stronger links between disciplines, between scientists from the south and north, and between science and decision-makers in society. The conference will be an opportunity for input into the future plans for how the international science community organizes itself to deliver solutions to decision-makers in these times of increasing rates of change.

The conference has a strong plenary programme (*www.planetunderpressure2012.net*) and some 50 parallel sessions and other events with a substantial developing world convenorship, focusing on three broad themes:

A. Meeting global needs: food, energy, water and other ecosystem services

B. Transforming our way of living: development pathways under global environmental change

C. Governing across scales: innovative stewardship of the Earth system

Abstract submission is now closed, and early bird registration closes on 20 January. However, there are many networking opportunities at the conference, and we would welcome your attendance, whether you are a researcher, or in policy, industry, media, development or a civil society organization (see http://www.planetunderpressure2012.net/attend.asp). There is already a reasonable attendance from the Asia-Pacific region, but we would welcome much more, particularly building on the agenda of the APN.

Climate in Asia and the Pacific: A Synthesis of APN Activities

Linda Anne Stevenson

Work for the publication "Climate in Asia and the Pacific: A Synthesis of APN Activities" began in November 2009 with a scoping workshop followed by an authors' workshop in August 2010.

The work entailed summarising over fifty scientific research and capacity building projects funded by the APN that had a climate-related element - whether natural climate variability, and/or climate change. The contributing authors' of the synthesis report are leaders in their field and many of them are authors for the next Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCCAR5).

The synthesis report will be a useful tool not only for the IPCC, but also for scientists, decision-makers and educators as it identifies both research gaps and future research activities for the Asia-Pacific region in the context of natural climate variability and climate change.

Excerpts from the Executive Summary are outlined in this article and the full synthesis can be downloaded from the APN website at: www.apn-gcr.org

It has become clear that climate is one of the most pressing issues in the international political arena today. The IPCC, which is the Intergovernmental Panel for Climate Change, and its Fourth Assessment Report (AR4) states that "warming of the climate system is unequivocal" and that climate change will interact at all scales with other aspects of the global environment and aggravate existing concerns about the provision of natural resources including water, soil and air pollution, health hazards, disaster risk, and deforestation. Their combined impacts may be compounded in the future in the absence of integrated mitigation and adaptation measures [IPCCAR4 (SPM), 2007].

> APN investments aimed at improving the region's understanding of climate and at assessing the risks to society and nature from climate variability and change are well justified in terms of need and benefits.

The climate synthesis report indicates that while there is much activity at the global level, there is a need to intensify investigative research of climate change and natural variability and trends at the regional level, as these are still poorly understood. Consistent socio-economic data collection is needed, as is the need for an interdisciplinary approach to solving complex climate change problems. The increasing frequency and severity of floods, droughts and extreme temperatures requires use of appropriate indices to improve monitoring and prediction of extreme events.

The effects of climate on water resources have been studied in APN projects but many issues remain unclear. There is a need for models to better predict the effects of seasonal to inter-annual climate on water availability and quality. Coastal communities continue to be highly vulnerable to sea level rise and research is needed in identifying appropriate adaptation measures, strategies, and policies. Small islands are especially vulnerable and research is required into relocation options or alternatively, where relocation is not an option, into engineering solutions. APN has supported international workshops to reduce vulnerability and devise coping strategies for agriculture to climate variability and change. These have built the knowledge-base for developing predictive capacity to manage climate variability and climate change-related vulnerability.

APN projects have contributed substantially to the building of regional capacity to include climate change in national sustainable development strategies and action plans. APN workshops on trends in climate extremes have provided a framework for international trend analysis in developing countries around the world. However, what is abundantly clear is that open access to climate data, including relevant socio-economic data, will be essential for countries in the Asia-Pacific to carry out risk assessments of their vulnerability to trends in climate within a regional framework.

The need for climate change adaptation is increasingly recognized by communities, with an initial focus on assessing vulnerabilities and identifying adaptation options. The complexity of adaptation due to the multidisciplinary nature of the required solutions and the lack of long-term data pose a great challenge. Approaches at the grass roots levels (including the identification of local champions) that involve communities and local governments to incorporate climate change adaptation practices into development planning will be needed, and Integrated Assessment Models (IAMs) will need to be customized for local to regional and sectoral levels.

Critical to climate adaptation research, practice and policy are downscaled climate data. Developing Regional Climate Models (RCMs) in Asia has helped provide more detailed information on monsoon circulation; and high-resolution regional/local information from RCMs can be used in impact, vulnerability and adaptation studies. There is a need for further work on RCMs and statistical downscaling methods to help localise Global Climate Model (GCM) results and to quantify the uncertainties associated with these results. Especially problematic in the Asia-Pacific region are Small Islands States and areas with rough and steep terrain like the Himalayas.

> “Formal assessments and literature citations have demonstrated that APN activities have been effective and of high quality.

The APN recognizes that effective application of climate knowledge to practical problems of societies across the Asia-Pacific region requires effective dialogue across the traditional boundaries of science, technology and policy.

The APN has a role to play in promoting research in the region that defines the strategies that lead to true sustainable development. The Asia-Pacific region has a rich variety of cultures, and the APN has been effective in promoting connections and alliances across all these cultures. This effectiveness comes from the recognition of cultural differences and not imposing a monolithic approach. These sensitivities to culture will be especially important as the APN continues to promote exchanges of knowledge on climate-related issues across disciplines and sectors.

Clearly, the most important aspect of interactions across a region is the human factor. The APN has been effective in promoting innumerable networks of participants in its projects related to climate. While substantial progress has been made by APN-supported projects on climate science, capacity building and policy outreach, much remains to be done in the Asia-Pacific region. Among the key trends impacting the region are rising population, increasing urbanization, rapid economic development, rising energy demand, massive land use and cover change, increases in temperature, heatwaves, floods and droughts, and globalization.

Dr. Linda Anne Stevenson is Executive Science Officer at the APN Secretariat and one of the authors of the Synthesis Report.

Featured Global Change Organization

The Intergovernmental Panel on Climate Change (IPCC)

Rodel D. Lasco

Dr. Rodel D. Lasco is a Senior Scientist at World Agroforestry Centre (ICRAF) and a lead author of the Asia Chapter under Working Group 2 of the IPCC Fifth Assessment Report (AR5).

Dr. Lasco has led two projects under APN's ARCP programme: 1) Linking climate change adaptation to sustainable development in Southeast Asia, and 2) Integrating carbon management into development strategies of cities- establishing a network of case studies of urbanization in the Asia-Pacific. He's also one of the contributing authors to the recently published APN synthesis report "Climate in Asia and the Pacific: A Synthesis of APN Activities".

Many countries in Asia and the Pacific are highly vulnerable to climate change. As researchers and policy-makers grapple with how to respond to a warming world, there is expectedly a high demand for evidence-based information.

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) to provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts. The IPCC reviews and assesses the most recent scientific, technical and socio-economic information produced worldwide relevant to the understanding of climate change. In 2007, it was awarded the Nobel Peace Prize in recognition of its ground-breaking work on climate change.

Thousands of scientists from all over the world contribute to the work of the IPCC on a voluntary basis. I am privileged to have worked in four IPCC assessments reports since 1999. Below, I briefly share my perspective on our ongoing work with the Fifth Assessment Report (AR5) and in working for the IPCC in general.

Every five years or so the IPCC produces a major assessment report. The release of these reports has shaped the direction of climate change negotiations in the UNFCCC. The AR5, similar to the preceding assessment report, will have two major parts. The first part deals with global and sectoral dimensions of the impacts of, and adaptation and vulnerability to, climate change. It will cover natural and managed systems (e.g. freshwater, oceans, food production) and human systems (e.g. urban areas, rural areas). The second part focuses on regional dimensions of climate change, one of which is the Asia chapter.

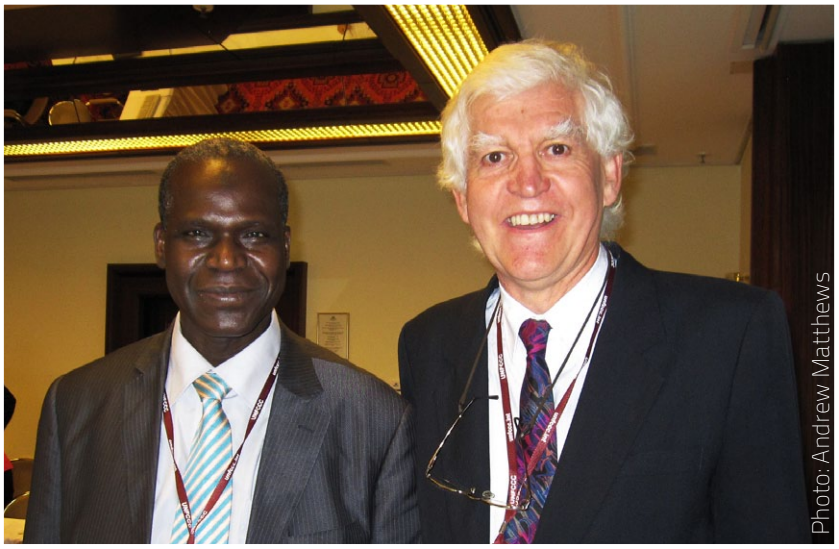
The Asia chapter, like all the regional chapters, will deal with the following major topics as approved by the IPCC: major conclusions from previous assessments, adaptation and mitigation interactions, inter- and intra-regional impacts, and multi-sector synthesis. At this time, we are hard at work producing

the first order draft (FOD) due sometime in May 2012, which will be subjected to experts' review soon afterwards. After this, there will be a second round of reviews by governments. Once completed in the spring of 2014, I expect that the Asia chapter will provide the most comprehensive survey of how climate change could affect the continent.

It's a great blessing to be part of the IPCC process. The IPCC is one of the most credible scientific organizations in the world. It is unique in that its outputs feed directly into the decision making process both at the global level and at the regional levels. All IPCC authors are volunteers and they do not receive any financial compensation for their effort. In spite of this, thousands of authors answer the call of duty.

As a developing country scientist, my work with the IPCC has allowed me the opportunity to work with world-class scientists. It has enabled me to cultivate a wide network of colleagues from various countries. Conversely, I am also able to share the results of my research to a global audience. Incidentally, the APN has significantly contributed to my development as a researcher and thus to being qualified to be an IPCC author. *In my country, being known as an IPCC author is a badge of honor. It helps open the ears of policy-makers to what we have to say.*

It is still a long way off before our AR5 report is released. The road ahead will be full of writing, revising, and still more writing. But at the end of the day, you know that you are part of something much greater than yourself. For a scientist like me, nothing can be more exciting.



Mr. Konaté (left) and Dr. Matthews at SBSTA32, 4 June 2010, Bonn, Germany

Tribute to Mama Konaté

By Dr. Andrew Matthews, Expert Member of the APN Steering Committee

Mr. Mama Konaté has been the Director General of the Mali Meteorological Service and so came to the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the United Nations Framework Convention on Climate Change (UNFCCC) with a strong technical background to the issues around climate change.

He added his personal flare to this technical background with an unassuming, welcoming openness that was appreciated by all with whom he had contact.

Coming from a developing state in Africa, Mr. Konaté was acutely aware of the significant issues facing Africa in terms of future climate variability and change and proactively sought progress from Parties to the UNFCCC on a "post-Kyoto" agreement.

He will be sorely missed by the international community.

19th Steering Committee Meeting held in Phnom Penh, Cambodia

The APN 19th Steering Committee (SC) Meeting was successfully held from 6 to 7 October 2011 in Phnom Penh, Cambodia, delivering new momentum for the APN to move along a more clearly defined scientific and institutional pathway in its achievement of the goals set forth in the 3rd Strategic Plan, especially in the lead up to the APN's 17th Inter-Governmental Meeting/Scientific Planning Group Meeting to be held in Indonesia in the coming March 2012.

The Meeting was jointly organized by the Ministry of Environment, Royal Government of Cambodia, and the APN Secretariat. The Meeting was attended by Steering Committee members and representatives from Cambodia, Indonesia, Japan, Korea, New Zealand and the USA.

Mr. Sundara Sem, APN national Focal Point for Cambodia and host of the 19th SC Meeting, was elected Acting Chair of the Meeting and facilitated the work of the SC over the two-day period. Mr. Sem emphasized in his opening address that climate change is increasingly recognized in Cambodia as one of the most important topics for the country and the Southeast Asia region, and acknowledged the work of APN in facilitating and enhancing collaborative research and capacity development in the region.

Review of activities since the 18th APN SC meeting: highlights

The secretariat reported to the SC on all activities undertaken since the 18th SC Meeting held in April 2011, with focus on a number of major outcomes:

Status of the APN Calls for Proposals. Highlights of the APN Calls for Proposals process in 2011 include the voluntary Advisory Service designed to facilitate prospective project leaders in developing proposals in line with APN proposal requirements. The APN saw a healthy trend as the number of Summary Proposals submitted in 2011 has increased notably. At the time of the SC Meeting, Stage 1 of the process was completed with active input from its reviewers.

Progress on Climate Publications. The recently published synthesis report, "Climate in Asia and the Pacific: A Synthesis of APN Activities," was released on the APN website at the time of the Meeting. The report synthesizes 56 climate-related projects and will lead to the publication of a book on "Climate in Asia and the Pacific: Security, Society and Sustainability," which is planned to be published in autumn 2012. The synthesis report has drawn significant interest internationally since its release. The report is downloadable at http://goo.gl/gVW8M.

Updates on APN finances. An update on APN financial matters was reported to the SC and with focus on the external auditor's highly positive impression of the transparency and fairness of the APN proposal selection process and their acknowledgement of efforts taken to administer finances of such projects.

New project database. In response to the 16th IGM/SPG Meetings, the Secretariat developed a project database as part of the APN Information System (APNIS) as outlined in the new Data Management and Sharing Policy. The database is still under development but is accessible through the following address: http://www.apn-gcr.org/resources/.

Consideration of proposed new activities

To maximize the efficiency of discussions and better leverage the experience and knowledge of SC members, the Meeting introduced a special brainstorming mechanism for discussions on proposed new activities.

Lively discussions took place during the two brainstorming sessions. Major topics covered in the sessions include:

Short- and medium-term plans for aligning APN's research and capacity-building activities with the UNFCCC process and other major international arrangements related to sustainable development and green growth;

Proposed actions to enhance science-policy linkagesa, for example a series of dialogues between the policy-makers and the scientific research community;

An APN framework on ecosystem services, with a focus on their links to green growth and sustainable development

The full outcomes of such discussions, along with major action points for follow-up actions, were shared among the SC members in the form of a chairperson's summary.

About the SC and SC Meetings

The APN Steering Committee (SC) is designated by the Inter-Governmental Meeting (IGM) to act on its behalf during the period between the IGMs.

The SC implements IGM decisions with assistance from the Secretariat, facilitates administrative and management arrangements of the APN, and consults the national Focal Points regarding potential observers to attend the IGM.

Membership of the APN Steering Committee can be found online at http://www.apn-gcr.org/about-apn/apn-structure/sc-steering-committee/

The following SC members attended the 19th SC Meeting: Erna Sri ADININGSIH (SPG Co-Chair and SPG Member for Indonesia), Louis BROWN (Invited Expert), An JONGSEO (National Focal Point Alternate for the Republic of Korea), Taro KAWASATO (Donor Member and National Focal Point for Japan Alternate), Andrew MATTHEWS (Invited Expert and National Focal Point/SPG Member for New Zealand), and Sundara SEM (National Focal Point for Cambodia).

APN hosts authors' workshop for upcoming climate publication

In the Asia-Pacific region, sustainable development must take into account the significant effects of climate variability and climate change as well as various socio-economic factors. With this in mind, the APN plans to release a publication detailing and discussing past and present climate research around Asia and the Pacific in relation to principal socio-economic factors in the region.

On 17th-20th October 2011, the APN hosted an authors' workshop at the Hotel Monterey in Kobe, Japan for its upcoming publication, "Climate in Asia and the Pacific: Society, Security, and Sustainability". This book will be a supplement to the APN report entitled "Climate in Asia and the Pacific: A Synthesis of APN Activities," recently published in September 2011.

The new publication will focus on the following five aspects of climate in Asia and the Pacific:

1. Climate variability and change,
2. Climate and urbanization,
3. Climate and security,
4. Climate and society, and
5. Climate and sustainability.

The publication has over 30 contributing authors, 16 of which attended the Workshop in Kobe. The attendees included: Dr. Michael Manton, Workshop Chair, Monash University; Dr. Linda Stevenson, Co-Editor, Executive Science Officer, APN Secretariat, Dr. James Salinger, Honorary Research Fellow, University of Tasmania; Dr. Lance Heath, Climate Change Institute, Australia National University; Dr. Ailikun, Director of the International Programme Office, Monsoon Asia Integrated Regional Studies (MAIRS); Professor Kanayathu Koshy, Centre for Global Sustainability Studies, Universiti Sains Malaysia; Dr. Rodel Lasco, Country Coordinator, World Agroforestry Centre (ICRAF); and Prof. Wenjie Dong, Executive Associate Dean, State Key Laboratory of Earth Surface Processes and Resource Ecology, Beijing Normal University; amongst others.

The writing workshop focused mainly on compiling writings by contributing authors with the goal of combining them in a cohesive manner and refining each second order draft. The workshop was a huge success due to the hard work of each contributing author, the Lead Authors, and Coordinating Lead Authors.

"Climate in Asia and the Pacific: Society, Security, and Sustainability" will be published by Springer under the "Advances in Global Change Research" series in late 2012.

For more information about this publication, please contact Dr. Linda Anne Stevenson at lastevenson@apn-gcr.org.

APN funded project output

CIA2009-06-Duc
Capacity Development for Adaptation to Climate Change in the Rural Coastal Zone of Vietnam
http://www.apn-gcr.org/resources/items/show/1703

ARCP2011-10CMY-Lutaenko
Proceedings of Workshop Coastal Marine Biodiversity and Bioresources; Proceedings of the International Conference Marine Biodiversity of East Asian Seas; Pathways for dispersal of the octococorals in the East Asia seas
http://www.apn-gcr.org/resources/items/show/1591

Beyond carbon: ensuring justice and equity in REDD+ across levels of governance

On 8 October 2011, Dr. Heike Schroeder from the University of East Anglia School of International Development (UEA-DEV) met with the APN Secretariat to discuss the upcoming joint workshop, "Beyond carbon: ensuring justice and equity in REDD+ across levels of governance". The conference will be held at St. Anne's College, Oxford, United Kingdom, from 23 to 25 March 2012, back-to-back with the "Planet under Pressure" conference. "Beyond Carbon" is jointly sponsored by the APN, the Tyndall Centre Oxford, UEA-DEV, the Oxford Martin School, the Oxford Centre for Tropical Forests (OCTF), and the Environmental Change Institute (ECI).

This conference aims to facilitate collaboration and information exchange amongst scientists, policy-makers, and practitioners focusing on forest governance and will cover topics such as: what is REDD+; ecological and socio-political dimensions of justice and equity in REDD+; and novel approaches to REDD+ such as the role of indigenous peoples and local communities. The discussions will revolve around the following themes:

- Ecological dimensions of justice and equity in REDD+
- Socio-political dimensions of justice and equity in REDD+
- Role of Indigenous peoples and local communities in REDD+
- How can REDD+ deliver more than carbon benefits?

Through these discussions, the conference aims to encourage the advancement of knowledge, understanding, and exchange of forestry science and policy. Participants will be from the scientific and policy making communities as well as young scientists and students.

Information on the workshop is now available at http://www.eci.ox.ac.uk/redd/index.php

ARCP2007-09NSY-Skole
Inpang Carbon Bank in Northeast Thailand
http://www.apn-gcr.org/resources/items/show/1534

ARCP2005-01CMY-Nikitina
Institutional capacity in natural disasters risk reduction: A comparative analysis of institutions, national policies, and cooperative responses to floods in Asia
http://www.apn-gcr.org/resources/items/show/1504

ARCP2010-02CMY-Phua
Monitoring deforestation in Sarawak, Malaysia using multitemporal Landsat data
http://www.apn-gcr.org/resources/items/show/1565

ARCP2001-12-Ding
Monitoring and Prediction of ENSO Event and SSTA over the Warm Pool in the Western Pacific Ocean
http://www.apn-gcr.org/resources/items/show/1447

CBA2008-06NSY-Fuchs
Cities at Risk: Asia's Coastal Cities in an Age of Climate Change
http://www.apn-gcr.org/resources/items/show/1643

CIA2009-01-Snidvongs
Climate Change and Asia's Coastal Urban Cities
http://www.apn-gcr.org/resources/items/show/1698

ARCP2009-12NSY-Karve
Sustainable gasification-biochar systems? A case-study of rice-husk gasification in Cambodia, Part I: Context, chemical properties, environmental and health and safety issues.
Sustainable gasification-biochar systems? A case-study of rice-husk gasification in Cambodia, Part II: Field trial results, carbon abatement, economic assessment and conclusions.
http://www.apn-gcr.org/resources/items/show/1563

Bhutan hosts APN South Asia sub-regional talks

The APN's twenty-second and youngest member country, Bhutan, successfully hosted the Third South Asia Sub-Regional Cooperation (SA-SRC) Meeting from 16 to 17 January 2012, where country representatives from Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka worked together to identify research priorities of common interest for possible collaboration, and shared information on their efforts and needs for global change research.

Dr. Ugyen Tshewang, Secretary of National Environment Commission (NEC), Royal Government of Bhutan, officially opened the SA-SRC Meeting on 16 January 2012. "It's a great opportunity for Bhutan to host this very important meeting, and I hope the discussions and proposed activities will go a long way beyond this meeting," said Dr. Tshewang in his opening address.

"Bhutan, like many other countries in South Asia, where a fifth of the global population lives, is facing many daunting challenges posed by global change, which in many cases are exacerbated by the difficulties on the economic front," he added, "I hope South Asian members of the APN will make use of this great initiative to explore ways of learning from each other and helping each other in order to address global change challenges."

Mr. G. Karma Chhopel, Head of Water Resources, National Environment Commission, Bhutan and APN's National Focal Point for his country, provided crucial support for the preparation for the four-day event. Mr. Chhopel, who was later elected Chair of the SRC Meeting, steered the discussion towards frank and candid talks which led to a set of strong outcomes.

APN Secretariat Director, Dr. Akio Takemoto, expressed his gratitude to the Bhutanese host, noting the exceptional level of commitment from both Bhutan's research and policy-making arms. "We are very excited to see Bhutan's strong support in organizing this meeting," said Dr. Takemoto, "and I am sure the active involvement of our newest

member in the Network will give new dynamics to the collaborative research and capacity building activities in the region."

Participants actively shared their countries' experiences and latest scientific trends and issues in global change research, in particular their efforts towards achieving sustainable development and bridging science-policy gaps. Representatives also introduced their research priorities as well as capacity gaps for conducting such research.

Many opportunities for cross-border collaborative research were identified under four broad areas: water, agriculture, health, and urban development issues in the context of global change. Participants recommended various tools to address such topics, including through enhanced data collection and dissemination, assessment and prediction, modeling and inter-model comparison, etc., to provide outcomes that will feed into the development of national development plans and adaptation plans.

A detailed summary of the discussions will be made available for South Asia Sub-Regional Committee members in due course.

Back-to-back event: proposal development training for young and early career scientists

Following the SA-SRC Meeting a Proposal Development Training Workshop was organized to provide hands-on training for young scientists in South Asia to develop competitive proposals for submission to the APN.

In this second event of its kind organized by the APN in the sub-region, 14 young and early career scientists from the six APN South Asian member countries had the opportunity to learn about the APN, its annual calls for proposals process, and how to prepare competitive proposals for possible funding.

APN Scientific Planning Group Members, National Focal Points from the South Asian group and invited experts from India, Nepal and Pakistan guided the trainees through APN's entire proposal process, from preparing quality proposals to reviewing/selecting proposals, by providing mentorship in the exercise session designed to encourage maximum interaction between trainees and mentors.

"From the research persons we have the opportunity to learn many things, not only in terms of gaining knowledge, but also about project management and networking," said Mr. Sujan Subedi, Meteorologist, Ministry of Environment, Nepal, "the topics chosen were very relevant for our region and offer great hints for my future research."

Message from new SPG member for New Zealand

Dr. Andy Reisinger
Director (international), New Zealand Agricultural Greenhouse Gas Research Centre; APN SPG Member for New Zealand

It gives me great pleasure to join the APN Scientific Planning Group. The activities of the APN have been on my radar screen since 2001, when I joined the New Zealand Ministry for the Environment as senior adviser on climate change, responsible for climate change science, adaptation policy and international scientific collaboration. Since then, I have taken on various other roles; from 2006 to 2008 I was Head of the Technical Support Unit for the production of the Synthesis Report of the Intergovernmental Panel on Climate Change, and from 2008 to 2010 I worked as Senior Research Fellow at the Climate Change Research Institute of Victoria University of Wellington, mainly on climate change adaptation and alternative metrics for comparing different greenhouse gases. In 2010 I joined the New Zealand Agricultural Greenhouse Gas Research Centre as its Deputy Director, focusing on increasing global cooperation in research activities to help reduce the emissions intensity of agricultural production systems through the Global Research Alliance on Agricultural Greenhouse Gases.

In all these roles I have come across various significant APN activities and outputs. I have always been struck by APN's consistent efforts to build regional capacity and collaborations that both enhance society's resilience against multiple pressures and reduce the pressure that society itself places on the local and global environment – and to do so with high scientific integrity and objectivity. I hope to be able to contribute to those goals in my new role as APN SPG Member for New Zealand, and look forward to working with colleagues in this exciting environment.

Secretariat staff changes

After receiving my master's degree in Biotechnology, I worked as a junior lecturer for a brief period in the University of Peradeniya, Sri Lanka before joining the APN.

It has only been three months since I joined the APN. However, I have gained years worth of experience in this short period. Also, working with the APN is a golden opportunity to fulfil my dream of working overseas.

Although the language barrier is a big issue for me in Japan, support from the APN family is making my work in Japan so much easier. So far I feel that being a part of the APN family is a wonderful opportunity I have in my life.

I hope that I will find more interesting information on global change in my future work at the APN.

Taniya Koswatta
Programme Fellow for Scientific and Institutional Affairs

I worked in APN for two years as Programme Fellow for Communications and Development. My main tasks were to develop a new web-based information system and assist the Programme Officer in producing publications.

During my stay, I was able to work with Ms. Perlyn Pulhin, and later with Mr. Xiaojun Deng, both of whom taught me a great deal especially in editing and designing publications.

I also worked closely with Natsuki Niimi who assisted me in developing the website and who would serve as our translator when we needed to communicate with Japanese companies. I wouldn't have been able to accomplish my

APN showcases Climate Synthesis Report at UNFCCC COP17

APN partnered with the Australian National University's (ANU) Climate Change Institute (CCI) in hosting an exhibit at the UNFCCC COP17/CMP7 Conference held in Durban, South Africa from 28 November to 9 December 2011.

Themed "Asia and the Pacific in the 21st Century: Climate Change and Development", the exhibit featured, among other publications, APN's most recent synthesis report, "Climate in Asia and the Pacific – A Synthesis of APN Activities", which was launched earlier in October 2011. The report synthesizes 56 major climate-related projects funded by the APN, which were summarized into the following categories: food, agriculture and climate; seasonal climate prediction and applications; climate variability, trends and extremes; regional climate modelling; vulnerability and adaptation to climate change; climate change mitigation; coastal cities and climate change; as well as climate change policy and outreach assessments.

The climate synthesis and APN's general presence at the Conference delivered a clear message of the Network's commitment to supporting collaborative research, strengthening science-policy interaction, building regional research capacity, and collaborating with key partners and organizations, especially in the area of climate change research. The climate synthesis was particularly well-received, with all CD-ROMs exhausted by day three of the Conference, and a hundred hard copies almost run out by the end of week one.

"It's very encouraging to see how active Asia-Pacific countries are in working together to generate – and develop capacity for – science-based knowledge. The APN is doing a great job in acting as a catalyst for boosting such collaboration," commented a participant from the Philippines when she visited the APN/CCI booth. "It's also very interesting to see the gaps identified by the synthesis report, which will be very useful for global change researchers in the region as a reference for their future work," she added.

duties without their support and our great teamwork.

Even though my background is in computer science, global change research was never totally new to me. In fact, my undergraduate "special problem" was on browser-based weather maps for the Philippines and my graduate thesis was related to remote sensing and GIS.

As a researcher myself, I admire how APN supports scientific research, especially those researchers from developing countries, through scientific capacity building and provision of funds. Equally wonderful is to see how APN channels the results of the research it funds to policy-makers.

With the new website, we have tried to make available all resources generated through APN funds and international collaboration on an "open-access to everyone" basis in the hope that it will later make a difference.

I am proud to have contributed to realizing APN's goals.

The APN programme fellowship gave me a rare opportunity to work in an international environment. Coming from a developing country, I was very fortunate to be given the opportunity to work in Japan and visit other countries. On a daily basis at the APN, we work and communicate with people from various cultural and political backgrounds and I learned that it's very important to respect those differences in reaching a common goal.

I remember when I first attended the IGM/SPG Meetings in the Republic of Korea in 2010 and met the member country representatives for the first time. I was a bit anxious at first but then they were all accommodating and warm to me.

APN is a not just a network of governments but a big family which I am happy and proud to be part of.

Lizhier Coralde
Former Programme Fellow for Communicatiosn and Development

APN sponsored symposium and training workshop on reforestation

12-14 September 2011, Ulaanbaatar, Mongolia
Akio Takemoto

As one of the APN-Hyogo activities partnered annually, this symposium and workshop was organized by the Hyogo Environmental Advancement Association (HEAA), the APN, and Mongolian Forest Forum (MOFF) to share knowledge on impacts and vulnerability of forests and grasslands in Mongolia in the context of a changing climate, biodiversity and ecosystem services.

More than 100 participants from research institutes in Mongolia, Japan, and Russia, and University students in Mongolia attended the Symposium. Furthermore, invited speakers specializing in environmental law, forestry, and ecosystem assessments/management in the northern forest areas also participated in the event.

At the opening session, Mr. Yoshihiro Ohara, Chair of the Board of HEAA, Dr. Akio Takemoto, Director of the APN Secretariat, and Dr. Jamsran Tsogtbaatar, Director-General of Mongolian Academy of Sciences, Institute of Geology (and APN SPG member for Mongolia); gave their welcome remarks. This was followed by a lecture from Dr. Tsohio Adyasuren, President of Eco-Asia University, on the current status of environmental education in Mongolia.

During the Panel discussion session, Dr. Hisakazu Kato, Professor at Teikyo University, introduced the legal framework on climate change and spoke about CDM and REDD+ issues. Dr. Tsogtbaatar talked about biodiversity in Mongolian forests, and stressed that ecosystems in the northern forests are deteriorating due to anthropogenic deforestation including over-logging, forest fires, and climate change. Dr. Borjigin Sergelen explained the decrease also in Mongolia's grasslands and shared concrete examples of measures to preserve and sustain grasslands against overgrazing by goats. Dr. Bayar Octobryavich Gomboev, Deputy Director of the Baikal Institute of Nature Management, Russian Academy of Sciences, discussed the present condition of the Northern forests in the Baikal region.

Following the symposium, a training workshop was held from 13 to 14 October. Participants were mainly Mongolian university students and the objectives of the workshop were to enable these young scientists to understand the present situation of the northern forests and learn about managing these forests sustainably in the future, and in collaboration with neighbouring and other Asian countries. Mr. Ohara and Dr. Takemoto gave keynote speeches at the opening session and Dr. Takemoto introduced the framework of the APN, specifically encouraging young scientists to rise to the challenge of submitting project proposals to the APN for funding.

The workshop was organized in a participatory way, where Professor Kato, Dr. Gomboev, and Dr. Chimednyan Dorjsuren, Executive Director of MOFF, undertook roles of both lecturer and mentor. Following each presentation, group discussions were organized so that participants were able to work alongside their mentors to discuss and think of solutions to protect forests in Mongolia and neighbouring countries in more sustainable ways.

During the activities, the organizers paid a courtesy call on the Embassy of Japan in Mongolia and Ambassador Takuo Kidokoro. He very much appreciated the contribution of the Hyogo Prefectural Government to reforestation activities in Mongolia, noting that 2,130 hectares of forest area has been restored since 2000. They also exchanged views on the role of HEAA and the APN. It was agreed that both institutions play a very important part in developing the capacity of researchers in Mongolia so that they might contribute to promoting forest management for the country in the long term.

Central City of Ulaanbaatar: Due to rapid urbanization, the city has regular traffic jams

APN represented at UNFCCC Workshop to identify challenges and gaps in the implementation of risk management approaches to the adverse effects of climate change

10-12 October 2011, Lima Peru
Akio Takemoto

The workshop was organized by the Unite Nations Framework Convention on Climate Change (UNFCCC) in collaboration with the Ministry of Environment, Peru, and the United Nations International Strategy for Disaster Reduction (UNISDR) in order to identify gaps and challenges in the implementation of risk management approaches to the adverse effects of climate change; and to build on lessons learned from organizations and the private sector.

Participants were mainly from Parties to the convention, international and regional organizations and networks with an interest and/or focus on disaster risk management (DRM) and the environment in the Caribbean, Latin America, and Asia-Pacific regions.

Responding to a request from the UNFCCC Subsidiary Body for Implementation (SBI), the workshop aimed at developing an agenda on loss and damage, as linked and applicable to an insurance framework for climate-related disasters.

Participants were informed of recent developments and key findings in understanding different types of risks, and the services and products available at the international and regional levels to support countries in identifying and assessing risks. Regional centres in the Caribbean and the Pacific shared information on emerging work geared towards an integrated approach for managing climate risks at the regional level.

Dr. Takemoto, Director of the APN Secretariat, introduced the activities of APN including its recently published Climate Synthesis report, and pointed out that the APN can contribute to improving DRM through research and scientific capacity development as related to climate changes issues in the Asia-Pacific region.

Participants indicated that an understanding of risk is the first step in reducing future damage and loss related to disasters. In order to close the gaps in implementing DRM, various action points were highlighted, including the harmonization of various national reporting requirements of different international frameworks, and the integration of national and sub-national policies for development planning. Participants recognized that limited resources and capacities were other challenges for implementing DRM.

In terms of scientific capacity in developing countries, Dr. Takemoto pointed out that the lack of continuity of individual technical cooperation projects supported by international organizations could hinder the capacity development of local scientists. He stressed the importance of continuous support and grassroots support for local scientists so that they have the opportunity contribute to the decision-making processes on adaptation measures in their own respective countries.

Regarding the roles of the UNFCCC and other organizations and networks, participants acknowledged that the UNFCCC has the potential to promote a holistic approach to climate risk management and to enhance coordination of various ongoing initiatives to assess risk and vulnerability. At the same time, the participants stressed that regional organizations and networks should play an important role in implementing DRM by streamlining and coordinating national and local policies and enhancing the scientific capacity of both scientists and policy-makers at national and sub-national levels in this area.

More information on the workshop can be found at the UNFCCC Secretariat website: http://unfccc.int/adaptation/implementing_adaptation/items/6094.php

WCRP Open Science Conference: Climate Research in Service to Society

Subramaniam Moten

The World Climate Research Programme (WCRP) of WMO held an Open Science Conference (OSC) with the theme of "Climate Research in Service to Society" in Denver, Colorado, USA, from 24 to 28 October 2011 to commemorate the 30th anniversary of WCRP.

The primary aim of the OSC was to identify and define future research priorities for the Programme. The main challenge was to provide a better understanding of the behaviour of the climate system and its interactions with other Earth system components that are critical to predicting its evolution, reducing vulnerability to high-impact weather and climate events and sustaining life.

To address these challenges, the conference objectives were to: promote progress towards meeting these challenges, assemble the entire research community to present the latest research and discuss with colleagues, share the latest knowledge about climate variability and change, and finally to stimulate new projects and initiatives, facilitate research, and develop partnerships that are critical for progress.

Mr. Bill Ritter, former Governor of Colorado, welcomed the conference participants, and encouraged scientists to take heart despite US political wrangling over climate: "Politics is the art of compromise but the atmosphere is not willing to negotiate." Mr. Michel Jarraud, WMO Secretary-General, in his welcome address reminded the audience that, "The future of our planet will decisively depend on our ability to cope with climate variability and change."

More than 30 organizations provided financial support either in-kind or monetary to make this conference a very successful one.

The APN was one of the gold sponsors of the conference. Twenty-five early carrier scientists and students from eight APN member countries were fully sponsored by the APN under its CAPaBLE programme to participate and present papers. Mr. Subramaniam Moten, Scientific Planning Group (SPG) Member for Malaysia and Mr. Xiaojun Deng from the APN Secretariat represented the APN as delegates to the conference.

APN activities were highlighted through posters and brochures set up at the APN booth which also highlighted APN's recently published synthesis report "Climate in Asia and the Pacific: A Synthesis of APN Activities," that received wide attention from the conference participants.

More than 1900 participants from 86 countries participated in the conference, which was organized into daily scientific themes that included the Plenary, where overarching and cross-cutting issues were addressed by renowned experts, and three parallel sessions with oral presentations given by invited experts.

The major attraction of the conference were the poster sessions where about 260 posters were organized into different scientific themes and presented each day. Two and a half hours

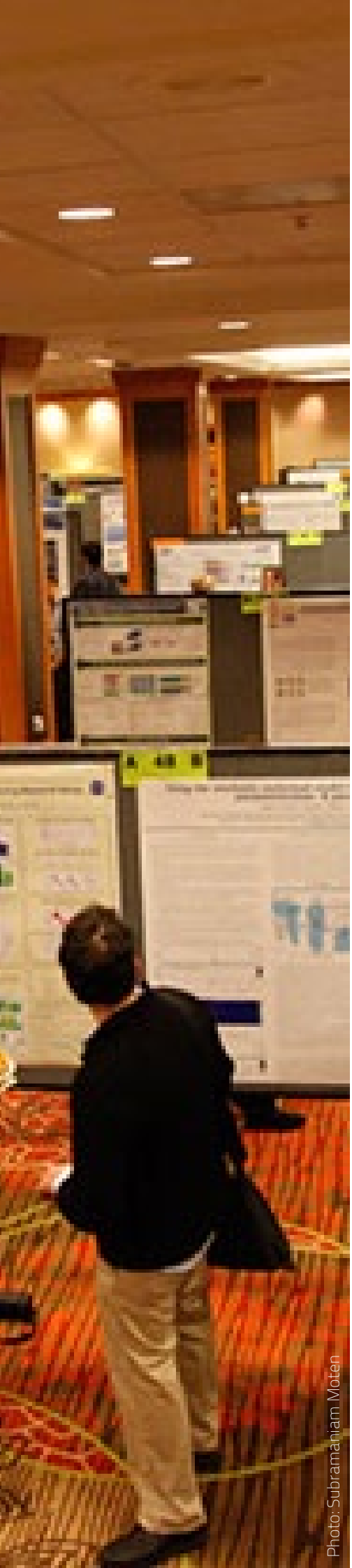


Photo: Subramaniam Moten

of dedicated time for viewing and discussing with authors were allocated for each day and these sessions were truly structured to foster discussion and dialogue. From the four days of poster and oral presentations, 101 posters by early carrier scientists and students were selected for the best presentation award which consisted of memberships and books kindly provided by the American Geophysical Union (AGU), American Meteorological Society (AMS), and the European Geophysical Union (EGU).

Five APN-sponsored participants received certificates and membership to AGU for their outstanding presentations.

A special panel session on Business Needs for Climate Information was held on the evening of 25 October. The panel discussion centred on "Climate Science in Service to Society: Private Sector Needs and Opportunities".

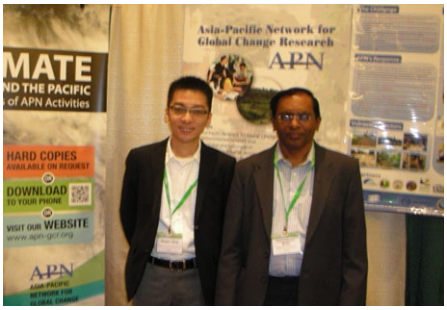
Representatives from several major companies – BP, Northrup Grumman, Computer Sciences Corporation, and The Weather Channel Companies, discussed how scientists and private enterprise can work together toward providing actionable information. It became clear during the deliberations at the conference that data users were beginning to understand the richness of the data available, and scientists were beginning to understand what kind of data that users need to guide decisions.

Dr Tom Karl of the US Global Change Research Programme (USGCRP) emphasized that, "We need to now go beyond understanding natural systems alone into understanding how natural systems connect with human systems and that requires us to understand the kinds of information the user community needs to make decisions."

An emerging theme from the WCRP OSC is the need for actionable science.

A working definition of actionable science provided in the plenary lectures is, "Data, analysis, and forecasts that are sufficiently predictive, accepted and understandable to support decision-making, including capital investment decision-making."

Decision-makers, including water resource managers, farmers, insurance companies, public utilities companies and many more, need climate and other scientific information to guide decisions. However, it was also recognized at the conference that there is often a mismatch between the scientific data available and information the users need.



Subramaniam Moten (right) is Head of Research Division, Malaysian Meteorological Department and has served as APN Scientific Planning Group (SPG) Member for Malaysia since APN's early years of development.

Impact of climate change on food security and biosecurity of crop production systems in Small Pacific Nations

Reference No.: ARCP2010-08NSY-Freeman
Project Leader: Dr. Angela Freemanf

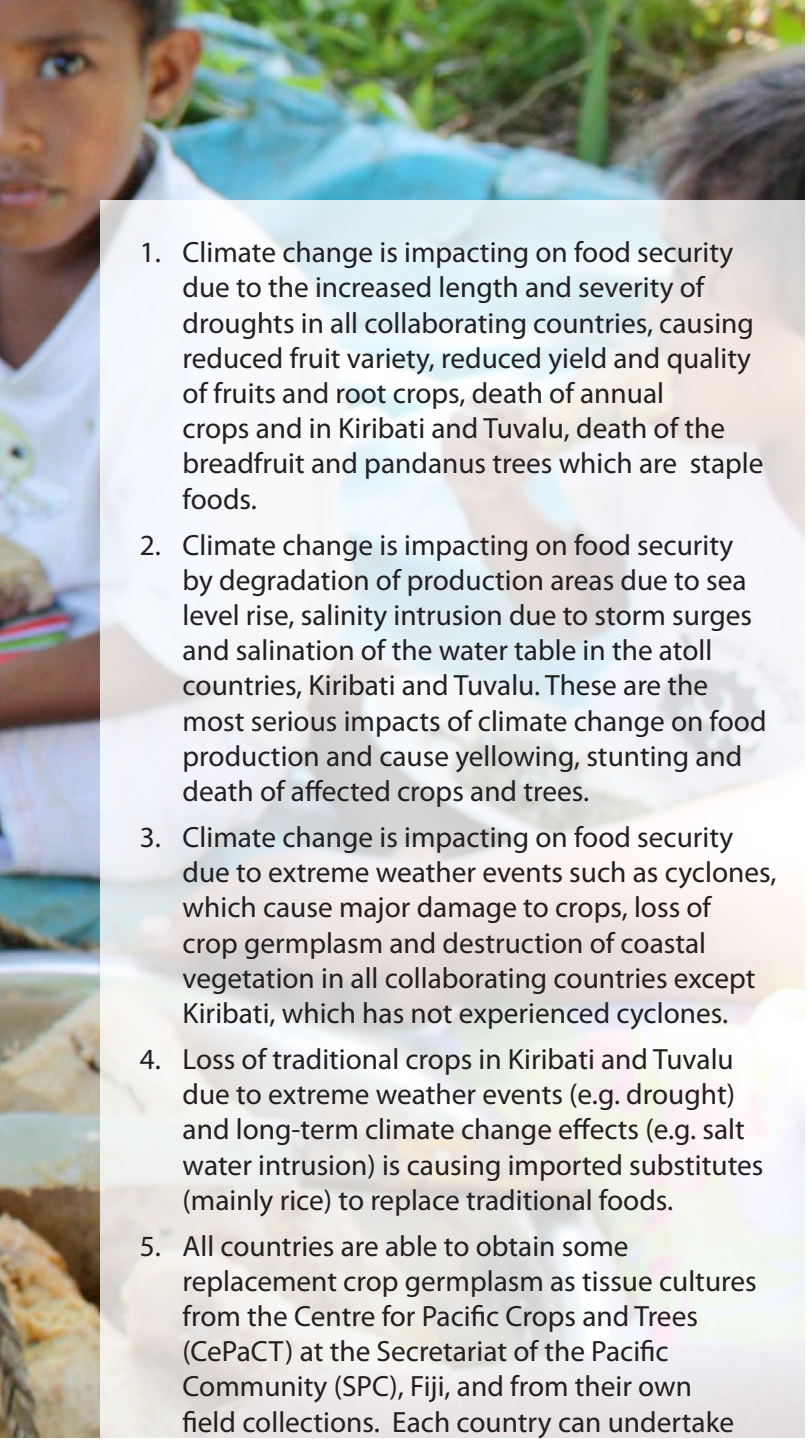
Angela Freeman, Brendan Rodoni, Pita Taufatofua, Luseane Taufa, James Wasi, Tianeti Beenna, Itaia Lausaveve

Photo: Global Crop Diversity Trust (Charlotte Lusty)

This project identified the key impacts of climate change on the unique cropping systems in four small Pacific countries of Tonga, Vanuatu, Kiribati and Tuvalu. The key issues examined included:

- Biosecurity impacts of climate change on food crops (including impacts on endemic pests and diseases and likelihood of incursions of exotic pests and diseases) and implications for international trade;
- Impacts of rates of recovery from natural disasters on both food security and biosecurity;
- The maintenance of crop genetic resources and the availability of varieties adapted to future climates; and
- The need for assessing germplasm in collections or initiating breeding efforts.

Information was collected via a questionnaire developed for senior agricultural administrators, quarantine and bioecurity officers, agricultural staff, business people and farmers. Interviews and workshops were also held. Key findings were as follows and have led to the initiation of future collaboration between Australia and the Pacific collaborators in the area of regional biosecurity:



1. Climate change is impacting on food security due to the increased length and severity of droughts in all collaborating countries, causing reduced fruit variety, reduced yield and quality of fruits and root crops, death of annual crops and in Kiribati and Tuvalu, death of the breadfruit and pandanus trees which are staple foods.
2. Climate change is impacting on food security by degradation of production areas due to sea level rise, salinity intrusion due to storm surges and salination of the water table in the atoll countries, Kiribati and Tuvalu. These are the most serious impacts of climate change on food production and cause yellowing, stunting and death of affected crops and trees.
3. Climate change is impacting on food security due to extreme weather events such as cyclones, which cause major damage to crops, loss of crop germplasm and destruction of coastal vegetation in all collaborating countries except Kiribati, which has not experienced cyclones.
4. Loss of traditional crops in Kiribati and Tuvalu due to extreme weather events (e.g. drought) and long-term climate change effects (e.g. salt water intrusion) is causing imported substitutes (mainly rice) to replace traditional foods.
5. All countries are able to obtain some replacement crop germplasm as tissue cultures from the Centre for Pacific Crops and Trees (CePaCT) at the Secretariat of the Pacific Community (SPC), Fiji, and from their own field collections. Each country can undertake multiplication of planting stocks.
6. There are long delays in identifying suitable atoll crop replacement varieties (giant swamp taro, breadfruit trees) suitable for saline and drought conditions, due to the time required to collect germplasm from other atoll countries (e.g. the Federated States of Micronesia), and multiplication and screening at CePaCT.
7. Climate change events do impact on the incidence of pests and diseases. For example, changes in rain intensity and seasonality have negative impacts on fruiting of certain fruit trees such as mangoes. Increased droughts favour the breeding and activities of taro beetles that feed on taro.
8. There are increased pest and disease problems due to climate change in all collaborating countries, which are attributable both to stresses that make crops more vulnerable to endemic pests and diseases and incursions of new pests and diseases. All collaborating countries have experienced at least two new incursions of pests and diseases in the last five years - none have been eliminated - and control is only being attempted for a few.
9. The highest ranking exotic pest and disease threats for the four countries were similar, with the taro beetle, taro blight, Queensland fruit fly, and coconut scale insects being listed most frequently. The lists contained insects, fungi, bacteria, viruses and phytoplasmas, indicating the range of skills required for biosecurity and incursion management.
10. There is a lack of physical and human capacity for effectively delivering plant health services (biosecurity, crop protection, etc). Countries depend on regional organizations for identification of pests and diseases and for advice on follow-up action (eradication, management, etc.) due to lack of trained staff and resources.
11. Although all collaborating countries have Quarantine Acts and Kiribati and Tuvalu have Biosecurity Acts before parliament, necessary training to enact these laws and development of supporting regulations is often limited. For example, pest risk assessments (PRAs) associated with the importation of foods and crop germplasm are normally undertaken by the SPC. Countries lack skills in conducting effective PRAs as well as setting adequate risk levels in each country.
12. Contingency plans are in place in all countries to deal with disasters associated with climate change events, although some of the plans need serious review.
13. Countries recognize the value of developing regional networks between like countries in addition to dealing solely with a central organization as a feasible, low cost and sustainable way of acquiring assistance to deal with the impacts of climate change.

Community based forestry and livelihoods in the context of climate change adaptation

Reference No.: *ARCP2010-12NMY-Paudel*
Project Leader: *Dr. Naya Sharma Paudel*

By: Dr. Birendra K. Karna

Community-based forestry (CF) has received wider attention within the climate change discourse, particularly in relation to reducing emissions from deforestation and forest degradation (REDD) and rural livelihoods in the Asia-pacific region.

Recent studies demonstrate that rural communities dependent on agriculture and forests are more vulnerable to climate change. Whereas, sustainable management of forest ecosystems can significantly contribute to increasing the adaptive capacity of both the ecological and the social system, while improving food security and water supply or promoting a better social organization.

Forests are an important resource base for rural livelihoods. Thus, enhancement of sustainable forest-based livelihoods should therefore form the basis of any adaptation and mitigation efforts. Community based adaptation is the best and most appropriate option for a country with high participation of local communities for the conservation, management and optimum utilization of natural resources.

To understand systematic comparative analysis of climate change adaptation and community livelihood, the APN research project has established an international collaborative climate change network among researchers in Asia, particularly Nepal, Thailand, Bangladesh and Viet Nam, which enable researchers to share their experiences and identify adaptation strategies appropriate to each country's situation. And also to document, analyze, synthesize and publicize empirical lessons on community based adaptation strategies to national and regional policy-makers through conducting policy seminars and disseminating research findings through diverse publications, and engaging in dialogue with policy-makers at national and international levels.

The field-based research that was conducted in each project country site adopted a multiple research approach in order

to best meet the research objectives. The research design was developed after the inception workshop organized in Thailand and frequent electronic communications was the key basis to guide research activities in each country and in order to maintain the constancy of the research. The partner countries were engaged in data collection, data coding, data analysis and is now in the report-writing phase.

Preliminary insights from the research findings showed most of the climate change related adaptation activities of local communities dependent on forestry resources for livelihood in relation to climate change were either from their own experience or learnt from each other.

There are no actual programmes developed from the government or local authorities to assist local communities on how to adapt to climate change vulnerability both in their day to day activities, as well as their livelihood activities particularly in agriculture and livestock rearing. Even the community itself is not receiving sufficient knowledge in order to develop appropriate adaptation mechanisms toto the present climate change situation. Similarly, it was felt that there is urgent need of continuous technical and economic support from governments and/or other agencies working in climate change in order to realize and implement efficient adaptation strategies.

The best adaptation strategies, for example, could be to blend traditional knowledge of the local community with infrastructure and technological innovation from external agencies. Institutional involvement from different agencies working on community-based climate change and adaptation has been increasing in agriculture, forestry, water, health and others sectors. Those institutions working on a common agenda for climate change should strengthen and develop an integrated approach of intervention.

Changing the conventional mindset of the community due to contemporary development issues like carbon trade (REDD+) and PES in the global and regional arena, the communities have to change their mindset in the conventional use of forest resources. Willingness to adopt a market-based mechanism to get direct economic benefit from the CF has begun in the community forests of Nepal. Diversification of livelihoods and income source based on natural resources is necessary in order to enhance the adaptive capacity of the local communities.

Photo: *Preparation of Bio-briquette making from weed species*

Participatory approaches to forest carbon accounting to mitigate climate change, conserve biodiversity, and promote sustainable development

Reference No.: EBLU2010-03NMY(R)-Scheyvens
Project Leader: Dr. Henry Scheyvens

Over the past 10 years the world has lost about 13 million hectares of forest every year, and this destruction of forests presents one of the most serious environmental challenges of our time. Global forest loss is associated with species extinction, climate change, degradation of ecosystems services including soil and water protection, and insecurity for communities that base their subsistence and livelihoods on forest resources.

The drivers of deforestation are deeply entrenched in the fabric of national laws, politics and economic systems, and are not easy to combat. The search for solutions has led to the concept of REDD+, or reducing emissions from deforestation and forest degradation and enhancing forest carbon stocks. REDD+ recognizes that deforestation contributes to global climate change by releasing carbon dioxide (CO_2) into the atmosphere and by reducing the potential of forests to absorb CO_2. REDD+ aims to make forests worth more standing than cut by providing developing countries with incentives to keep their forests as sinks and stores of carbon.

REDD+ offers a unique opportunity for new investments in forest management that could provide climate, livelihoods, biodiversity, and other ecosystem service benefits. This APN project argues, however, that to achieve these outcomes, governments must develop REDD+ models with meaningful roles and appropriate rewards for local communities. REDD+ models that deny local communities access to forests and provide them only with token roles in implementation are likely to arouse local hostility.

There are many ways communities can and are contributing to good forest management, and these can be further elaborated for REDD+. One role that communities can play is to assist with the monitoring of forest carbon stock changes. Performance-based payments for REDD+ will be made according to net avoided emissions, measured in units of tons of carbon dioxide equivalent ($MTCO_2e$), which requires precise estimates of forest carbon stocks. Although carbon stock monitoring requires high technical expertise, the project partners believe that local communities can make an important contribution to carbon monitoring by participating in mapping and sample plot establishment and measurement. Community engagement in carbon monitoring will increase local understanding of REDD+ and could provide an alternative source of income for the communities.

Under this APN project, action research engaging local communities in forest carbon stock monitoring is being conducted in Indonesia, Cambodia and Laos. The research process involves the local research teams first consulting with local governments and other stakeholders to identify appropriate sites, followed by building community awareness on climate change and REDD+, and training of the communities on forest measurement. With expert guidance, the communities then establish sample plots to take the necessary measurements to estimate and monitor the carbon stocks in their forests.

The approach varies among research sites as it must be elaborated to reflect local specifics, but common lessons are emerging. In particular, it is clear that support for the communities must be long-term and that the approach of engagement with each community will evolve over time as the community progresses with its forest carbon monitoring.

Photo: Community members receiving instruction on how to use clinometers to measure tree height

Photo: Makino Yamanoshita

Capacity building of ALOS satellite data to support mapping and monitoring deforestation and degradation in Indonesia

Reference No.: EBLU2010-05NMY(C)-Sekiya
Project Leader: Tomotaka Sekiya

Since the 1990s, Remote Sensing (RS) has been used to monitor forests in Indonesia. Cloud cover is considered to be the main obstacle in getting consistent images that cover the entire country, resulting in approximately 10% always being cloud covered. This situation contrasts with the increasing need for more rapid, reliable and consistent information of the current status of land use and land cover, as well as their dynamic changes over time.

Radar data that has the capacity to penetrate cloud cover will be essential to overcoming the cloud cover problem. Integrating data from the Phased Array type L-band Synthetic Aperture Radar (PALSAR) on the Advanced Land Observing Satellite (ALOS) into the current forest monitoring system will provide cloud-free results. In addition, ALOS/PALSAR data, specifically dual polarimetric data, also has the potential to discriminate forest cover types and other major land cover. This implies that it is promising to establish improved/new methods for current forest monitoring systems as well as for detecting change and monitoring deforestation and degradation using ALOS/PALSAR data.

Unfortunately, the lifetime of the ALOS satellite ended in May 2011 due to a power generation anomaly onboard. However, during its five-year operaton period from 2006-2011, ALOS collected 6.5 million images of Earth, including images from Indonesia. The Japan Aerospace Exploration Agency (JAXA) has a plan to launch the ALOS-2 satellite which will also carry a radar sensor, in 2013. In the APN project, we have been using a large volume of ALOS archived data for research and will use it for capacity building so that Indonesia will be in the position to use ALOS-2 data effectively soon after its launch in 2013.

We held a workshop on 19 July 2011 in Bogor, Indonesia which was one of the highlights of the APN project in its first year. In this workshop, participants shared and organized information on research and capacity building activities related to RS forest monitoring in Indonesia as well as the political and administrative needs of the Indonesian government. In addition to this, the Remote Sensing Technology Center of Japan (RESTEC) introduced the latest satellite technology to the participants and showcased successful examples of forest monitoring as well as Japan's future satellite development and launching plans.

The participants recognized that some forest monitoring projects that are using ALOS/PALSAR data are currently ongoing and agreed that the present APN project should collaborate with these existing projects as far as possible. Some participants pointed out that techniques to analyze data from the Advanced Visible and Near Infrared Radiometer type 2 (AVNIR-2) on ALOS is also useful and should be incorporated into the upcoming training workshop in Japan. In addition, polarization will be one of the key factors in the classification of forest cover when ALOS-2 is launched. Therefore, the upcoming training workshop will include a lecture on the polarization theory as well as hands-on training using polarization data. The training workshop will also cover basic theories and techniques for better understanding.

Based on the discussion and requirements at the workshop, we developed a basic method of forest monitoring with PALSAR data customizing RESTEC's existing techniques, experiences and algorithms, which were mainly focused on domestic forest cover in Japan. The existing techniques need to be customized and adjusted to Indonesian forests because the forest types of both countries are quite different. In order to generate a forest/non-forest classification map, we calculated the intensity of backscatter pixel by pixel, and fixed the threshold at -13db. This will allow us to detect deforestation areas and their transition by generating time series data sets of the classification map.

The most important target in the second year is the training workshop to be held in Tokyo, Japan and we look forward to sharing these results in due course with the APN community.

ARCP 2011/12 Projects

ARCP2011-01CMY-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

ARCP2011-02CMY-Koike
Project Title: River Management System Development in Asia Based on Data Integration and Analysis System (DIAS) under GEOSS
Project Leader: Dr. Prof. Toshio Koike, The University of Tokyo, JAPAN
Email: tkoike@hydra.t.u-tokyo.ac.jp

ARCP2011-03CMY-Asanuma
Project Title: Intercomparison of Landsurface Process Modeling in Asian Drylands
Project Leader: Dr. Jun Asanuma, Terrestrial Environment Research Centre, University of Tsukuba, JAPAN
Email: asanuma@suiri.tsukuba.ac.jp

ARCP2011-04CMY-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 ForestAction, NEPAL
Email: forestaction@wlink.com.np; dharam.uprety@gmail.com

ARCP2011-05CMY-Bae
Project Title: Climate Change Impact Assessment on Asia-Pacific Water Resources under AWCI/GEOSS
Project Leader: Prof. Deg-Hyo Bae, Sejong University, REPUBLIC OF KOREA
Email: dhbae@sejong.ac.kr

ARCP2011-06CMY-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 CA Model
Project Leader: Prof. Jianlong Li, The Global Change Research Institute, College of Life Science, Nanjing University, CHINA
Email: jlli2008@nju.edu.cn; jianlongli@sina.com.cn

ARCP2011-07CMY-Han
Project Title: The Impact of Spatial Parameters on GHG Emission: 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

ARCP2011-08CMY-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

ARCP2011-09CMY-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

ARCP2011-10CMY-Lutaenko
Project Title: Coastal Marine Biodiversity of Viet Nam: Regional and Local Challenges and Coastal Zone Management for Sustainable Development
Project Leader: Dr. Konstantin Lutaenko, Institute of Marine Biology, RUSSIAN FEDERATION
Email: lutaenko@mail.primorye.ru; lutaenko@mail.ru

ARCP2011-11NMY-Patra/Canadell
Project Title: Greenhouse Gas Budgets of South and Southeast Asia
Project Leaders: Dr. Prabir K. Patra and Dr. Josep Canadell, Research Institute for Global Change (JAMSTEC) , Global Carbon Project (GCP), JAPAN/AUSTRALIA
Email: prabir@jamstec.go.jp; pep.canadell@csiro.au

ARCP2011-12NMY-Fortes
Project Title: Seagrass-Mangrove Ecosystems: Bioshields Against Biodiversity Loss and Impacts of Local and Global Change along Indo-Pacific Coasts" (The Seagrass-Mangrove Bioshield Project, SMBP)
Project Leader: Prof. Miguel Fortes, Marine Science Institute , University of the Philippines, PHILIPPINES
Email: migueldfortes@gmail.com

The Annual Regional Call for Research Proposals (ARCP) is one of the scientific pillars of the APN to encourage and promote global change research in the Asia-Pacific region that has potential, in addition to improving the understanding of global change and its implications in the region, to contribute to the establishment of a sound scientific basis for policy-making with regard to issues for which global change is an important factor. The ARCP is a competitive process launched in April 1998 to select projects for funding under the Science Agenda of the APN.

ARCP2011-13NMY-Herath
Project Title: Developing Ecosystem-based Adaptation Strategies for Enhancing Resilience of Rice Terrace Farming Systems against Climate Change
Project Leader: Prof. Anura Srikantha Herath, Institute for Sustainability and Peace, United Nation University (UNU), JAPAN
Email: herath@unu.edu

ARCP2011-14NMY-Salik
Project Title: Impact of Climate Change on Mangrove Ecosystems in South Asia
Project Leader: Mr. Kashif Majeed Salik, Global Change Impact Studies Centre (GCISC), PAKISTAN
Email: kashif.majeed@gcisc.org.pk; kashif.salik@gmail.com

ARCP2011-15NMY-Zhen
Project Title: Holistic Assessment of Land-use Change and Impacts on Ecosystem Services of Wetlands
Project Leader: Dr. Lin Zhen, Institute of Geographic Sciences and Natural Resources Research (IGSNRR), Chinese Academy of Sciences, CHINA
Email: zhenl@igsnrr.ac.cn

ARCP2011-16NMY-IGBP
Project Title: An International Geosphere-Biosphere Programme Synthesis Theme on: Global Environment Change and Sustainable Development—Needs of Least Developed Countries
Project Leader: Prof. João M. F. de Morais, International Geosphere-Biosphere Programme (IGBP)
Email: morais@igbp.kva.se

ARCP2011-17NMY-Mathukumalli
Project Title: Tracing Nitrogen and Carbon Biogeochemical Processes in the Inter-tidal Mangrove Ecosystem (Sundarban) of India and Bangladesh: Implications of Global Environmental Change
Project Leader: Dr. Bala Krishna Prasad Mathukumalli, Earth System Science Interdisciplinary Centre, University of Maryland, UNITED STATES OF AMERICA
Email: mbkp@umd.edu

ARCP2011-18NMY-Jung
Project Title: Impacts of Global Warming on Coastal and Marine Ecosystems in the Northwest Pacific
Project Leader: Dr. Sukgeun Jung, National Fisheries Research and Development Institute, REPUBLIC OF KOREA
Email: sukgeun.jung@gmail.com

ARCP2011-19NSY-Koottatep
Project Title: Affordable Sanitation as an Adaptive Strategy to Emerging Waterborne Diseases due to Climate Change
Project Leader: Dr. Thammarat Koottatep, Asian Institute of Technology (AIT), THAILAND
Email: thamarat@ait.ac.th

ARCP2011-20NSY-McEvoy
Project Title: Assessment of Climate Change Risks and Adaptation Options for Secondary Cities in Southwest Bangladesh and Central Viet Nam
Project Leader: Dr. Darryn Mcevoy, Global Cities Research Institute, Royal Melbourne Institute of Technology University, AUSTRALIA
Email: darryn.mcevoy@rmit.edu.au

ARCP2011-21NSY-Manurung
Project Title: Reconstruction of Sea-level Change in Southeast Asia (RESELECASEA) Waters Using Combined Coastal Sea Level Data and Satellite Altimetry Data
Project Leader: Dr. Parluhutan Manurung, National Coordinating for Survey and Mapping Agency (BAKOSURTANAL), INDONESIA
Email: parluhutan@bakosurtanal.go.id

ARCP2011-22NSG-Liu
Project Title: The Impact of Global Warming on Ocean-Atmosphere Feedback Strength at Tropical Indian Ocean (Proposal Development)
Project Leader: Dr. Lin Liu, First Institute of Oceanography, State Oceanic Administration, CHINA
Email: liul@fio.org.cn

CAPaBLE 2011/12 Projects

CBA2011-01CMY-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, EMECS Secretariat & Kobe University Research Centre for Inland Seas, JAPAN
Email: furukawa@emecs.or.jp; kawai@kobe-u.ac.jp

CBA2011-02CMY-Kaihotsu
Project Title: Drought Monitoring System Development by Integrating In-situ Data, Satellite Data and Numerical Model Output
Project Leader: Prof. Ichirow Kaihotsu, Hiroshima University, JAPAN
Email: kaihotu@hiroshima-u.ac.jp

CBA2011-03NSY-WCRP
Project Title: WCRP Open Science Conference: Climate Research in Service to Society
Project Leader: Prof. Guoxiong Wu, LASG, Institute of Atmospheric Physics, Chinese Academy of Science, CHINA
Email: gxwu@lasg.iap.ac.cn; RBoscolo@wmo.int

CBA2011-04NSY-IHDP
Project Title: IHDP Training Workshops on Asian Development Pathways in the Context of Transitions Towards a "Green Economy"
Project Leader: Dr. Anantha Kumar Duraiappah, International Human Dimensions Programme, IHDP
Email: duraiappah@ihdp.unu.edu

CBA2011-05NSY-Schang
Project Title: National Dialogues on Adapting Biodiversity Management to Climate Change
Project Leader: Dr. Scott Schang, Environmental Law Institute, UNITED STATES OF AMERICA
Email: schang@eli.org

CBA2011-06NSY-LOICZ
Project Title: Young LOICZ Forum 2011: Capacity Building in the Asia-Pacific Region
Project Leader: Dr. Cheng Tang, Yantai Institute of Coastal Zone Research (YIC), Chinese Academy of Sciences, CHINA
Email: ctang@yic.ac.cn

CBA2011-07NMY-Abawi
Project Title: Building Scientific Capacity in Seasonal Climate Forecasting (SCF) for Improved Risk Management Decisions in a Changing Climate
Project Leader: Prof. Yahya Aabawi, National Climate Centre, Bureau of Meteorology, AUSTRALIA
Email: y.abawi@bom.gov.au; yahya.abawi@usq.edu.au

CBA2011-08NSY-Baker
Project Title: Towards Engagement in the United Nations Regular Process for Global Assessment of the Marine Environment: Strengthening Capacity of Developing Countries in the Seas of East Asia
Project Leader: Dr Elaine Baker, UNEP GRID-Arendal/The University of Sydney, AUSTRALIA
Email: elaine.baker@sydney.edu.au

CBA2011-09NSY-Aligaen
Project Title: Climate Change Integrated Education Model: Building Adaptive Capacity for the Next Generation (Malaysia, Indonesia, Thailand, Philippines and Lao PDR)
Project Leader: Mr. Julito C. Aligaen, Southeast Asian Ministers of Education Organization Regional Education Centre for Science and Math (SEAMEO RECSAM), MALAYSIA
Email: juli_aligaen@recsam.edu.my

CBA2011-10NSY-Ngari
Project Title: International Workshop on Climate and Oceanic Fisheries
Project Leader: Mr. Arona Ngari, Cook Islands Meteorological Service, COOK ISLANDS
Email: angari@met.gov.ck

CBA2011-11NSY-Tienhaara
Project Title: Climate Change Governance in the Asia-Pacific Region: Agency, Accountability and Adaptativeness
Project Leader: Dr. Kyla Tienhaara, Regulatory Institutions Network, College of Asia & the Pacific, Australian National University, AUSTRALIA
Email: Kyla.Tienhaara@anu.edu.au

CBA2011-12NMY-Hasson
Project Title: Capacity Building in Advanced Remote Sensing (RS) & Geographic Information System (GIS) Techniques for Studying Snow and Ice Dynamics in Hindu Kush-Karakoram-Himalaya (HKH) Region
Project Leader: Mr. Shabeh Ul Hasson, Global Change Impact Studies Centre, PAKISTAN
Email: shabeh.hasson@gcisc.org.pk; shabeh@gmail.com

The Scientific Capacity Building/Enhancement for Sustainable Development in Developing Countries (CAPaBLE) programme, which was launched in April 2003, is an initiative to realize parts 107 to 114 of the Johannesburg Plan of Implementation (JPOI) for the World Summit on Sustainable Development (WSSD) and is registered as a WSSD Type II Partnership Initiative. Of particular relevance is Part 111 of JPOI:

> *"Establish regular channels between policy-makers and the scientific community for requesting and receiving science and technology advice for the implementation of Agenda 21, and create and strengthen networks for science and education for sustainable development, at all levels, with the aim of sharing experiences and best practices, and building scientific capacities, particularly in developing countries".*

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

CBA2011-13NSY-Tolentino
Project Title: Institutionalizing Agroforestry as a Climate Change Adaptation Strategy through Local Capacity and Policy Development in Southeast Asia
Project Leader: Dr. Lutgarda Tolentino, Philippine Agroforestry Education and Research Network, PHILIPPINES
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CBA2011-14NSY-Ng
Project Title: Water Safety from Source to Tap – Strategies and Implementations
Project Leader: Assoc. Prof. How Yong Ng, Centre for Water Research, Division of Environmental Science and Engineering, National University of Singapore, SINGAPORE
Email: esenghy@nus.edu.sg

CBA2011-15NSY-Wagan
Project Title: Capability Enhancement of the Local Experts from State Universities and Colleges in Assessing Climate Change Vulnerability and Adaptive Capacity of Crop-based Farming Systems in Various Agroecological Settings
Project Leader: Dr. Amparo M. Wagan, FSSRI-Agricultural Systems Cluster, College of Agriculture, UPLB, PHILIPPINES
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CBA2011-16NSY-Li
Project Title: Demonstration Study on Advancing Global Change Research Approaches Based on Inter-Agency Collaboration and Data Infrastructure of GENESI and GeoBrain
Project Leader: Prof. Guoqing Li, The Centre for Earth Observation and Digital Earth, CHINA
Email: gqli@ceode.ac.cn

CBA2011-17NSG-Devy
Project Title: Building Partnerships for Developing a South Asian Canopy Science Research Program
Project Leader: Dr. M. Soubadra Devy, Ashoka Trust for Research in Ecology and the Environment, INDIA
Email: soubadra@atree.org

CBA2011-18NSY-Peñalba
Project Title: Awareness Raising and Capacity Building on Alternative Water Management for Communal Irrigator's Association in the Philippines
Project Leader: Dr. Linda Peñalba, Institute of Agrarian and Rurban Development Studies, College of Public Affairs, University of the Philippines Los Baños, PHILIPPINES
Email: lmpenalba@yahoo.com

CRP2011-01CMY-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
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(FP) Identifying nominees is in progress
(SPG) Identifying nominees is in progress

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nFP for the host of the 17th IGM

1. **Indonesia:** Ms. Hermien ROOSITA

Ex-officio (SPG Co-Chairs)

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2. **Nepal:** Dr. Madan Lall SHRESTHA

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2. Prof. Roland FUCHS (Invited Expert)
3. Dr. W. Andrew MATTHEWS (Invited Expert)
4. Mr. Yutaka MATSUZAWA (Donor Member)
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Calendar of Global Change Events

2012

FEBRUARY

a 22 February
[CBA2011-14NSY-Ng] Project Workshop 2
Kandy, Sri Lanka

MARCH

b 14-16 March
APN 17th Inter-Governmental Meeting/Scientific Planning Group Meeting
Jakarta, Indonesia

c 14-16 March
[CBA2011-11NSY-Tienhaara] Workshop on Climate Change Governance in the Asia-Pacific Region: Agency, Accountability and Adaptiveness
ANU, Canberra, Australia

d 20 March
[CBA2011-05NSY-Schang] National Dialogue,
Bhutan

e 23 March
[AOA2011-05NSY-Forest Governance] Conference and Workshop "BEYOND CARBON: Ensuring Justice and Equity in REDD+ across Level of Governance"
Oxford, United Kingdom

f 26-29 March
Planet Under Pressure: New Knowledge Towards Solutions
London, United Kingdom

APRIL

g 2-4 April
5th GEOSS Asia-Pacific Symposium
Tokyo, Japan

h 23-27 April
10th International Conference on Southern Hemisphere Meteorology and Oceanography: Changing southern climates (10ICSHMO)
Nouméa, New Caledonia

MAY

i 7-10 May
SOLAS Open Science Conference
Cle Elum, WA, USA

j 12-15 May
Resilient Cities 2012: 3rd Global Forum on Urban Resilience and Adaptation
Bonn, Germany

k 14-25 May
UNFCCC 36th sessions of the Subsidiary Body for Implementation (SBI) & the Subsidiary Body for Scientific and Technological Advice (SBSTA)
Bonn, Germany

l 29-31 May
"Adaptation Futures" The International Conference on Climate Adaptation
Tucson, Arizona, USA

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