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Guest article

GOVERNANCE FOR SUSTAINABILITY TOWARDS RIO+20

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Photo: Windwärts Energie/Mark Mühlhaus

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Photo: Windwärts Energie/Mark Mühlhaus

Message from the Director

Dr. Akio Takemoto
Director, APN Secretariat

I am pleased to announce that the 17th joint Inter-Governmental Meeting and Scientific Planning Group Meeting (IGM/SPG) was held from 14 to 16 March in Jakarta, Indonesia. I would like to express my special thanks to all meeting participants, and I would also like to extend my sincerest appreciation to the Ministry of Environment of Indonesia, who hosted this important meeting.

Based on the decisions made by the IGM, the Secretariat is pleased to announce that funding for the highly evaluated proposals and continuing projects was approved by the IGM for 2012 based on the advice received from the APN's Scientific Planning Group (SPG). The numbers of approved projects are 15 new projects and 8 continuing projects for ARCP, and 15 new projects and 2 continuing projects for CAPaBLE. I would like to take this opportunity to congratulate successful proponents and thank all proponents for their continued interest in, and support of, the APN and its activities.

Adding to the above result, the IGM/SPG meeting was successful in producing a number of other outcomes.

First, a new three-year programme on Low Carbon Initiatives (LCI) was approved by the IGM. The LCI activities are expected to include the following three components: (i) Regional-based research, (ii) Capacity development, and (iii) Networking/communication activities. The aim of the activities is to assist in enhancing climate mitigation action by enhancing the scientific capacity of developing member countries on low carbon issues. The Secretariat will develop the framework of LCI in collaboration with APN member countries, which will include prioritized thematic areas/sectors and tools/methodologies to support developing member countries. The Secretariat will also enhance networking with relevant organizations and networks including the Low Carbon Asia Research Network (LoCARNet), which was established this year.

Second, another three-year climate change programme on adaptation was also approved by the IGM. The adaptation activities have three components, (i) a scoping workshop to enhance the climate adaptation actions of APN developing country members, in collaboration with the Institute of Global Change Adaptation Science (ICAS) of Ibaraki University of Japan, (ii) a joint training course on adaptation planning and implementation in the Asia-Pacific region, in collaboration with the University Network for Climate and Ecosystem Change Adaptation Research (UN-CECAR), and (iii) a Proposal Development Training Workshop with adaptation climate adaptation focus. The results of these three activities are expected to feed into the formulation of the Adaptation Programme, which will be submitted for IGM endorsement at its 18th meeting in early 2013.

Third, the 17th IGM/SPG Meeting for the first time organized four interactive sessions during the meeting. They were: "Session I: Science-Policy, Low Carbon Development, Green Growth and the Lead up to Rio+20"; "Session II: Networking, Global Change Exhibit & Young Indonesian Scientists Poster Session"; "Session III: Global Change Community Science Presentations and their Relevance to Policy"; and "Session IV: Strengthening Engagement with International Community, Climate Adaptation Strategies for Sustainable Development". APN national Focal Points, SPG members and invited experts made presentations (except for Session II); and intensive discussions followed each session.

Fourth, the APN introduced a new format on the "Wok Programme and Budget" for fiscal year 2012 (from 1 April 2012 to 31 March 2013). The new format aims to increase transparency of the budget of APN. It has facilitated the better understanding of nFPs and SPG members on the Work Programme and Budget, and activated lively discussions on how to use the budget more effectively in the future in line with the mission of APN.

Based on the above outcomes of the 17th IGM/SPG Meeting, the APN Secretariat has become very active in promoting the activities. I sincerely hope that our work will be beneficial to all member countries.

Guest Article

Governance for Sustainability towards Rio+20

Ruben Zondervan

2012 is 40 years since the landmark UN Conference on the Human Environment (Stockholm) that led to the creation of the United Nations Environment Programme (UNEP); 25 years since the influential Brundtland Report on sustainable development; and 20 years since the UN Conference on Environment and Development (Rio de Janeiro) that resulted in Agenda 21, the Rio Declaration and the three Rio Conventions. All are major achievements in governance of sustainability.

But 2012 is not just about commemorating highlights from the past. A number of conferences important to global environmental change and sustainable development will take place in 2012: the 18th Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC COP18), the G20 Summit, but first and foremost the United Nations Conference on Sustainable Development (Rio+20).

However, there have been plenty of conferences, action plans, road maps and reports over the last 40 years with less, if any, impact in the history of international environmental governance. Slow, ineffective and fragmented implementation of the agreements is further hampering governance of environmental change.

The unprecedented speed and magnitude of these changes, as indicated by numerous science assessments, raises urgency for a global, effective architecture for governance of sustainability that can adapt to changing circumstances, that involves civil society, that is accountable and legitimate beyond the nation state and that is fair for everyone. Such earth system governance is imperative in order to navigate the anthropocene and to provide stewardship for the planet.

In this regard, this year's conferences should not follow the trend set in 2011 when the COP17 agreed on postponing agreement, and the Rio+20 process has become known to the general public by the decision to postpone the conference itself for frivolous reasons.

But there is more to annual COPs and Rio+20 than just a few days of inter-governmental get-together. These events are climaxes and catalysers of processes they are embedded in and which include countless actors including business associations, youth movements, major group representatives, regional organizations, cities alliances, and many NGOs.

For example, the two themes of the Rio+20 Conference — green economy in the context of sustainable development and poverty eradication, and the institutional framework for sustainable development — have received ample attention by these actors over the past year already, and will increasingly do so as the conference draws closer.

The global environmental change research community has also joined this process towards Rio+20. For example, the four global environmental change research programmes (IHDP, IGBP,

DIVERSITAS and WCRP), as organizers of their joint Planet under Pressure Conference, have commissioned nine policy assessments with the aim to make concrete science-based policy recommendations for Rio+20. One of these assessments focuses on the institutional framework for sustainable development and has been compiled based on state-of-the-art social sciences by the Earth System Governance Project.

The Policy Brief for example recommends applying systems of qualified majority voting in specified areas to strengthen international environmental treaties; creating multilaterally harmonized systems that allow for discriminating between products on the basis of production processes; developing or strengthening regulatory frameworks on *inter alia* emerging technologies for water, food and energy; upgrading UNEP to a specialized UN agency; improving national governance; strengthening and streamlining public-private governance networks and partnerships; and crucially, strengthening accountability and legitimacy.

Many interesting ideas have been tabled by others as well, including ideas on an ombudsperson for future generations, regional conventions on transparency, a sustainable development council and sustainable development goals. Many of them still lack rigorous scientific assessment, hence posing interesting new challenges and fields for research.

The Earth System Governance Project has taken the initiative to further investigate these reform directions and proposals and — based on existing knowledge and findings from science — to provide an ambitious vision for the required transformative change of governance for sustainability. This vision is called the "Hakone Vision", named after the venue of the workshop in Japan at which it was developed in September 2011. In March 2012, these efforts culminated in the publication of "Navigating the Anthropocene: Improving Earth System Governance" in Science. This article builds on the Policy Brief and is inspired by the Hakone Vision.

Overall, the contributions by the earth system governance research community call for a constitutional moment — the beginning of a reform process leading to transformative change of sustainability governance. The year 2012 offers an opportunity for this. No more, no less.

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Ruben Zondervan
Executive Director, Earth System Governance Project

Guest Article

Planet Under Pressure 2012 Conference, London

João M.F. de Morais

26–29 March 2012, London, UK — the world's largest gathering of environmental change specialists met in advance of Rio+20, United Nations Conference on Sustainable Development, to discuss global sustainability. The Planet Under Pressure (PUP) conference attracted 3018 scientists and decision-makers across the world to discuss global challenges and suggest new solutions. Almost 8,000 people participated online through video webcast and various social media platforms including Twitter and Facebook. The PUP website recorded 129,313 unique visitors.

The PUP conference was attended by a wide range of global change scientists and a large number of stakeholders from the policy and business communities. Participants discussed in dedicated plenary, panels and parallel sessions the acute challenges posed by Earth and human systems as we enter the Third Industrial Revolution, as well as the opportunities emerging from a highly interconnected and innovative world of seven billion people increasingly linked by digital communication technology.

The conference highlighted the science behind the beginning of an epoch, the Anthropocene, to mark the huge impacts of human society on the planet and the fact that we are pushing the planet towards dangerous tipping points: the disappearance of summer sea ice in the Arctic, permafrost in Arctic regions releasing large quantities of greenhouse gases into the atmosphere, and the drying out of the Amazon rainforest, to name a few. If these tipping points are crossed they can reverberate onto other thresholds generating unpredictable environmental impacts at global and regional scales with serious consequences for society and all forms of life on the planet.

Recognizing the interconnectedness of the current challenges, the four major international research programmes under International Council for Science (the International Geosphere-Biosphere Programme; DIVERSITAS; the International Human Dimensions Programme on Global Environmental Change; and the World Climate Research Programme) are presently reorganizing to focus on global sustainability and translating knowledge into action to effectively inform decision-making. This strategy establishes "a new contract between science and society" and includes the launch of a new international research programme, Future Earth.

In advance of Rio+20, scientists issued a "State of the Planet Declaration" that summarizes the key messages emerged from the conference (http://www.planetunderpressure2012.net/pdf/state_of_

Photo: IGBP

planet_declaration.pdf). The declaration argues that urgent action is required to avoid human, environmental and economic crisis at a global scale and works in synergy with Ban Ki-moon's Global Sustainability Panel report Resilient People, Resilient Planet: A Future Worth Choosing. Nine policy briefs were produced by the scientific community as an input to Rio+20 (see www.igbp.net). Policy brief #5, in particular, raises the interconnected risks and solutions for a planet under pressure and puts forward a number of concrete policy recommendations.

The PUP conference presented new initiatives as recommendations for the Rio+20 Summit, namely:

- Going beyond GDP by taking into account the value of natural capital when measuring progress;
- A new framework for developing a set of goals for global sustainability for all nations;
- Creating a United Nations Sustainable Development Council to integrate social, economic and environmental policy at the global level;
- Launching a new international research programme — Future Earth — that will focus on solutions; and
- Initiating regular global sustainability analyses.


Photo: IGBP

IGBP, on behalf of its PUP conference partners, is particularly grateful to APN's contributions namely providing a US$100,000 grant for developing country scientist participation which allowed 24 scientists from its member countries to present their work through oral and poster presentations at the conference.

APN also hosted an exhibition and booth at the conference, featuring the latest work undertaken by APN-funded projects in the Asia-Pacific Region (http://www.apn-gcr.org/2012/03/30/apn-at-planet-under-pressure-2012/).

João M.F. de Morais
Deputy Director, Social Sciences,
International Geosphere-
Biosphere Programme (IGBP)

Featured Global Change Organization

IAI and its Activities around Rio+20

Science-Policy Dialogue on Research Management and the Research Agenda for the Next Decade in Arlington, Virginia, USA, 27 June 2012

Nicolas Lucas

This June, the Inter-American Institute for Global Change Research (IAI) turns twenty years old. Like the Earth Summit (UNCED), IAI was born at a time that many believe was a turning point in human history. The year 1992 not only saw the formal recognition by governments of the World that global change requires specific political action, but also witnessed the first steps of the personal computer and the Internet, the vertiginous take-off of biotechnology, the global consolidation of international economic governance institutions and many other processes with profound social, economic and ecological implications. Interesting times indeed, when, as historian Eric Hobsbawm says, citizens of the world began a new journey amid the fog that surrounded them with the only certainty that a historical era was coming to an end, and that human institutions had lost control over the consequences of our collective action.

But if in 1992 we were still walking in the fog and figuring out the nature of the times ahead, by 2012 we have a compass to guide us, and institutions to reframe our collective action. IAI, like APN, IPCC and the new IPBES, is part of the new institutional framework, a scientific infrastructure that has played a very significant role in dissipating the fog by enhancing our common understanding of the changes in planetary dynamics and their implications for human well-being. Over the last twenty years, IAI has built a wide and sound network of scientists from multiple disciplines, and an impressive body of knowledge on global change in the Americas. Today IAI manages 13 collaborative research networks, six small grant programs, a capacity building program and several research and assessment projects, and has engaged over 2,500 scientists and students from more than 800 institutions in the production

IAI CRN 2047

of a vast body of scientific knowledge on global change.

Into the next twenty years, one of the fundamental challenges that IAI faces, and will address in June, is to increase its policy relevance beyond science and technology—how to effectively engage with policy-makers in a synergistic way. At its 20th Conference of the Parties (CoP), 26–28 June 2012 in Arlington, Virginia, USA, IAI will debate

IAI CRN 2015

and decide on the launch of a strategy for science-policy liaison. CoP discussions will be supported by a first science-policy dialogue on 27 June, which will bring together leading scientists, policy-makers and CoP delegates to share some of the most important findings of IAI research and, more importantly, help the Institute think through its scientific agenda for the next decades. Participants will discuss two topics: (1) "Resource management between production, mitigation and sustainability", to explore the linkages of global change with one of the highest policy priorities virtually everywhere in the world: food production; and (2) "New goals of science governance: networking, relevance, communication", to better understand the evolving governance of international scientific research.

It is clear that the importance of the integrated approach that IAI, and APN, represents will continue to grow in the future. Political and economic systems may lean towards different degrees of globalization, regionalization or national assertiveness, but the underlying biophysical systems will continue to hold us all together, and there is no escaping the determinant effect that the human footprint has on these systems. So the role of IAI, as a unique inter-governmental research institution for the Americas, with a mandate to shed light on these dynamics and help policy-makers, will only grow in importance. The task is to connect all this knowledge with decision-making.

For more information, please contact Nicolas Lucas at nlucas@dir.iai.int.

Nicolas Lucas
Communications and Policy Specialist, Inter-American Institute for Global Change Research (IAI)

Conference Report

Beyond Carbon: Ensuring Justice and Equity of REDD+ Across Levels of Governance

Heike Schroeder

Deforestation of tropical, old-growth forests in least developed to rapidly developing countries in the Global South is a topic that is receiving unprecedented attention. The challenge is clear: deforestation is adding significantly to atmospheric greenhouse gas concentrations (13–17% of global emissions). Deforestation rates are highest in the poorest countries and deforestation is a major path to development for these countries, as it was for developed countries centuries earlier. While developing countries cannot be obligated under existing international law to stop deforesting, they could be compensated for not clearing their forests by developed countries, which have the responsibility and capability to pay. This is the original idea behind what has been termed "Reducing Emissions from Deforestation and Forest Degradation" with compensations also for forest conservation, enhancement of forest carbon stocks and sustainable forest management — REDD+.

A wide range of actors, interests and ideas have emerged to shape this process across international, national and local institutions and a cacophony of different initiatives, programmes and policy paradigms have ensued, all of which are in some way

addressing the problem of deforestation. Much is at stake and many questions remain unanswered. How can such a funding mechanism be implemented effectively given the many governance challenges, including leakage, permanence, additionality, fair benefit sharing, tenure security and stakeholder participation in decision-making processes? In essence, how can justice and equity be ensured for a mechanism that permeates local, national and international levels of governance?

An APN and Hyogo-sponsored conference was held at St. Anne's College, Oxford, on 23–24 March 2012, to discuss this question. It was co-organized by the University of East Anglia, the University of Oxford and the Tyndall Centre for Climate Change Research and brought together some 110 REDD+ experts from around the word to address the pressing concerns of REDD+ and its implications for poor people.

Themes included:

1. National and social science framings of the problem of deforestation, presented by Dan Bebber (Earthwatch)/Yadvinder Malhi (University of Oxford) and Arun Agrawal (University of Michigan);
2. Conceptualizing justice and equity in REDD+, presented by Kate Schreckenberg (University of Southampton) and Thomas Sikor (University of East Anglia); and
3. Novel approaches to REDD+, presented by Rosita Worl (Sealaska) and Suneetha Subramian (UNU-IAS).

Toby Gardner (University of Cambridge), Tim Forsyth (LSE) and Bhaskar Vira (University of Cambridge) provided reports during the final plenary on these themes to draw out findings to conclude the conference. In addition to these plenary talks, some 40 paper presentations brought together a wealth of conceptual thinking and application through case studies from around the world.

What has emerged from discussions is that to get REDD+ right is to effectively coordinate and implement it across levels of governance — from international REDD+ rule making through national law making to local practice building. Challenges include:

1. Communicating across knowledge traditions of natural versus social sciences and Western versus indigenous approaches;
2. A clash of framings of deforestation and underlying agendas from carbon sequestration and commodification of carbon at the international level through economic development at the national level to forest conservation and traditional forest stewardship at the local level; and
3. Transforming disjointed attempts at developing "safeguards" and "co-benefits" internationally into integrated and livelihood-enhancing objectives on the ground.

Conference outputs will include a special issue in a reputable academic journal and a multi-authored policy-relevant journal article. Video/audio recordings of all sessions, power point slides of most presentations and some papers are available on the conference website at http://www.eci.ox.ac.uk/redd/index.php.

Heike Schroeder
Senior Lecturer in Climate Change and International Development, University of East Anglia, Norwich

APN and SBSTA

Andrew Matthews

The APN has been formally involved with SBSTA, the Subsidiary Body for Scientific and Technical Advice for the Parties to the United Nations Convention on Climate Change (UNFCCC), since it was invited to participate in a "Science Dialogue Event" organized by the permanent Secretariat to the UNFCCC. This Dialogue Event has now been held for several years and in it, the leading international global change research programmes, particularly the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme (IHDP), the International Programme on Biodiversity (DIVERSITAS), and the World Climate Research Programme (WCRP), the Earth System Science Partnership (ESSP) together with regional research organizations such as the APN and IAI, present to delegates, usually policy-makers, new research findings relevant to those charged with drafting climate change policies and to highlight issues that are deemed to be important but for which there is not sufficient scientific research to be able to give definitive directions or to describe the level of uncertainty. The UNFCCC Secretariat has organized these "Science Dialogue Events" within the regular SBSTA meeting in Bonn each year.

At these SBSTA events, we have used the opportunity to highlight APN's support of regional research activities relevant to climate change and its efforts to build research capability in developing states in the Asia-Pacific region. We have also discussed our efforts in facilitating science-policy dialogues, whereby policy-makers have the opportunity to discuss with climate change researchers' issues that are of importance to them or to ask for clarification on issues they do not understand. This has proved to be a catalyst for establishing links between policy-makers and research scientists from their own country, where often the policy-maker was not aware of the work in their own country, or of the competence of their own researchers.

We have continued to highlight the need to repeat some of the training supported by APN at regular intervals since policy-makers, particularly those from developing states often change their field of work and when confronted with the issues of climate change, they are not only faced with a series of complex issues but also a sea on new acronyms. It is often very difficult to get a feel for what is the current state of knowledge, what is essential to understand and what is "interesting" but not essential. It is also important to try and understand what the uncertainty is in what is presented.

We have also highlighted APN's effort in helping with the creation of climate change adaptation strategies and also where there is potential for mitigation. We have used the SBSTA briefing as an excellent opportunity to publicly acknowledge the contribution made by our donor members.

The format of the Dialogue Events in the first few years left little time for real "dialogue". The programme was dominated by the scientific community talking with enthusiasm, and at length, about their latest scientific findings related to climate change, what are the current "hot" issues and what are the questions that remain unanswered. The regional research networks briefly talked about their programmes and new initiatives and then most of the policy-makers left as they needed to return to their formal negotiation sessions. Hence there was very little two-way interaction. Over the last two years, the process has evolved and the agenda for the Dialogue Event has been tightened so that there is indeed more time for discussion. This provides a chance to hear directly from the delegates to SBSTA what their issues actually are. These are the people who, back in their home countries, are actually charged with formulating policy that takes into account the multiplicity of issues associated with climate change. This has been useful in guiding our thinking within the context of APN's work programme and the way we adapt our Strategic Plan to reflect the issues relevant to our region.

I have been privileged to represent APN at several of the Science Dialogue Events and speak to delegates about the work of APN. I will do so again at SBSTA's 36th session in Bonn in May this year together with the Director of the APN Secretariat, Dr. Akio Takemoto.

Andrew Matthews
APN Steering Committee Member

How do We Add Value to Earth System Science?

Thorsten Kiefer and Ninad Bondre

Global change organizations usually have a two-fold mandate: to facilitate new cutting-edge science and to add value to it via networking, capacity enhancement and communication. Research results usually get good exposure at conferences and in publications, but the efforts of adding long-lasting value often go unnoticed.

A session set up by the International Geosphere-Biosphere Programme (IGBP) at the Planet under Pressure conference in London, in March 2012, was designed specifically to focus on this aspect. Between 100 and 200 people attended the session and participated in extraordinarily lively discussions, underscoring the diverse interests of those who attended this conference.

The session addressed four "Grand Challenges": (1) raising the next generation of Earth system scientists, (2) developing a truly global science community, (3) promoting science across disciplinary boundaries, and (4) facilitating better communication with stakeholders. Discussions took place in two panels moderated by Jean Ometto (Brazil) and Alan Mix (USA), and were then opened up to the floor.

Introducing the first panel, Ricardo Villalba (Argentina) demonstrated how the Inter-American Institute for Global Change Research (IAI) and the PAGES project helped to build a multi-disciplinary research network. Initially, it motivated international collaboration among South American scientists, then increasingly involved western colleagues, and is now shouldered by the young generation that grew up in the network. The ingredients for success were continuous international support over more than a decade in combination with support from local institutions.

Panellist Linda Stevenson, APN Executive Science Officer, discussed APN's approach to increasing capacity in developing countries and among early-career researchers. Under the guidance of senior APN scientists, international groups of researchers develop APN proposals at dedicated workshops, hence acquiring important scientific skills and building research collaborations. Pamela Collins, a doctoral student in Switzerland, underscored how useful the PAGES Young Scientists Meeting was in helping her get acquainted with the world of international and multi-disciplinary science in an informal and friendly environment. Along similar lines, Nobuko Saigusa from Japan stressed that successful capacity building requires cultural sensitivity. For example, in Japan smaller groups help facilitate interaction within the context of existing hierarchies and also encourage relatively shy individuals to participate.

Jean Palutikof from Australia introduced the second panel and raised important issues surrounding transdisciplinary science and communication and science-policy links. She called for greater clarity while using the prefixes "inter", "trans", "cross" and "multi" while speaking about the links between disciplines, and alerted the audience to various pitfalls when talking about science with non-scientists. Panellist Heike Langenberg (Nature Geoscience, UK) emphasized that in-depth specialist expertise must remain the foundation on which collaboration across disciplines can build, and received support from Ray Bradley (USA) and Ninad Bondre.

The concluding discussion on communication clearly engaged the audience the most. Bradley left no doubt that scientists must reach out to the public effectively in order to prevent less-informed people filling the information vacuum. He encouraged every scientist to be active, for example by engaging with local politicians or by writing for the local newspaper. Ninad Bondre agreed with the need for communication, highlighting the role played by publications such as IGBP's Global Change magazine. However, he pointed out that the mere reiteration of facts and better communication was not sufficient. We need accompanying efforts to understand the socio-political context of, for example, climate scepticism and denialism, and to address the root causes. Audience participants called for a two-way communication mode (talk and listen); harnessing powerful illustrations; acknowledging outreach efforts in academic promotion schemes; and setting up institutional communication infrastructures such as press offices while also making better use of the already existing infrastructures.

Constraints of time meant that the discussion had to end eventually, despite outstanding questions and unexpressed comments. But it is our understanding that the session went a long way in demonstrating that the global change community is motivated to add value in ways that go beyond research and to wrestle with a broad range of issues.

Thorsten Kiefer
Past Global Changes (PAGES) International Project Office, Bern, Switzerland

Ninad Bondre
Science Editor
IGBP Secretariat, Stockholm, Sweden

New Publicaitons

Final Report: CBA2011-02CMY-Kaihotsu: Drought Monitoring System Development by Integrating *In Situ* Data, Satellite Data and Numerical Model Output
Project metadata: http://www.apn-gcr.org/resources/items/show/1680

Final Report: CBA2011-05NSY-Schang: National Dialogues on Adapting Biodiversity Management to Climate Change
Project metadata: http://www.apn-gcr.org/resources/items/show/1683

Final Report: ARCP2010-03CMY-Marambe: Vulnerability of Home Garden Systems to Climate Change and its Impacts on Food Security in South Asia
Project metadata: http://www.apn-gcr.org/resources/items/show/1566

Final Report: CBA2010-09NSY-Okayama: Scientific Capacity Development of the Trainers and Policy-Makers for Climate Change Adaptation Planning in Asia and the Pacific
Project metadata: http://www.apn-gcr.org/resources/items/show/1670

Final Report: ARCP2010-01CMY-Sthiannopkao: Collaborative Research on Sustainable Urban Water Quality Management in Southeast Asian Countries: Analysis of Current Status (Comparative Study) and Strategic Planning for Sustainable Development
Project metadata: http://www.apn-gcr.org/resources/items/show/1564

Final Report: ARCP2010-08NSY-Freeman: Impact of Climate Change on Food Security and Biosecurity of Crop Production Systems in Small Pacific Nations
Project metadata: http://www.apn-gcr.org/resources/items/show/1571

Final Report: ARCP2010-09NSY-Patankar: Enhancing Adaptation to Climate Change by Integrating Climate Risk into Long-term Development Plans and Disaster Management
Project metadata: http://www.apn-gcr.org/resources/items/show/1572

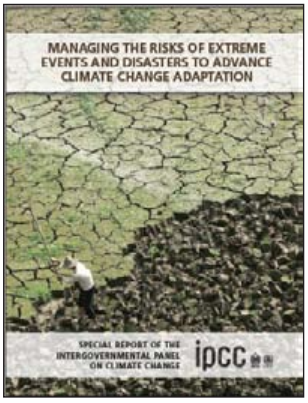
Final Report: EBLU2010-01NSY(R)-Suneetha: Evaluation of Trade-offs between Conservation and Development — Case of Land-use Change in Malaysia and Indonesia
Project metadata: http://www.apn-gcr.org/resources/items/show/1705

The 2012 APN Science Bulletin highlights those APN projects either funded and/or completed in the year of publication (the present year runs from April 2011 – March 2012). The Science Bulletin has four main sections: 1) Featured Articles; 2) Regional Research Projects funded under the Annual Regional Call for Research Proposals (ARCP) Programme; 3) Scientific Capacity Development Projects funded under the CAPaBLE Programme; and 4) Projects funded under the APN's Focused Activities Programme.

We hope this publication is of use to your work and encourage you to share it among your networks.

The APN Secretariat recently published two brochures highlighting projects under the following two focused areas: Scientific Capacity Building for Climate Impact and Vulnerability Assessments (SCBCIA); and Ecosystems, Biodiversity & Land Use (EBLU). The new brochures add to the growing list of APN information materials on focused topics, and have been disseminated to the GEC community electronically and through major events, including the Planet Under Pressure conference in London, UK. All information materials are available for download at http://www.apn-gcr.org/publications/information-materials/brochures/

IPCC Publishes Special Report, APN Work Cited



The Intergovernmental Panel on Climate Change (IPCC) recently published a special report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX).

The report, produced by IPCC Working Groups I and II, is the outcome of cross-disciplinary teamwork between scientists studying the physical aspects of climate change, scientists with expertise in impacts, adaptation and vulnerability as well as experts in disaster risk management.

The report provides substantial details and analyses that support the conclusions and recommendations in the Summary for Policy Makers released earlier in November 2011. It also relates directly to decision-making by revealing options and opportunities for building resilience at local, national and international levels. Case studies of recent extreme climate events across the world were included to support the formulation of policies on adaptation and mitigation.

Work of the APN funded project "Cities at Risk: Developing Adaptive Capacity for Climate Change in Asia's Coastal Megacities" (CBA2008-06NSY-Fuchs) is cited in Chapter 5, Managing the Risks from Climate Extremes at the Local Level, and Chapter 9, Case Studies, of the SREX report. (Project metadata: http://www.apn-gcr.org/resources/items/show/1643)

ANNOUNCEMENT

Call for Abstracts: International Conference on Climate, Water and Policy (ICCWP) 2012

The APEC Climate Centre (APCC) is planning to hold the "International Conference on Climate, Water and Policy (ICCWP) 2012" for three days in September 2012 in Busan, Republic of Korea.

The conference will include keynote speeches, oral presentations and poster displays. The organizer welcomes abstracts on the following topics for these sessions.

- Why do water resource managers not use climate forecasts?
- Application of seasonal climate forecasting to hydrologic forecasting and water resource management
- Assessment of the accuracy and reliability of climate and seasonal streamflow forecasts at hydrologic scales
- Long term climate variability and change and water resource management
- Developing effective communication channels and toolkits among climate scientist, water resource managers and policy-makers
- International cooperation and policy

All abstracts must be submitted via email. Please submit abstracts to swchung@apcc21.net and copy climatewater2012@gmail.com to ensure that all abstracts are received.

Deadline for abstract submission: 30 June 2012

Conference website: http://www.apcc21.org/eng/acts/int/ann/japcc020701.jsp

Message from New Members

Mr. B. M. U. D. Basnayake
Secretary
Ministry of Environment, Sri Lanka
APN National Focal Point for Sri Lanka
APN Steering Committee Member

I assumed office as Permanent Secretary of the Ministry of Environment, Sri Lanka in January 2012, and have since taken over as the APN National Focal Point for Sri Lanka. It is indeed a great pleasure for me to be associated with the global change research community through the APN.

Throughout my 30-year career in public service, I have worked in various public sector organizations in different fields. It is a remarkable opportunity for me to work at the Ministry of Environment, which functions as the Secretariat to the National Council for Sustainable Development (NCSD), the Haritha Lanka Programme, and National Action Plan of the Environmental Sector in Sri Lanka.

As we are aware, human activities have contributed on a massive scale to global environmental change. Therefore, conducting research activities on long-term global changes in climate, ocean and terrestrial systems and on related physical, chemical, biological and socio-economic processes is of vital importance.

In this context, APN as an inter-governmental network has the potential for promoting research that will lead to strengthened links between science and policy-making in the Asia-Pacific region.

As the APN National Focal Point for Sri Lanka, I hope to work with the APN community to ensure long-term sustainability of our common future.

Dr. Changsub Shim
Research scientist
Korea Environment Institute
APN SPG Member for Republic of Korea

It is a great honour to be a member of the APN Scientific Planning Group. The APN is not new to me because I have worked on international cooperation for climate change adaptation in the Asia-Pacific region for a few years. Since 2000, I have built my career around atmospheric sciences, specifically global-scale air quality modelling, which is connected to global environmental change issues. From 2006 to 2009, I was a research fellow at the Jet Propulsion Laboratory/California Institute of Technology in USA, where I conducted various research activities on global-scale atmospheric monitoring to understand the transformation of atmospheric chemical compounds. My research interests include quantifying the major air pollutant emissions with various observations (e.g., satellite measurements of chemical species), and understanding the exchange and transformation of greenhouse gases in the atmosphere.

Since 2009, I have worked as a Research Fellow at the Korea Environment Institute and have supported the development of national adaptation strategies of the Republic of Korea, especially focusing on enhancing adaptation capability by strengthening cooperation among government institutes at central and local levels.

I look forward to participating in APN activities and hope to contribute to the main objectives of the APN. I believe the APN community will provide more support in many ways to address climate change and environmental issues.

Recent studies highlighting the impact of climate change in Cambodia point to worrisome risks that the country can no longer afford to ignore. Impacts of climate change on the country are clearly seen in the change in natural rainfall patterns. Global warming is likely to increase the country's rainfall in wet seasons and decrease in dry seasons. This will affect seasonal flooding patterns that drive inland fish production and crop irrigation. These concerns are just a few examples to show Cambodia's need to equip itself to deal with the possible dire consequences of climate change.

Solutions to climate change for Cambodia, as suggested in recent consultant reports, are to develop appropriate ways to adapt to climate change, adjusting natural or human systems in response to actual or expected climatic stimuli or their effects to minimize risks to vulnerabilities and disasters. However, adapting to these impacts is an uphill challenge and the government needs to assess and prioritize vulnerable sectors, areas and people. Further work is required to analyse the root of the problems and find solutions to real threats from climate change.

I personally believe that there is nothing more important right now than to align our thinking and develop some sense of what is really possible in terms of change. Systems models are a way to test our ideas and to sharpen and clarify our thinking and knowledge. Systems models will also help us better understand the systemic causes of climate change and possible solutions.

Trained in the field of systems engineering and natural resources science, I hope to be able to contribute to the goals of the APN. It is my pleasure to join the APN Scientific Planning Group and I look forward to working with colleagues in the years to come.

Dr. Veasna Kum
Faculty of Engineering
Zaman University,
Cambodia
SPG Member for Cambodia

Staff Changes in the Secretariat

Yuko Noda
Former Administrative Assistant

The Secretariat recently bid farewell to administrative assistant Ms. Yuko Noda, who worked for APN for over two years and was tremendously dedicated and supportive. Ms. Noda would like to thank the APN for providing such a valuable working environment, which she will miss greatly. "I have too many things to say to my colleagues at the Secretariat and I will never forget the valuable experience I have gained from such an international workplace," said Yuko. "The memories of working at the APN will be jewels in my life. To everyone that I have worked with, thank you so much for your kind support."

Ms. Chieko Kodama (right) took over as administrative assistant from April 2012. The secretariat would like to take this opportunity to warmly welcome her on board.

17th Inter-Governmental Meeting (IGM)/Scientific Planning Group (SPG) Meeting Held in Jakarta, Indonesia

16 March 2012, Jakarta, Indonesia—The APN 17th Inter-Governmental Meeting (IGM)/Scientific Planning Group (SPG) Meeting and associated committee meetings successfully concluded on 16 March 2012 in Jakarta, Indonesia.

The meeting was hosted by the Ministry of Environment, Indonesia in collaboration with Indonesia National Institute of Aeronautics and Space (LAPAN). APN member country representatives, donor representatives, invited experts and observers from the global change community attended the three-day gathering to discuss activities to be undertaken in the upcoming fiscal year 2012/13 and chart new possibilities for future regional collaboration.

Major highlights

Among the major outcomes is the approval of 23 projects (including continuing projects and new proposals) for funding under the Annual Regional Call for Proposals (ARCP) programme and 17 projects under the Scientific Capacity Building/Enhancement for Sustainable Development in Developing Countries (CAPaBLE) programme. Results of the ARCP/CAPaBLE projects will be formally announced in early April.

The IGM reviewed and approved the Final Financial Report for 2010/11, Interim Financial Report for 2011/12, and Work Programme and Budget Plan for 2012/13. A new reporting style was introduced, whereby the use of resources were categorized into the actual expenditures, committed resources for ongoing projects and uncommitted resources that could be released for new and ongoing activities. The new style, which was welcomed by the IGM, was so designed to better manage and report APN financial resources for research, capacity building and focused activities.

A number of proposed continuing and new activities were also endorsed by the IGM:

- Southeast Asia Science-Policy Dialogue, and Ecosystem Services Framework;
- APN Session for PROVIA "Adaptation Futures" Conference in the lead up to Rio+20;
- UNFCCC/SBSTA and Annual Research Dialogue with the Parties;
- A series of workshops on "Satoyama, the New Commons" supported by Hyogo Prefectural Government;
- New focused activities on climate mitigation and low carbon development;
- New focused activities on climate adaptation; and
- APN/IGES Symposium on low carbon development.

The Climate Synthesis Team reported to the IGM on the progress of the synthesis activities to date, in particular on the publication of the synthesis report "Climate in Asia and the Pacific: A Synthesis of APN Activities"; the status of the peer-review paper to be published in EOS; and plans for publishing the climate book/special edition and its dissemination. The IGM welcomed the important work carried out to synthesize APN climate-related activities and to distribute such outcomes widely through various channels.

On sub-regional cooperation, delegates from South Asia and Southeast Asia gathered in their respective sub-regional groups to review past activities and exchange ideas on furthering sub-regional cooperation. Both groups acknowledged the importance of Proposal Development Training Workshops (PDTW) and agreed on continuing the activity on a regular basis at the sub-regional level to raise awareness among young scientists and researchers on the APN and its programmes. They also provided substantial input on developing further details for the sub-regional activities to be carried out in 2012/13.

Members from Temperate East Asia agreed to work together to involve more scientists from the sub-region in APN activities, initially by establishing a working group to look at relevant issues and organize a PDTW during the coming fiscal year.

Interactive Sessions

Four interactive sessions were organized during the 17th IGM/SPG Meeting. During the interactive sessions, APN country representatives shared the latest information on low carbon development and green growth in their countries, invited speakers from the science community presented on their work and its relevance to the policy-making process, and scientists from APN member countries presented their activities related to climate change adaptation in the Asia-Pacific region in the context of Sustainable Development.

A poster session was also organized where eleven young scientists from Indonesia introduced their research work through poster presentations. The best poster, entitled "Natural Properties of Carbon Stock in Customary Peat Forest at Danau Sentarum National Park, West Kalimantan, Indonesia," was selected by all participants to the meeting and the winning scientist, Ms. Evi Gusmayanti from the Centre for Wetlands People and Biodiversity, Universitas Tanjungpura, Indonesia, was presented with the "Mitra Award for Global Change Research".

The APN Secretariat would like to express its sincere appreciation to the host, member country representatives, invited experts, observers and all others for their active contribution that has led to the great success of the 17th IGM/SPG Meeting.

Symposium on Strategies for Climate Change Adaptation

Daejeon Development Institute
Republic of Korea
2 February 2012
Akio Takemoto

A Symposium on "Strategies for Climate Change Adaptation" was organized by Daejeon Development Institute (DJDI) in Daejeon, Republic of Korea on 2 February 2012. Participants ranged from government officials and scientists of the Republic of Korea and citizens of Daejeon. The objectives of the symposium were to deepen the understanding among participants on the impacts of climate change and relay the necessity for adaptation in the city of Daejeon.

The Symposium was opened with remarks from Dr. Chang-Ki Lee, President of DJDI, and a welcome address by Dr. Jong-Ki Lee, Vice Mayor of Daejeon Metropolitan City. Following the speeches, Dr. Younghan Kwon, Chief Researcher at the Korea Adaptation Centre, Korea Environment Institute, Dr. Jongkon Kim, Research Fellow at the Land & Housing Research Institute and Dr. Akio Takemoto, Secretariat Director of the APN made keynote speeches. Dr. Takemoto introduced the APN framework and its Climate Synthesis Report highlighting specifically the outcomes on adaptation-related research activities. He stressed the role of the APN in supporting adaptation to climate change impacts in the Asia-Pacific region, including the Republic of Korea.

Following the keynote speeches was a panel discussion, during which it was announced that Daejeon Metropolitan City would develop regional plan on adaptation in the near future. Dr. Jung Hyun-Sook, Director of Korean Peninsula Weather and Climate Division, Korea Meteorological Administration introduced that the Agency is establishing a data acquisition system on local climate information which will be effective for disaster risk management. Some panellists stressed that adaptation to climate impacts should be incorporated into the urban planning of Daejeon because extreme events such as heavy rainfall will become more severe and cannot be neglected in the future. Water-permeable pavement technology and roof gardens were introduced by a panellist as options for adaptation in urban areas. There was a comment on the necessity for education on adaptation to climate change because the government has placed emphasis on mitigation measures with regard to climate change policies so far.

In the end, activities of the APN were introduced to the participants. The results of the Symposium were also disseminated to the country through domestic media.

Panel Discussion at DJDI Symposium, Daejeon, Republic of Korea 2 February 2012

APN at Planet Under Pressure 2012, London, UK

29 March 2012, London, UK—The biggest gathering of global environmental change specialists in advance of the United Nations Rio+20 Summit, the Planet Under Pressure conference attracted over 3000 scientists and decision-makers across the world to discuss global challenges and offer new solutions. More than 3000 people participated online through video webcast and various social media platforms.

Scientists issued the State of the Planet Declaration that summarizes the key messages emerging from the conference.

The APN, through its funding support to the conference, facilitated the participation of 26 scientists from its member countries to present their work through oral and poster presentations at the conference. The APN also hosted an exhibition at the conference, featuring the latest work undertaken by APN-funded projects in the Asia-Pacific Region.

Climate Change, Agriculture and Food Security (CCAFS) Workshop

Tsukuba Office, Agriculture, Forestry and Fisheries Research Council Secretariat, Japan
22 February 2012
Akio Takemoto

"Climate change, Agriculture and Food Security" (CCAFS) is a 10-year research initiative launched by the Consultative Group on International Agricultural Research (CGIAR) and the Earth System Science Partnership (ESSP). CCAFS is implementing research activities to address the threats of climate change on agriculture and food security, which will encourage adaptation in developing countries by reducing vulnerability in rural communities (see http://ccafs.cgiar.org/).

A CCAFS Workshop was held in Tsukuba on 22 February 2012 organized by the Tsukuba Office, Agriculture, Forestry and Fisheries Research Council Secretariat (SAFFRC), Ministry of Agriculture, Forestry and Fisheries (MAFF) of Japan. The workshop looked at how Japanese research contributes to investigating the interrelations among climate change, agriculture and food security in developing countries. About 30 experts on agriculture, food and climate participated in the workshop.

The workshop was opened by Dr. Takeshi Horie, President of the National Agriculture and Food Research Organization (NARO), which was followed by a presentation from Dr. Ruben Echeverria, Director General, and International Centre for Tropical Agriculture (CIAT) and Dr. Lini Wollenberg, Coordinator, CCAFS Theme 3 (Pro-poor Climate Change Mitigation).

Dr. Akio Takemoto, Secretariat Director of the APN made presentation to introduce the framework and some core research activities of the APN, which attracted considerable attention among the audience from the perspective of capacity development and interaction with policy-makers.

Representatives from the Japanese Agricultural Research Institute introduced their latest research activities that are effective for mitigation and adaptation to climate change in the agricultural sector.

During the discussion session, participants highlighted the necessity to further enhance the role of Japanese institutes in assisting Asian developing countries in promoting research on agriculture, food security and climate change through collaborating with CCAFS.

First Workshop on Building Resilience with Common Capital

United Nations University, Tokyo, Japan
23–25 January 2012
Akio Takemoto

Background

"Satoyama" is a Japanese term for traditional rural production landscapes characterized by a mosaic of different types of ecosystems such as secondary forests, farmlands, irrigation ponds and grasslands, along with human settlements which are managed to produce bundles of ecosystem services for human well-being.

The loss of collective management of satoyama landscapes (and satoumi — a similar concept for marine-coastal ecosystems) may be termed as a loss of the "commons". It is essential to create a new "commons" for the success of a more integrated and holistic approach to ecosystem management. The new "commons" is understood both as a system of co-management of ecosystem services and biodiversity within private, communal, and public land, and as a single system to produce a bundle of ecosystem services that exhibit both public and private properties, and for direct and indirect use by society within a long-term perspective.

Ecosystem management is closely related to communities' resilience to climate change. It is vital to enhance resilience in rural areas by conducting sustainable ecosystem management in order to adapt to climate change impacts such as flooding, landslides, drought and sea-level rise.

In this regard, the First Workshop on "Building Resilience with Common Capital" was held at the United Nations University (UNU), Tokyo, Japan, from 23–25 January 2012, and co-organized by the APN, DIVERSITAS, Hyogo Prefectural Government, the International Human Dimensions Programme on Global Environmental Change (IHDP) and the United Nations University Institute for Sustainability and Peace (UNU-ISP).

Objective

The objective of the series of three workshops is to identify new governance systems to manage the New Commons, regulate ecosystem services and enhance socio-ecological resilience against climate and ecosystem changes in an efficient and equitable manner across a range of stakeholders.

APN at the Fifth GEOSS Asia-Pacific Symposium, Tokyo, Japan

Tokyo, Japan, 2–4 April 2012
Taniya Koswatta

4 April 2012, Tokyo, Japan — The APN was represented at the Fifth GEOSS Asia-Pacific Symposium which was held in Tokyo, Japan, from 2 to 4 April 2012. More than 200 participants from over 20 countries participated in the event.

Keynote speakers addressed the major climate issues emerged after the great East Japan earthquake and tsunami in 2011 and lessons learned from the disaster. Countries reported on the progress they made in implementing GEOSS since the last Asia-Pacific Symposium in Indonesia. The symposium is expected to further strengthen international networking within the region and share the Asia-Pacific's experiences with the world. The participants issued a


Photo: UNU-ISP

Workshop and outcomes

More than 20 scientists and policy-makers participated in the workshop. Prof. Kazuhiko Takeuchi, Vice Rector of UNU, Dr. Anantha Duraiappah, Executive Director of IHDP, and Dr. Akio Takemoto, Director of APN Secretariat, co-chaired the workshop and made welcome remarks. In subsequent sessions on Day 1, a multinational and multidisciplinary team of experts and policy-makers from Japan and Thailand made presentations on their work related to managing shared resources and meeting the combined challenges of climate and ecosystem changes.

Dr. Hiroaki Ishida, Museum of Nature and Human Activities, Hyogo Prefecture, introduced Satoyama forests in Kurokawa, Hyogo Prefecture, where local communities have maintained secondary forests via sustainable management for over 800 years through "kiku-zumi" charcoal production. However, it is likely that the forest will deteriorate in the near future, because the number of charcoal producers has been drastically decreasing recently, which makes it difficult to maintain the forest in the region.

In Days 2 and 3, breakout sessions were held to facilitate intense discussions on outlining outputs (publications) based on the objective of the project. For example, one group discussed how to bridge institutions among different levels (i.e., community, local, provincial, national, regional and international levels), and what kind of drivers should be used to enhance or revitalize satoyama activities (i.e., market size of the products produced by satoyama activities).

The second workshop is scheduled to be held in Sri Lanka at the end of May 2012.

"Tokyo Statement" to call upon the upcoming United Nations Rio+20 Conference on Sustainable Development to recognize the critical role of Earth observations for informing an economy based on Green Growth.

Dr. Akio Takemoto, Director of the APN Secretariat participated as an invited speaker at the session on Country and Regional Reports on GEOSS-Related Activities. He gave a brief introduction to the APN, its new focused activities in 2012 and recent publications. In particular he highlighted APN's involvement in the GEOSS process and related activities to date. Dr. Takemoto also briefed on the outcomes of the "Planet Under Pressure" Conference that he participated in before joining the GEOSS Asia-Pacific Symposium.

The APN presented its recent work and distributed latest publications through an exhibition in the symposium. The recently published Climate Synthesis report was among the eye-catching publications welcomed by the audience.

APN representatives attended two parallel sessions, namely on Asian Water Cycle Initiative (AWCI) and Asia-Pacific Biodiversity Observation Network (APBON). APN project leader Prof. Toshio Koike and Prof. Samuel Huda also participated in this event.

International Workshop on Water-Energy-Carbon Nexus in Cities: Drivers, Footprints, and Implications

Tokyo, Japan, 1–2 March 2012
Akio Takemoto

The workshop was organized by Global Carbon Project (GCP) and National Institute for Environmental Studies (NIES) of Japan. About 30 experts from Japan, USA, UK and other Asian countries including China, India, Thailand and Singapore participated in the workshop. The objective of the workshop was to enhance knowledge and understanding among participants of the water-energy-carbon nexus in cities and to facilitate interactions among key scholars and build a network with focus on Asian cities.

In the workshop, the following key questions were addressed: 1) How to characterize the water-energy-carbon nexus in cities? 2) What are key indicators? 3) What do we know about the energy and carbon footprints of water systems in cities? 4) What are the frameworks that are in use and their strengths and limitations? 5) What is the image of water-energy-carbon efficient cities? and 6) What are the barriers to, and opportunities for, water-energy-carbon efficient systems in cities?

Dr. Akio Takemoto, Secretariat Director of APN, via a presentation, introduced the framework and major activities of the APN including the Climate Synthesis Report published in October 2011 (http://goo.gl/gVW8M), and commented on opportunities for supporting research on the water-energy-carbon nexus.

In the discussion session, the shortage of hydropower in one Asian country was reported due to the scarcity of river water as a result of drought conditions — a typical case of the energy security problem related to water resources in Asia. It was also noted that energy-saving technology is necessary from the perspective of water availability and that barriers for integrating energy and water policies exist, which are a result of sectoralism among different ministries and agencies, and national and local governments.

Participants at the workshop were represented in mainly two expert groups of water and energy. The workshop was successful in fostering mutual understanding on the water-energy-carbon nexus between these two groups. The workshop participants also discussed how to mobilize new research activities on this topic in the future including through possible cooperation with the APN.

Photo: Shobhakar Dhakal

APN at the 7th Scientific Steering Committee Meeting of MAIRS

Zhangjiajie, Hunan, China
23–24 April 2012
Linda Anne Stevenson

Held at Zhangjiajie State Hotel in beautiful Zhangjiajie, Hunan, China, the 7th Scientific Steering Committee Meeting of Monsoon Asia Integrated Regional Study (MAIRS), a core project of the Earth System Science Partnership, successfully took place on 23 and 24 April 2012. The local host, Dr. Heqing Huang welcomed the participants and expressed his hope for fruitful outcomes.

The meeting was led by Dr. Ailikun, Director of MAIRS and Prof. Michael Manton, Chair of the MAIRS Scientific Steering Committee who addressed a number of important issues in the development of the MAIRS programme. In particular, Dr. Ailikun expressed three specific issues that would consume the two-day meeting: (1) Addressing strategic scenarios and options for Monsoon Asia: drivers, impacts and vulnerabilities and response strategies associated with environmental change; (2) Implementing MAIRS activities in line with changing scenarios; and (3) Establishing thematic nodes: drylands; mountain areas, etc.

Professor Manton also shared the minutes of the previous meeting highlighting important points such as the new MAIRS draft Science Plan; integrating MAIRS more with the NASA-LUCC programme; other core networking activities, including closer networking with the APN; and funding mechanisms. In addition, MAIRS is considering convening its first Open Science Conference sometime in 2013/14 and request partnership with the APN, particularly for supporting younger generation of scientists from the Monsoon Asia Region to participate.

Some of the main highlights of the meeting are summarized as follows:

1. Urbanization

An important topic discussed was the new MAIRS urban study and the developing strategic plan. The study aims to look at the development of urban areas, well-being, supply, transportation, and energy, water and food usage, all of which are issues of governance and planning in particular. In addition, the study aims to address the issue of "green cities" for sustainable development.

The four main topics of the strategic plan are: (1) Development of Asian megacities; (2) Urbanization and climate; (3) Assessment of resilience and vulnerability of Asian megacities; and (4) Adaptive urban governance and urban sustainable planning.

2. Pastoral Systems

Dr. Dennis Ojima talked about an ongoing CDKN-MAIRS-related study that looks at the Drylands Pastoral Systems that takes a "coupled human-environment" (CHE) systems approach. Particularly encouraging in the realization of this project are the linkages between research and adaptation and the potential for deploying various sustainable adaptation strategies. The legacy of the project itself builds

> "... APN and MAIRS are connected through a number of APN-funded projects

on past efforts led by Chuluun Togtohyn in Mongolia and supported by the APN and START.

Most recently, the Dryland Paradigm Study funded by the APN — which is featured in the APN 2012 Science Bulletin (pp 49–54) — has built on the back of team members at the local level and Dr. Togtohyn has been instrumental in developing the dialogue with local players. There is a trusted community in the Mongolian River Basin areas between local herders, country managers and potential leaders.

The main goals of the new project are to: engage a systems approach; develop adaptation options for pastoral systems; enhance stakeholder dialogue; and provide a platform where sustaining dialogues can take place at multiple scales.

3. Future Earth

Presented by Dr. Rik Leemans of the Earth System Science Partnership (ESSP), a dialogue ensued about the ongoing development of Future Earth. The importance of developing a strategy for MAIRS to integrate with the new 10-year programme was considered crucial, particularly in terms of how it can contribute to Future Earth. It was stressed that the strategy had to be realized soon so that MAIRS could be integrated effectively.

4. APN and MAIRS partnership

Throughout the course of the meeting, it became clear that APN and MAIRS are connected through a number of APN-funded projects, including:

- Dryland Development Paradigm (DDP) Application for the Most Vulnerable to Climate and Land Use Change of Pastoral Systems in the Southern Khangai Mountains of Mongolia (DDPPaS) [CBA2009-12NMY- Togtohyn]
- Building Asian Climate Change Scenarios by Multi-Regional Climate Models Ensemble [ARCP2011-01CMY-Wang]
- Intercomparison of Landsurface Process Modelling at Asian Drylands [ARCP2011-03CMY-Asanuma]
- New three-year ARCP project led by Yinpeng Li: **[ARCP2011-08FP-Li]** Development of an Integrated Climate Change Impact Assessment Tool for Urban Policy-Makers (UrbanCLIM)
- New CAPaBLE project led by Evgeny Gordov: **[CBA2011-02FP-Gordov]** Capacity Building to Study and Address Climate Change-Induced Extremes in Northern Asia.

APN found this very encouraging and suggested that the APN provide a dedicated web page to provide information to the APN community on the present APN-MAIRS partnership. This web page would also help raise the profile of MAIRS, but particularly focus on showcasing MAIRS achievements assisted by the APN. Furthermore, discussions took place on MAIRS embarking on its own "MAIRS series" of publications; discussions for which will ensue as the next year of MAIRS progresses.

Finally, with the number of exciting activities developing under the MAIRS programme, the APN looks forward to strengthening its partnership with the IPO and the entire MAIRS community.

Linda Anne Stevenson
Executive Science Officer,
APN Secretariat

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

Reference No.: *ARCP2010-09NSY-Patankar*
Project Leader: *Dr. Archana M Patankar,* K. J. Somaiya Institute of Management Studies and Research
http://www.apn-gcr.org/resources/items/show/1572

Extreme weather events affect vulnerable urban areas adversely; with substantial damages, disruption of normal economic and social activities and loss of human life, and have the potential to alter the medium- to long-term development trajectory of these areas. Thus, disaster management is an important context for integrating adaptation into decision-making in urban areas. With this in view, the APN-funded research project titled "Enhancing adaptation to climate change by integrating climate risk into long-term development plans and disaster management" was undertaken in the Asian cities of Mumbai (India), Bangkok (Thailand) and Manila (Philippines). This project primarily aimed at identifying and measuring the short- to medium-term impacts of, and responses to, extreme weather events and their policy implications for long-term adaptation capacity and development planning of the cities.

The selected cities are located in densely populated low-lying coastal areas described by the IPCC Fourth Assessment Report as "key societal hotspots of coastal vulnerability". With millions of people residing in these cities, the risk to life and property remains high as the cities are vulnerable to extreme weather events that lead to flash floods. Many instances of severe flooding due to high-intensity precipitation have been recorded in these cities in recent years, including the unprecedented floods in Bangkok in 2011. This research project analysed the near- to medium-term post-disaster recovery scenarios in the aftermath of extreme floods faced by the three cities, namely, the July 2005 floods in Mumbai, floods in four eastern districts of Bangkok in 2006 and extreme floods brought on by tropical storms of Ondoy and Pepeng in Manila in 2009.

The project developed three case studies for the selected cities. Each of the studies measured the physical, economic and social impacts of extreme floods, identified the public and private responses in the short- to

medium-term and explored their policy implications for long-term adaptation capacity, city resilience, as well as investment and development plans. Each study is based on the analysis of primary and secondary data pertaining to the selected events of flooding and their resultant physical, economic and social impacts. The impacts considered include loss of life, injuries, damage to property and infrastructure; damage to economic stocks like physical capital and inventory; indirect impacts on flow variables like income; investment and employment; and disruption of essential services. After measuring these impacts, the analysis focused on the immediate- to medium-term post-recovery scenario, wherein, we examined the responses of the civic administration as well as citizens themselves to cope with future floods. The findings of the project were further discussed in the stakeholder workshop to explore how they can lead to better understanding of future adaptation needs that would lead to long term reduction in

> The project will help in enhancing the APN agenda of identifying and developing effective methodologies in different areas of global change research and transferring the knowledge base to the scientific community and policy-makers.

vulnerability and enhancement of adaptive capacity in the three cities.

The project findings highlight the vulnerability of the cities studied to climate risks due to their geographic location, flood-prone topography, large population with a major percentage living in poverty in informal settlements, changing land use pattern, rapid infrastructure development often by reclaiming land from sea (as in the case of Mumbai), and inadequate civic amenities. An important finding is that the huge monetary costs of flood impacts are the uninsured losses borne by households belonging to poor strata of society, and the private sector mostly engaged in informal activities.

The study also examined the responses of local government institutions as well as citizens to cope with flooding. There are a number of public and private response strategies identified in this project. However, almost all private initiatives and responses are a direct out-of-pocket expense for the concerned individuals or establishments. There is virtually no insurance cover that helps them to deal with the adverse impacts of floods and bring about changes or improvements in the existing infrastructure.

Some of the public and private responses have the potential to enhance the medium- to long-term adaptation capacity of the city to cope with future floods. However, there is a need to address larger issues of climate risks and adaptation in the long-term development planning for the cities. Development planning in its current form takes the environment into account at a generic level. Climate risks, heavy precipitation and floods, sea-level rise and storms are uncertain and varied in nature. Therefore, what is needed at the city scale is more scientific and technical knowledge related to impacts and mitigation and adaptation to such risks. This would increase the possibility of mainstreaming climate risks and adaptation into the planning process.

This research project in a way highlights the cost of inaction if very little is done in future to enhance the coping capacity of the cities for future weather events and climate risks in general. The project puts forth a convincing argument that adaptation strategies need to become a part of mainstream planning while devising strategies of developing infrastructure, housing, transport network and other facilities and services in the city. Although adaptation is costly, the costs of inaction can prove to be costlier. Hence, there is a need for integrated and coordinated efforts from all agencies including local government, planners, public utilities and local communities to work towards greater adaptation to future climate risks for the city.

The project is relevant to the climate agenda of the APN. The methodology developed and used in the project to identify and analyse the immediate- to medium-term impacts and responses of flooding events is expected to improve the understanding of adaptation interventions coming from the government as well as communities. The project will help in enhancing the APN agenda of identifying and developing effective methodologies in different areas of global change research and transferring the knowledge base to the scientific community and policy-makers. Better characterization of post-event impacts and the recovery process would further help in improving the disaster management interventions. The findings of this project will also help inform the broader "Cities at Risk" theme.

Collaborative Research on Sustainable Urban Water Quality Management in Southeast Asian Countries: Comparative Analysis of Current Status and Strategic Planning for Sustainable Development

Reference No.: *ARCP2010-01CMY-Sthiannopkao*
Project Leader: *Suthipong Sthiannopkao*
http://www.apn-gcr.org/resources/items/show/1564

The objectives of this study were to: (1) Develop analytical tools for policy-makers to use in their decision-making processes for sound urban water quality management; (2) Develop a database for both scientists and policy-makers future research and decision-making work; and (3) Build capacity of both scientists and policy-makers on sustainable management of urban water quality in Southeast Asia.

The areas studied were: (1) Phnom Penh, Cambodia: Tonle Sap and Bassac Rivers; (2) Bandung, Indonesia: Citarum River; (3) Bangkok, Thailand: Lower Chao Phraya River; and (4) Ho Chi Minh City, Viet Nam: Saigon River.

Five analytical tools were applied and/or developed as a strategic plan for sustainable urban water quality management by participating scientists and policy-makers. The Indonesian research team applied SWOT (Strengths, Weaknesses, Opportunities and Threats) for analysing water quality management policies in the four cities examined. SWAT (Soil and Water Assessment Tool) was applied to predict water quality in the Chao Phraya River, Thailand, by a participating USA member. WQI (Water Quality Index) and WSI (Water Sustainability Index) were developed for monitoring urban water quality in Viet Nam and Thailand, respectively, by a team from these two countries.

Furthermore, risk assessment of water quality resulting from trace metals and pathogens was conducted by researchers from Korea and Taiwan. Moreover, a database for water quality, and its related data for a WQI, was built (www.apn-seawed.com). In addition, eight persons (two from Cambodia, one from Indonesia, one from Thailand and four from Viet Nam), participating in this research project have been offered at chance as an intern for their training on water sampling, analysis and management at Gwangju Institute of Science and Technology (GIST), Republic of Korea, with full financial support. Five meetings were organized in different Southeast Asian cities (Bangkok, Bali, Manila, and Ho Chi Minh City) to allow both local participants and APN members to share and exchange their work experience and knowledge on sound management of urban water quality.

In the last meeting, all APN members (both scientists and policy-makers) reached an agreement to continue the present project with additional funding from both APN and local sources in the following areas:

1. Analytical tools developed for urban water quality management — to be tested at Bangkok Metropolitan Administration and other participating countries in Southeast Asia.
2. The current database to be expanded to cover all 10 Southeast Asian nations, with added functionalities for data interpretation.
3. SWAT to be further developed as a tool to predict urban water quality as a result of human activities and climate change.
4. Training workshops to be organized in all 10 Southeast Asian countries to build capacity of lo-

cal officers in use of developed analytical tools, as well as database functionality.

5. Best management practices for both non-point and point sources of contributing pollutants into rivers to be studied.

The following publication was published at the end of the project:

Pham Thi Minh Hanh, Suthipong Sthiannopkao*, Dang The Ba, Kyoung-Woong Kim, 2011, Development of water quality indices to identify water pollutants in Viet Nam's surface water, Journal of Environmental Engineering-ASCE, Vol. 137, No. 4, pp. 273–283. (* corresponding author)

ANNOUNCEMENT

Call for Papers: Earth System Governance Tokyo Conference 2013

The Earth System Governance Tokyo Conference will be held from 28 to 31 January 2013 at the United Nations University Headquarters in Tokyo, Japan.

This event is part of the global conference series organized by the Earth System Governance Project, a 10-year research programme under the auspices of the International Human Dimensions Programme on Global Environmental Change (IHDP). This conference will be the fourth in a global series organized by the Earth System Governance Project. The Earth System Governance Tokyo Conference, also funded by the APN, will be jointly hosted by the United Nations University Institute of Advanced Studies (UNU-IAS), the International Environmental Governance Architecture Research Group and the Tokyo Institute of Technology on behalf of the Earth System Governance Project.

Deadline for paper abstracts: 1 July 2012

Conference website: http://tokyo2013.earth-systemgovernance.org

The GEOSS Asian Water Cycle Initiative (AWCI) Planning its Second Phase, Targeting Water Cycle Integrator (WCI)

Reference No.: *ARCP2011-02CMY-Koike*
Project Leader: *Toshio Koike, University of Tokyo*
http://www.apn-gcr.org/resources/items/show/1583

Petra Koudelova, University of Tokyo, AWCI Coordinator
Toshio Koike, University of Tokyo, AWCI Scientific Leader

The 8th Meeting of the GEOSS Asian Water Cycle Initiative (AWCI) International Coordination Group (ICG), which was held in Seoul, Korea, October 2011 and supported by two APN funded projects (ARCP2011-02CMY-Koike and ARCP2011-05CMY-Bae), recognized the maturity of the first phase of the initiative and triggered action for planning the next AWCI phase.

The first phase focused on establishing a functional collaborative framework among Asian countries, developing a shared database of quality-checked meteorological and hydrological data in selected demonstration basins in the AWCI participating countries, and carrying out various demonstration studies using the data and a data integration approach. The AWCI database at the Data Integration and Analysis System (DIAS, http://www.editoria.u-tokyo.ac.jp/dias/link/portal/english_index.html) has been completed including metadata registration as shown in Figure 1 and numerous studies have been carried out as presented at the AWCI meetings and other events (http://monsoon.t.u-tokyo.ac.jp/AWCI/meetings.htm).

With the new developments in modelling, prediction and assessment techniques, new satellite observation missions coming in the near future, more opportunities provided by more mature capacity development programmes and new higher education capabilities, and also with the knowledge gained through the AWCI first phase research activities, the AWCI community felt ready for stepping into the next phase, that would target further integration and coordination as envisioned in the GEOSS Water Cycle Integrator (WCI) concept of "workbenches." Through intensive discussions at the Seoul meeting, a template for country inputs to the draft implementation plan of the next phase of AWCI was developed and approved by the participants.

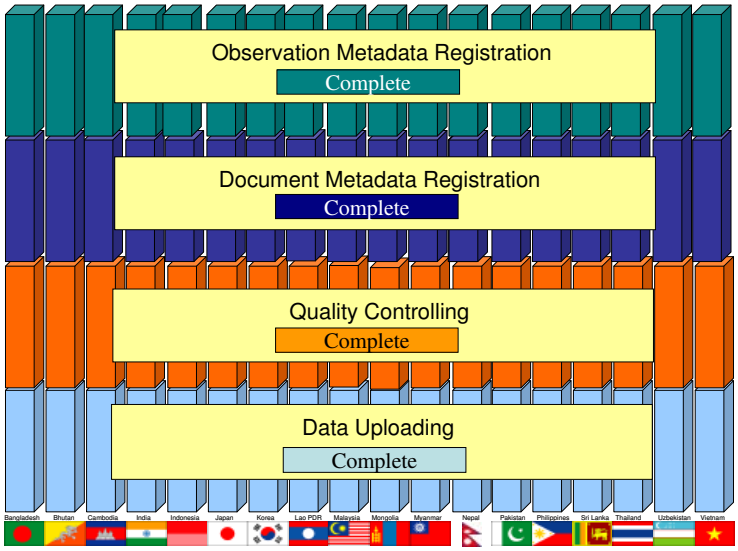


Figure 1: AWCI demonstration basin database status, April 2012.

The WCI concept and the new phase of AWCI were among the main themes of the AWCI/Water parallel session of the 5th GEOSS AP Symposium (http://www.geoss-ap-symposium.org/index.html) that took place in Tokyo, from 2 to 4 April 2012, at the National Museum of Emerging Science and Innovation (Miraikan). Seventeen individual country contributions to the AWCI Implementation Plan 2 had been submitted before the Symposium and briefly introduced during the AWCI/Water session on 3 April. The AWCI parallel session reviewed these inputs and consolidated plans for contributions to Phase 2; identified areas where AWCI can collaborate with other GEOSS societal

benefit areas (SBAs), identified areas where AWCI could demonstrate the benefits of Earth Observations in supporting Sustainable Development and the Green Economy at RIO+20; and identified areas where AWCI could support the post-2015 GEO development. Activities and plans of related agencies and organizations were also introduced that are relevant for the above targets including the WCI concept of future AWCI activities.

The country inputs were categorized in the three following groups: (i) Framework-based proposals emphasizing collaboration between a country and agencies; (ii) Project-based proposals; and (iii) Regional or topic-based collaborative proposals.

All proposals were in line with the WCI concept that would facilitate the challenge of Green Growth envisioned by RIO+20. The individual proposals will be processed and compiled into a preliminary draft of the AWCI Implementation Plan 2, which should be available for the next AWCI meeting in the autumn of 2012 timeframe, organized in collaboration with GEO, UNESCO, and NARBO (Network of Asian River Basin Organizations) communities.

The 5th GEOSS AP Symposium was a three-day event that addressed the theme of "GEO Initiatives towards Green Growth in the Asia-Pacific Region." Central to this theme was discussion on how GEOSS can contribute to the upcoming United Nations Conference on Sustainable Development (Rio+20). The second day was dedicated to parallel sessions that, in addition to AWCI, included other themes, namely the Asia-Pacific Biodiversity Observation Network (AP-BON), Forest Carbon Tracking (FCT), Ocean Observation and Society, and Agriculture and Food Security. Contributions to the main theme of the Symposium resulting from the parallel sessions were reported on the third day and discussed during the panel discussion. The Symposium adopted the "Tokyo Statement" to support the Rio+20 conference objectives. The AWCI community fully endorses this statement and will continue in its efforts to demonstrate the value of Earth observations and information in the field of Water Cycle and serve as a model for regional cooperation, enabling scientists, practitioners, decision-makers, citizens and other stakeholders to work together towards achieving sustainable development. The full text of the Tokyo Statement is reproduced on the following page.

TOKYO STATEMENT

4 April 2012

The participants of the 5th Global Earth Observation System of Systems (GEOSS) Asia-Pacific Symposium, hosted by the Group on Earth Observations (GEO), call upon the United Nations Rio+20 Conference on Sustainable Development to recognize the critical role of Earth observations for informing an economy based on Green Growth. In particular Earth observations can accelerate the transition to a green economy that promotes sustainable growth and improves human well-being by jointly pursuing economic growth and the environment with proper stewardship of natural assets and benefits of ecosystem services.

Earthquakes and tsunamis, floods and droughts, ecosystem degradation and biodiversity loss in freshwater, coastal and forest environments, and climate change impacts endanger the security of water, food, energy, health and ecosystem services across the Asia-Pacific region today. Comprehensive, coordinated and sustained Earth observations and information are needed as a basis for sound decision making. Earth observations also form an integral part of regional cooperation to strengthen resilience to natural disasters and global climate change, harmonize society with nature, promote energy-security and establish a low-carbon society.

The effective use of wide-ranging knowledge and experience obtained through sharing data and information can support the transition to a green economy. Such data sharing will lead to the informed allocation of land and water use, the proper valuation and preservation of ecosystem services, and the reconciliation of environmental sustainability and economic development.

The Group on Earth Observations (GEO) has been advancing the Asian Water Cycle Initiative (AWCI) and the Asia-Pacific Biodiversity Observation Network (AP-BON), and is promoting regional cooperation under the GEO Global Agriculture Monitoring initiative (GEO GLAM) and the Global Forest Observation Initiative (GFOI). Discussions on data integration in jurisdictional waters of multiple countries have just begun including supports to/from the Intergovernmental Oceanographic Commission Sub-Commission for the Western Pacific (IOC/WESTPAC) and Regional Global Ocean Observing Systems in Asia-Pacific region. These projects and activities demonstrate the value of Earth observations and information and will serve as a model for regional cooperation, enabling scientists, practitioners, decision-makers, citizens and other stakeholders to work together towards achieving sustainable development.

Water Safety from Source to Tap — Strategies and Implementation

Reference No.: *CBA2011-14NSY-Ng*
Project Leader: *Assoc. Prof. How Yong Ng, National University of Singapore*
http://www.apn-gcr.org/resources/items/show/1692

Report prepared by: Dr. Lai Yoke Lee and Dr. S.K. Weragoda

Background and Objectives

Safe water supply is a major issue worldwide, especially with changing trends influenced by climate change. This is critical in developing nations where limited resources are available for putting in place efficient integrated water resource management policies and regulations.

The present project aims to: (1) exchange valuable ideas and transfer water resource management strategies from Singapore to Sri Lanka to meet increasing water demand; and (2) develop capacity in Sri Lanka in terms of scientific knowledge and transfer — from Singapore to Sri Lanka — of technologies related to sustainable water treatment technologies, water quality assessments and emerging contaminants detection to ensure the provision of safe water.

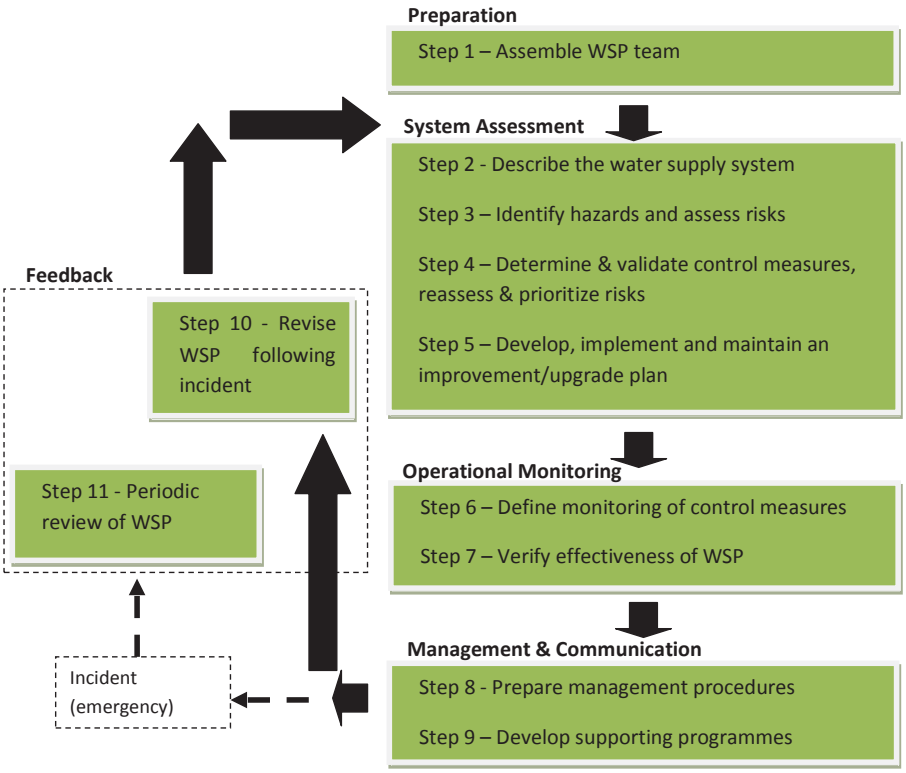


Figure 1. Development and Implementation of a Water Safety Plan — 11 Steps (Bartram et al., 2009)

The project successfully achieved its objectives through two workshops — one in Singapore, from 19 to 22 September 2011; and the other in Kandy, Sri Lanka, from 22 to 24 February 2012. The workshops provided training on the development and implementation of Water Safety Plan (WSP), which is an important risk-based assessment tool to evaluate and ensure safe water supply from source to tap. The workshops raised awareness of higher management personnel on the importance of WSP, and brought together technical experts and water supply authority personnel to work towards sustaining safe water supply in Sri Lanka.

Development of Water Safety Plan (WSP) for Kandy South Water Treatment Plant (KSWTP)

The initial WSP training that was conducted in Workshop 1 provided the knowledge to develop the WSP for KSWTP using the 11-Step Guidelines (Figure 1) developed by the World Health Organization (WHO). Workshop 1 initiated preliminary planning on the development of WSP. The Sri Lankan team, particularly members from KSWTP, further disseminated the knowledge to the operation and management staff of KSWTP to establish a working strategy to fully develop and implement the WSP.

In Workshop 2, the strategy for developing and implementing the WSP was discussed:

1. **Assembling the Team**. The development, implementation and maintenance of the WSP are carried out by four groups. The Initiating Group draws up a work plan and identifies members for different teams; the Steering committee provides political support and coordinates WSP implementation activities with stakeholders; the Water Safety Team, also known as the "Task Force", develops, improves, maintains and executes the WSP; and the Expert Panel provides technical advice, carries out training programmes upon request and serves as an "independent auditor" until the government establishes a "regulating authority".
2. **Water Supply System: From Catchment to Consumers' Tap**. This covers a detailed description of the catchment, which includes the Mahaweli Ganga, the longest river in Sri Lanka and its catchment area. The treatment processes at KSWTP are discussed at this stage, as well as storage and distribution networks and how to get to know the customers and understand their water usage patterns.
3. **Assessing the System**. This section identifies hazards and hazardous events within the system; evaluates the risks; determines and validates the control measures; and updates and improves the plan to overcome the risk based on prioritization of risks.
4. **Operational Monitoring**. The project team uses log books to record the daily operational data and takes a systematic approach to checking and monitoring.
5. **Management and Communication**. This covers training and awareness-raising on various topics including WSP development and implementation; research and development to enhance water quality; supply and demand management; catchment management; quality assurance for water quality analysis; and preventive maintenance and protocol for handling customer complaints.

Challenges for KSWTP

Among the challenges identified and discussed during Workshop 2 are: (i) catchment management, which includes open dumping sites near river banks leading to long-term leachate outfall into the river; (ii) industrial effluent discharge that exceeds effluent standards; (iii) direct sewage outfall and effluent from septic tanks from households along the river banks; and (iv) aged distribution pipes and other distribution systems that lead to a high percentage of unaccountable water loss and excessive biofilm coating as well as illegal connections.

Hence, developing WSP for KSWTP requires the involvement of stakeholders in the Steering Committee from related ministries, local government authorities and community leaders that will enhance integrated efforts towards effective solutions.

Contributing Organizations and Acknowledgements

This project is a collaborative effort involving Singapore (Environmental Engineering Society of Singapore and National University of Singapore) and Sri Lanka (National Water Supply and Drainage Board, University of Moratuwa, University of Peradeniya and the Institute of Fundamental Studies).

The project team would like to thank WHO for providing the Water Safety Plan materials and especially to Ms. Mien Ling Chong and Ms. Jennifer De France for sharing their expertise and providing their support to the Water Safety Plan training.

References

Bartram J. , Corrales L., Davison A., Deere D., Drury D., Gordon B., Howard G., Rinehold A and Stevens M. (2009). Water Safety Plan Manual: Step-by-step Risk Management for Drinking Water Suppliers. World Health Organization (WHO), Geneva.

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
Email: secretariat@pafern.org.ph; llt2003@yahoo.com

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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3. **Indonesia:** Ms. Hermien ROOSITA

nFP for the host of the 18th IGM

1. **China:** Dr. Chengyong SUN

Ex-officio (SPG Co-Chairs)

2. **Nepal:** Dr. Madan Lall SHRESTHA
3. **Russia:** Dr. Alexander STERIN

Co-opted members

1. Mr. B. M. U. D. Basnayake (nFP for Sri Lanka)
1. Mr. Louis BROWN (invited expert)
2. Prof. Roland FUCHS (invited expert)
3. Dr. W. Andrew MATTHEWS (invited expert)
4. Mr. Yutaka MATSUZAWA (donor member)
5. Mr. Kazuhiko TAKEMOTO (invited expert)

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Calendar of Global Change Events

2012

May

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

b 28–30 May
[APN, DIVERSITAS, IHDP and UNU-ISP] Second Workshop on New Commons
Colombo, Sri Lanka

29–31 May
c Adaptation Futures: 2012 International Conference on Climate Adaptation
Tucson, Arizona, USA

June

20–22 June
d United Nations Conference on Sustainable Development (Rio+20)
Rio de Janeiro, Brazil

July

9–13 July
e [ARCP2011-18NMY-Jung] Second Project Workshop
Jeju National University, Republic of Korea

19–21 July
f [APN/START] Southeast Asia Science-Policy Forum
Bangkok, Thailand

22 July
g [APN] Ecosystem Framework Development Workshop
Bangkok, Thailand

23–25 July
h 4th International Forum for Sustainability in Asia and the Pacific (ISAP)
Yokohama, Japan

August

20–22 August
i [APN/Hyogo/ICAS] Scoping Workshop to Enhance the Action of APN Developing Country Members on Adaptation in the Asia-Pacific Region
Kobe, Japan

September

11–13 September
j International Conference on Climate, Water and Policy (ICCWP) 2012
Busan, Republic of Korea

2013

January

28–31 January
k Earth System Governance Tokyo Conference: Complex Architectures, Multiple Agents
Tokyo, Japan

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