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To view past issues of the APN Newsletter, please visit <http://www.apn-gcr.org/en/products/ni.html>

## Message from the Director



I wish you a very Happy New Year in 2008. Let me start the first APN Newsletter published in 2008 by looking back at the year 2007.

The APN's top news in 2007 was the start of a new Steering Committee with members headed by Mr. Samuel Peñafiel and new SPG Co-chairs, Dr. Andrew Mathews and Mr. G.H.P. Dharmaratna. I will pick up some of the achievements made under the leadership of the new Steering Committee.

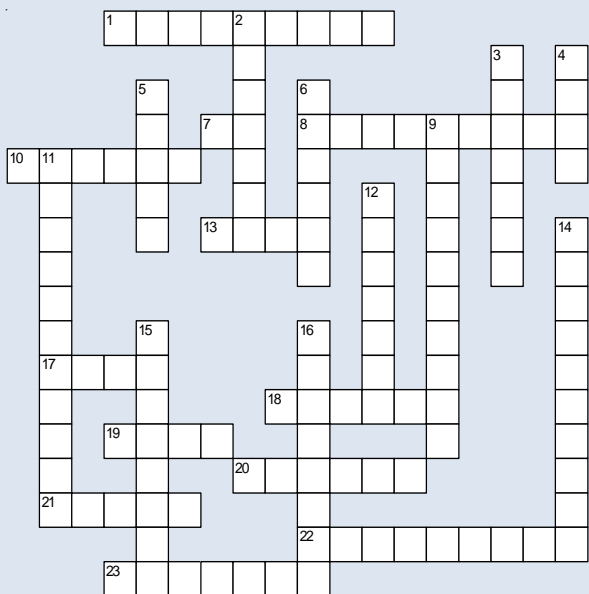
The APN successfully appeared at various international/regional policy occasions and scientific events in 2007, UNFCCC SBSTA 26 (May, Bonn), ECO Asia (September, Kitakyushu, Japan) and was highlighted in the Early Achievement publication at GEOSS Ministerial Meeting (November, Cape Town). Those were effective to promote the APN, and no doubt the APN and its contribution to Global Change Research have been well understood. Among others, UNFCCC COP 13/COP-MOP 3 (December, Bali, Indonesia) is to be specifically emphasized. It was not only the year's number one event on Global Change in the Asia-Pacific region but also one of the most important international events in many aspects including political, social, economic and scientific perspectives. Although too many proposals submitted to the UNFCCC secretariat prevented

us from organising our own event, we successfully appeared at two official and two informal side events organised by our global change research partners, IHDP-UNU, GEF (Malaysia), Pelangi (Indonesia) and OECC (Japan).

With climate change at the top of political agenda these days, research and capacity building and links between science and policy should be further strengthened, and regional cooperation for that is most important. I think we clearly conveyed this basic standpoint of the APN to the world from Bali. Such a message is well substantiated by a lot of quality activities carried out by members in the APN.

Many of our capacity building activities have been introduced in the newly published CAPaBLE brochure covering activities in Phase One from April 2003 to March 2006, which was launched in Bali. Our contribution to Global Change science and to policy development through research is evident with a lot of APN funded research cited in the IPCC Fourth Assessment Report (IPCC AR4). All of these achievements are due to the endeavours of our nFPs, SPG members, project leaders and collaborators, our financial contributors and all readers of this newsletter over the decade. To maintain and further improve the quality of proposals has always been our interest and it has led to the most important change in the work of APN in 2007, which was a new, and more

*continued on page 3...*



### CROSSWORD CHALLENGE

Across

- 1 \_\_\_\_ grasslands in Japan are valuable not only as habitats for rare plant species, but also as records of past climates
- 7 new APN nFP for the Republic of Korea (last name)
- 8 at the Bali COP/MOP, it emerged as one of the key areas where action is needed, which should involve all sectors of the society such as the public, school youth, and the media as well
- 10 an organisation that developed a comprehensive database to understand the impact of global change in the Himalayas
- 13 the largest freshwater lake in Japan and home to more than 1,000 animals and plants which are essential not to Japan alone but to the world
- 17 GEOSS/\_\_\_\_ was born in recognition of the need for accurate, timely, long-term, water cycle information as a basis for sound and effective water resources and risk management in the Asia region
- 18 the third largest island in the world which is used as a model system of the Southeast Asian tropics to demonstrate present land-use changes and how these changes may interact with climate change to influence rainforests
- 19 where CAPaBLE Phase 1 Brochure is first released
- 20 an expert from the University Kabangsaan who talked about tropical deforestation and its impact on the environment and quality of life at the APN Seminar
- 21 Ms. Meena Khanal is the new APN nFP for \_\_\_\_
- 22 these are much needed to support the scientific and capacity building programmes
- 23 APN's Capacity Development Programme

Down

- 2 it organised an informal side-event at the Bali COP/MOP as part of an APN-supported project under CAPaBLE Programme
- 3 new APN nFP for Thailand (last name)
- 4 \_\_\_\_ (*Fagus crenata*) forests is a typical Japanese natural forest
- 5 the prefecture in Japan that co-organised the APN International Seminar
- 6 the Bay that is receiving extensive rainfall and also substantial runoff from a number of Himalayan Rivers
- 9 an issue of high priority at the party negotiations and dialogues at side-events at the UNFCCC COP/MOP in Bali
- 11 "total \_\_\_\_" is a physical phenomenon where winter cooling of highly dense surface water sinks causes the lower layer of water and upper layer of water to mix (convention)
- 12 scientists (first name) from the Colorado University who reported on vulnerability of the Mongolian steppe and nomadic culture to climate change at the APN International Seminar
- 14 the organisation DIWPA stands for \_\_\_\_ in the Western Pacific and Asia
- 15 known as the womb of the ice glaciers and the water tower of Asia
- 16 if available in native/local language, it could be a major tool in reaching scientists and policy-makers in the Asia-Pacific region and in bridging the gap between the two

Try the APN Crossword Challenge! All answers can be found throughout the newsletter, so read the newsletter and then test your knowledge on Global Change.

## Message from the Steering Committee Chair



The UNFCCC Climate Change Meeting (COP13/MOP3) in Bali, Indonesia, agreed to start negotiations leading to a new treaty to further reduce greenhouse gas (GHG) emissions. It also agreed to help poorer nations that will be severely affected by climate change to cope with extreme weather disturbances.

While it is good to know that meetings among countries will happen in the next two years, and that meantime debates are heating up among contending parties; CO<sub>2</sub> emissions will continue to accumulate in the atmosphere.

But it is very worthy to note that another positive development in the Bali meeting is contribution to a fund that will curb deforestation and finance reforestation to increase carbon sinks. The International Panel on Climate Change's 4th Assessment Report (IPCC AR4) has created serious concern among

governments' especially in developing countries, as well as increased public awareness jolting the richer nations. Certainly, the IPCC AR4 is a product of a compendium of scientific and research work.

Thanks to our scientists!! The importance of research is superfluous. In Bali, heads of nations and other institutions based their policy decisions from scientific outputs. Thus, the global change research community deserves the much-needed resources to support their scientific and capacity building programmes so that a basis for decisions and policies related to future climate change negotiations may also be anchored on scientific findings.

For 2008 and onwards, the APN Steering Committee looks forward to increased funding support as well as new sources of resources so it can pursue its objectives on global change research in the region.

Let me take this opportunity to wish a Happy New Year to all of the APN family!!!

Samuel Peñafiel

## News from the Secretariat

The Asia-Pacific Network for Global Change Research (APN)\* is an international network of Governments whose mission is to enable investigation of change in the Earth's life support systems as it occurs in the Asia-Pacific region to:

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

*\*The APN defines Global Change Research as "research regarding global change (the set of natural and human-induced changes in the Earth's physical and biological systems that, when aggregated, are significant at a global scale) and its implications for sustainable development in the Asia-Pacific region."*

### APN Brochure Translated into Several Languages

In the last issue of the Newsletter, we announced the release of the Japanese and Russian versions of the APN Brochure. Now, we are pleased to inform you that in addition to the two versions mentioned above, the following brochures in local language of APN members are now available on the APN website: Bahasa Indonesia, Bahasa Malaysia, Chinese, Khmer and Laos PDR. Translations and layout of brochures for other APN member countries are ongoing. The brochure contains a brief introduction about APN with information on its vision, goals, scientific agenda, programmes, members and structure.

The Secretariat would like to take this opportunity to express its gratitude to our members who have been supportive in their efforts to translate the brochure into their native language. We would also like to sincerely thank our members for shouldering or co-sharing the printing expenses, and disseminating the brochures to scientists and policy-makers in various organisations and government institutions. We hope that these brochures will become a major tool in reaching scientists and policy-makers in the Asia-Pacific region and in bridging the gap between the two.

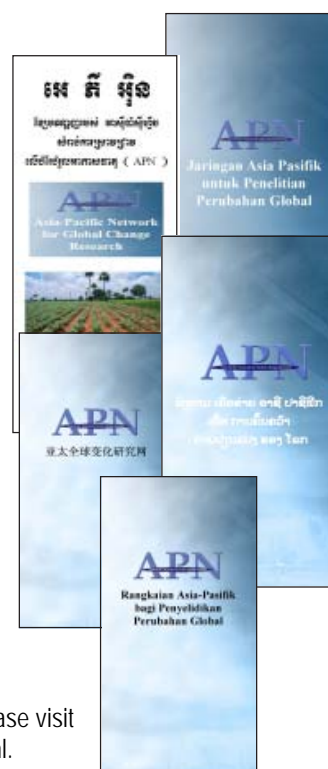
To download copies of the brochure and other APN publications, please visit the APN Products webpage: <http://www.apn-gcr.org/en/products.html>.

### APN Membership Changes

#### Thailand

Last November, Mr. Saksit Tridech was designated as the new APN national Focal Point (nFP) for Thailand. Mr. Tridech is the Permanent Secretary of the Ministry of Natural Resources and Environment. With his leadership, the APN looks forward to a fruitful and strengthened partnership with Thailand.

The APN also expresses its sincere gratitude to Mr. Tridech's predecessor, Mr. Petipong Pungbun Na Ayudhya for his active involvement from March 2005 to October 2007. He participated in various APN meetings and was the host of the 11<sup>th</sup> Inter-Governmental Meeting/Scientific Planning Group Meeting and APN Scoping Workshop on Global Earth Observations and the Capacity Building Needs of the Region: Focus – Climate, in Bangkok, in 2006. His team was also supportive in our efforts to co-organise



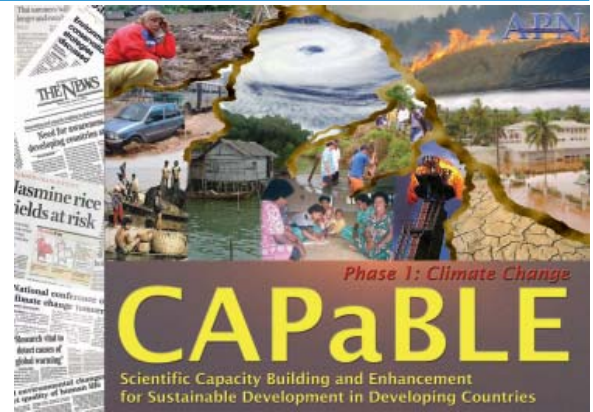
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## News from the Secretariat

### CAPaBLE Phase 1 Brochure has been Published

The APN recently launched a new publication detailing its Capacity Development Programme, CAPaBLE, which was distributed at the UNFCCC's recent Meetings, COP13/MOP3, held in Bali, Indonesia, December 2007.

The brochure highlights activities completed in Phase One of the CAPaBLE Programme, which ran from April 2003 to March 2006, including seventeen capacity-building and comprehensive research projects conducted throughout the Asia-Pacific region. A more comprehensive publication, to include key findings of the projects, will be prepared after an evaluation of Phase One activities, which is expected to take place this year.



To download a copy of the brochure, please follow the link <http://www.apn-gcr.org/en/products/capable/CAPaBLE%20Phase%201%20Brochure.pdf>; and/or to get a printed copy, please send an email to [info@apn-gcr.org](mailto:info@apn-gcr.org).

### APN INTERNATIONAL SEMINAR

#### Global Warming Ecosystem/Biodiversity Changes: Facing the Challenge of Changing Ecosystems, 02 December, Kobe, Japan



*A welcome address from Mr. Hidetoshi Kakiuchi, Chief Executive Officer, Hyogo Prefectural Government*

The APN International Seminar "Global Warming Ecosystem/Biodiversity Changes: Facing the Challenge of Changing Ecosystems" convened in Kobe, Japan, 02 December 2007. It was co-organised by the Hyogo Prefectural Government and the DIVERSITAS in Western Pacific and Asia (DIWPA). The seminar was also held as one of the pre-events for the upcoming G8 Environment Ministers Meeting to be held in the same city, next May.

*Mr. Hiroki Hashizume, APN Secretariat Director, gives opening remark*

Similar to the international seminar that APN organised last February, this recently concluded seminar was also a resounding success, and attracted around 140

*continued on page 4 ...*

*...from page 2- APN Membership Changes*

a side event/exhibit at the 13<sup>th</sup> Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and 3<sup>rd</sup> Meeting of the Parties to the Kyoto Protocol (COP13/MOP3) in Bali, Indonesia, last December.

Huge thanks is extended to Mr. Na Ayudhya for being a part of the APN family and a warm welcome is extended to Mr. Tridech as a new member of the APN.

#### *Nepal*

The Secretariat is pleased to announce that, after years of suspended nomination of an APN nFP for Nepal due to changes in the organisational structure of ministries in the government, the Ministry of Environment, Science and Technology has appointed Ms. Meena Khanal, Joint Secretary, to be the APN nFP for Nepal. This development brings hope that the relationship APN currently has with Nepal will be strengthened even further through the collaboration and cooperation of Ms. Khanal and the long-standing membership of Madan L. Shrestha, Nepal's Scientific Planning Group Member.

From the APN family, a warm welcome is extended to Ms. Khanal - we look forward to working with you!

#### *Republic of Korea*

The APN welcomes the new nFP for Korea, Mr. Jung-Kyun Na who has recently taken a new post as the Director of the Global Environment Office, Ministry of Environment, Republic of Korea. Sincere appreciation and thanks are also extended to Mr. Na's predecessor, Mr. Seung-Hee Kim, for his efforts and contributions to APN activities in the past. The APN wishes you both the best in your respective new roles and from the APN family, a warm welcome is extended to Mr. Na - our newest nFP!

*...from page 2- Message from the Director*

streamlined Call for Proposals for both pillars of APN activities, the ARCP process and the CAPaBLE Capacity Development Programme.

In 2007, we introduced two approaches to stimulate member countries and individual scientists and policy-makers in the Asia-Pacific region. While we have been promoting regional collaboration, the region is a large area with great diversity of natural environment, culture, history, economy, etc. In August, APN members in Southeast Asia (SEA) organised a Sub-regional Committee comprising nFPs and SPG members in the SEA sub-region.

I would like to express my expectations towards their activities as well as similar trials to be initiated in other sub-regions. We are also trying to reach more scientists and policy-makers in the region directly.

There must be many people who would be interested in the APN but have never heard of us simply because of the language barrier. Thanks to the cooperation of nFPs and SPG members, the following brochures in local language of APN members are now available on the APN website: Bahasa Indonesia, Bahasa Malaysia, Chinese, Japanese, Khmer, Lao, and Russian. Translations and layout of other APN member country brochures are ongoing.

Besides these, however, we had sad news in 2007. I once again wish to express my sincere condolences following the demise of Dr. Ashiesh Prosad Mitra who passed away in September. This issue of the APN Newsletter is dedicated to this eminent Scientist.

I hope that the year 2008 will be the most prosperous year for all of you.

*Hiroki Hashizume*



...from page 3- APN International Seminar

participants. Six experts who study the influence of global warming were invited as speakers to share with the public the latest scientific results related to the theme and to stress the importance of adaptation. The Seminar was divided into three main sessions: Part 1 - The Current Situation and Projection of Ecosystems in Japan; Part 2 - The Current Situation and Projection of Ecosystems in Asia and the Pacific; and Part 3 - Discussion/Open-forum.

#### *The Current Situation and Projection of Ecosystems in Japan*



Dr. Toshi Nagata

Dr. Toshi Nagata, Kyoto University, Japan, pointed out how global warming affects the Lake Biwa ecosystem causing great social concern. Lake Biwa is the largest freshwater lake in Japan and home to 58 indigenous species and more than 1,000 animals and plants which are essential not to Japan alone but to the world. Recent studies predicted the possibility of deficient 'total circulation' due to global warming.

'Total circulation' is a physical phenomenon where winter cooling of highly dense surface water sinks causes the lower layer of water and the upper layer of water to mix (convection). The insufficient cooling caused by global warming brings about low oxygen or no oxygen at all to the lakebed and deeper layers of the lake, thus potentially endangering the biological habitat. Elution of nutrient salts and hazardous chemical substances from the lakebed sediments could also trigger a sharp decline in water quality or outbreak of algae. Dr. Nagata stressed the importance of forecasting the future ecology of Lake Biwa based on scientific data.

An overview of the impacts of global warming on natural forests in Japan was presented by Dr. Nobuyuki Tanaka, Forestry and Forest Products Research Institute (FFPRI), Japan. His presentation focused on predicting suitable habitats under current and future climate conditions for Buna (*Fagus crenata*) forests, a typical Japanese natural forest. A study revealed that migration of Buna cannot keep up with the shift of suitable habitats (10-50km/100yr) due to climate warming because the past migration speed of Buna after the last glacial period was estimated to be 23km/100yr in some areas like Honshu and Hokkaido.



Dr. Nobuyuki Tanaka

He asserted the importance of assessing the adverse impacts of climate change on many plant species and proposing adaptation measures for conserving biodiversity such as determining vulnerable areas and refugia, planting, reducing species competition, making corridors of natural vegetation, and taking other protective management measures.

Another expert from FFPRI, Dr. Hiromu Daimaru, gave a presentation on snow cover decrease and its impact on a mountain wet meadow. His report showed that present snow accumulation and snowmelt processes indicate that fluctuations of winter climate significantly influence the dimensions of summer snowpatches. Snowpatch grasslands in Japan are valuable not only as habitats for rare plant species, but also as records of past climates. Some climate models predict that increases in greenhouse gases will bring about decreased snowfall in winter and increased warming in the melt season in Japanese mountains. Global warming, therefore, will lead to extreme shrinkage or extinction of snowpatch grasslands.



Dr. Hiromu Daimaru

#### *The Current Situation and Projection of Ecosystems in Asia and the Pacific*



Dr. Mastura Mahmud

Dr. Mastura Mahmud, University Kabangsaan, Malaysia, talked about tropical deforestation and its impact on the environment and quality of life. She emphasised that the multivariate causes in tropical deforestation make it extremely difficult to develop a widely accepted and applicable policy that can manage the issues of deforestation. She further noted that it is imperative that commitment and willpower of the people and decision-makers be reinforced for the survival of humans in the light of global warming.

A presentation on the influence of global warming and land-use on the tropical rain forests of Southeast Asia was given by Dr. Kanehiro Kitayama, Kyoto University, Japan. He used Borneo, the third largest island in the world, which used to support the biggest area of contiguous tropical rain forest in Southeast Asia, as a model system of the Southeast Asian tropics to demonstrate present land-use changes and how these changes may interact with climate change to influence rainforests. Studies showed that if unsustainable logging continues, coupled with severe droughts due to global warming, the tropical rain forests of Borneo might irreversibly become the major source of carbon, which may lead to the loss of important habitats.



Dr. Kanehiro Kitayama

Dr. Chuluun Togtohyn, Colorado University, U.S.A., reported on the vulnerability of the Mongolian steppe and nomadic culture to climate change. He explained how 'ecosystem function and services' in Mongolia change abruptly due to interacting climate change and human activities. This situation demands the implementation of adaptation strategies at pastoral community, local administrative unit, river basin, sub-regional and country levels, with participation of all

*continued on page 5 ...*

## APN Out and About

UNFCCC COP13/MOP3, 3-14 December 2007, Bali, Indonesia



*Plenary Session, UNFCCC COP13/MOP3*

It is clearly evident that APN is making a mark in international processes such as the COP/MOP through the strong presence that it had at the recent United Nations Framework Convention on Climate Change (UNFCCC) 13<sup>th</sup> Conference of Parties and 3<sup>rd</sup> Meeting of the Parties (COP13/MOP3) held in Bali, Indonesia, on 3-14 December 2007.

The APN's wide networks and the significant contributions of its funded research and capacity building activities to the UNFCCC and the Intergovernmental Panel on Climate Change (IPCC) processes, in addition to the active efforts of the Secretariat members and recognition given by APN members and project leaders, have certainly resulted in APN visibility and

generated interest among individuals and organizations at the COP/MOP. Publications (from APN projects and partner organizations) with APN's name and/or logo were seen displayed and distributed at the exhibits and side events; and acknowledgment by APN project leaders during presentation at side events or comments from the floor were also heard.

Represented by the Secretariat members Mr. Hiroki Hashizume, Dr. Linda Stevenson, and Ms. Maricel Tapia, the APN participated in four side-events (both official and unofficial) by giving talks highlighting its activities and programmes. The first of which is the International Human Dimensions Programme for Global Environmental Change (IHDP) side-event, through the United Nations University (UNU), entitled "Vulnerability, Adaptation and Resilience: Cutting-edge Science for Informed Decisions". Dr. Stevenson, APN's Scientific Officer, presented on research and capacity building activities in the Asia-Pacific Region towards sustainable adaptation to climate change, which raised significant interest for APN and its activities from the audience. This side-event was also covered by the Earth Negotiations Bulletin on the side (ENBOTS)

with a report available at: <http://www.iisd.ca/climate/cop13/enbots/4dec.html>.

Two of the four side-events above were also part of APN-supported projects under the ARCP and CAPaBLE programmes. The APN CAPaBLE Project *CBA2007-09NSY-Soejachmoen*, spearheaded by PELANGI, Indonesia, organized an informal side-event entitled "Regional Roundtable for Capacity Building in Asian Countries on Climate Change Issues Related to Future Regime". The project is an initiative to increase capacity of research institutions in Asia and the

*continued on page 6 ...*



*APN Secretariat Scientific Officer, Dr. Stevenson, presents on APN research and capacity building activities*

*...from page 4- APN International Seminar... (NEWS FROM THE SECRETARIAT)*



*Dr. Chuluun Togtohyn*

stakeholders. He also mentioned that these strategies to global environmental change should be linked to the Sustainable Development and Medium Development Goals.

In his presentation, Mr. Basanta Shrestha, International Centre for Integrated Mountain Development (ICIMOD), Nepal, underscored the impact of

climate change on Himalayan glaciers and glacial lakes. ICIMOD developed a comprehensive database to understand the impact of global change in the Himalayas and several studies revealed that most glaciers in Himalaya have been shrinking at accelerated rates in recent decades due to the impact of climate change. Himalaya is the womb of ice glaciers and the water tower of Asia; hence, adaptive mechanisms and vulnerability assessment are necessary to forewarn the community.



*Mr. Basanta Shrestha*

### *Facing the Challenge*

The last part of the seminar, moderated by Dr. Tanaka, was an open discussion wherein the participants were given the chance to comment on the presentation and ask questions. It was raised that two elements of biodiversity and ecosystems, will definitely undergo changes and that global warming will proceed to an extent that poses negative effects on these elements. Therefore, action must be taken in order to adapt to climate change and global warming. Further, experts and scientists play an important role and they should communicate their research results to policy-makers. This points to another challenge in how science can be better translated into policy, action and practices – a challenge that APN is also facing.

The panellists agreed that climate change is one of the serious problems being faced by humankind and that the time has come for people to think collectively; determine what the human-induced impacts and natural impacts are, and then act accordingly.

The APN would like to thank the Hyogo Prefectural Government, DIWPA and the following institutions for their support in the success of the Seminar: Ministry of the Environment, Japan; Institute for Global Environmental Strategies (IGES), Kansai Research Centre; Hyogo Environmental Advancement Association, and the Japanese Society of Environmental Education, Kansai Branch.

To view the speaker's presentation, you may visit this link:  
[http://www.apn-gcr.org/en/activity/hyogo/Dec2007\\_international%20seminar.htm](http://www.apn-gcr.org/en/activity/hyogo/Dec2007_international%20seminar.htm)

## APN Out and About

### International Group of Funding Agencies (IGFA) Annual Meeting, 29 October-01 November 2007, Vienna, Austria

The International Group of Funding Agencies on Global Change Research (IGFA) held its 2007 Annual Meeting from 29 October to 1 November 2007 in Vienna, Austria. The meeting was hosted by the Austrian Ministry for Science and Research.

The meeting kicked off with the summary of reports from member organizations focussing on trends, practices and partnerships in global change research, and proceeded with updates from the international science programmes (ICSU, ESSP, WCRP, IHDP, DIVERSITAS and IGBP) and regional networks (APN, IAI, START and AFRICANess).

Discussions at the meeting have given stronger attention to research findings that can lead to adaptation/mitigation strategies rather than on scientific results from basic research, following the results of the Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC).

Updates from the APN, given by Mr. Yukihiro Imanari, APN Secretariat

Executive Manager, stressed the importance of science-policy interfacing. It was likewise shared that APN member countries are very much interested in applicable adaptation strategies in order to tackle the impacts of climate change, and it is expected that APN is well in a position to coordinate activities and research projects in this regard.

A special session was held on approaches to global change research and how they are evolving as a result of the Stern Report on the Economics of Climate Change, the IPCC AR4, and other significant events. Under this, an integrated, or 'systems' approach to global change research was also introduced.

IGFA is a forum through which ministries, agencies and foundations in a wide variety of countries, or group of countries, that fund research on Global Change, identify issues of mutual interest and ways to address these through national and international actions. IGFA is an agency of funding actors, but is not itself a funding agency for research projects. For detailed information on IGFA, please visit this website: <http://www.igfagcr.org/>.



Left to right: APN Secretariat Director, Mr. Hashizume and APN Project Leader, Mr. Faizal Parish in a side-event in Bali

...from page 5 - UNFCCC COP13/MOP3

Pacific to deal with institutional challenges posed by climate change post 2012.

Meanwhile, the ARCP project *ARCP2007-15NSY-Parish* led by the Global Environment Centre (GEC), Malaysia, also held a side-event on "Climate and Sustainable Biofuels", where the APN Secretariat Director, Mr. Hiroki Hashizume, gave an opening remark.

Finally, the APN participated in the informal side-event of the Overseas Environmental Cooperation Center (OECC), Japan, on "Climate Change and

Development: Creating an Enabling Environment for Development Planning: Perspectives from the Asia-Pacific". In this event, the APN introduced itself as a network to foster research and research-related capacity development, which is expected to be the basis for the integration of adaptation to climate change into the development plan.

The discussions at the side-events, and at the COP/MOP Meetings at large, have highlighted areas where APN could make further contributions. With the briefing on the results of the IPCC Fourth Assessment Report (AR4), adaptation was an issue of high priority at the party negotiations and dialogues at side-events, where immediate action is required. Of particular concern was the funding mechanism to support adaptation actions. In relation to this, education emerged as one of the key areas where action is needed, which should involve all sectors of the society such as the public, school youth, and the media as well. It is expected that the results of the discussion at the COP/MOP will certainly shape and give guidance to the strategies of the APN in the future.

Other issues seen as top priority at the COP/MOP were technology transfer (particularly



3<sup>rd</sup> Asian Water Cycle Symposium, 2-4 December 2007, Oita, Japan

Mr. Yukihiro Imanari, the APN Secretariat Executive Manager, attended the 3<sup>rd</sup> Asian Water Cycle Symposium (AWCS), held in Oita, Japan on 2-4 December 2007. This APN-supported symposium through the ARCP project "International Integrated Water Data Access and Transfer in Asia" led by Prof. Toshio Koike, aimed to discuss the Implementation Plans for Global Earth Observation System of Systems (GEOSS)/ Asian Water Cycle Initiative (AWCI) and its Implementation Plans for Capacity Building for flood management, drought management, and water quality management.

GEOSS/AWCI was born in recognition of the need for accurate, timely, long-term, water cycle information as a basis for sound and effective water resources and risk management in the Asia region.

regards the issue of "intellectual property rights") and reduced emissions from deforestation and forest degradation (REDD).

Aside from the talks at the side-events, the APN was also able to showcase its publications at the COP/MOP and would like to thank the following organisations for accommodating us in their exhibition booths: GEC, Malaysia; Global Environment Centre Foundation (GEC), Japan; Institute for Global Environmental Strategies (IGES), Japan; and IHDP.



APN showcases its publications in various exhibition booths of partner organisations

## Guest Article

### Global Change Research in South Asia

Sibaji Raha, Bose Institute, Kolkata, India  
Chhemendra Sharma, NATCOM PMC, New Delhi, India

The phenomenon of global change includes climate change and its impacts on human and natural ecosystems. In South Asia, awareness about global change research was created by the International Geosphere Biosphere Programme (IGBP) during the 1980's. In response to the requirements of IGBP, the national science academies of the South Asian countries affiliated to the International Council for Science (ICSU) quickly established their sub-committees to steer the national research agenda related to IGBP activities. However, it was soon realized that very limited, or no, scientific capacities existed in most of the countries in the region.

As global change studies continued to gain significance in subsequent years, the issues related to building capacity in South Asian also begun to be addressed through various activities carried out in the region with support from organisations like the Global Change System for Analysis, Research and Training (START), the Asia-Pacific Network for Global Change Research (APN), the World Bank (WB), the Asian Development Bank (ADB), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP) and other donor country programmes. Thanks to such activities over the last two decades, limited capacity now exists in the South Asian region for global change research. However, there are still wide intra-regional differences in the level of global change research capacity among the countries of South Asia.

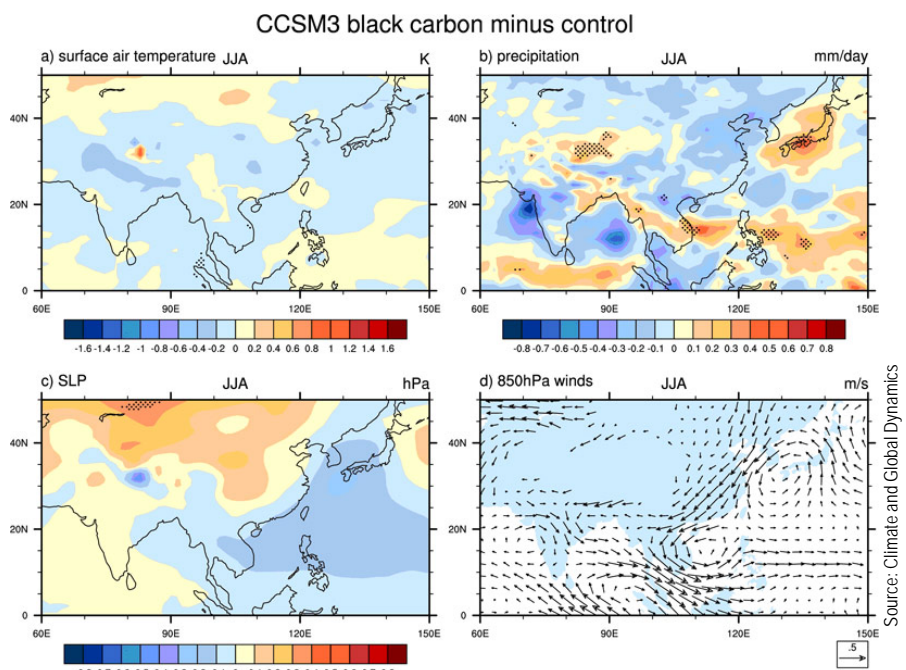
Over the last two years, a synthesis of global change research for the South Asian region has been carried out by a group of regional researchers. This "state-of-the-science" assessment for the South Asia region is also serving as an initial contribution to the Monsoon Asia Integrated Regional Study (MAIRS). The synthesis book covers regional global change research under various topics like underlying drivers and responses to environmental change; climate change and variability; land transformation and its consequences; atmospheric composition change and air quality; alterations to hydrology and regional hydrological cycles; changes in coastal and marine environments; key vulnerabilities of human society in South Asia and adaptation/coping mechanisms. This synthesis effort also aims to identify the key priority areas in the region where global change research is required to be further strengthened.

The South Asian region is unique in quite a number of ways. Although the total land area of this region is only about 3% of the world, the population in 1990 was 21.3% and in 2025, it is expected to accommodate about 23.6% of the world population. This is one of the most densely populated

regions of the world, with the present population density ranging between 100-500 persons/Km<sup>2</sup>; the urban population in this region is increasing rapidly. There are also several unusual aspects of the oceans surrounding the South Asian land mass that require attention. Apart from its dominant role on the unique monsoonal regime, the two arms of the northern Indian Ocean – the Arabian Sea and the Bay of Bengal - behave differently. The Arabian Sea experiences excessive evaporation over precipitation and runoff. On the other hand, the Bay of Bengal receives extensive rainfall and also substantial runoff from a number of Himalayan Rivers.

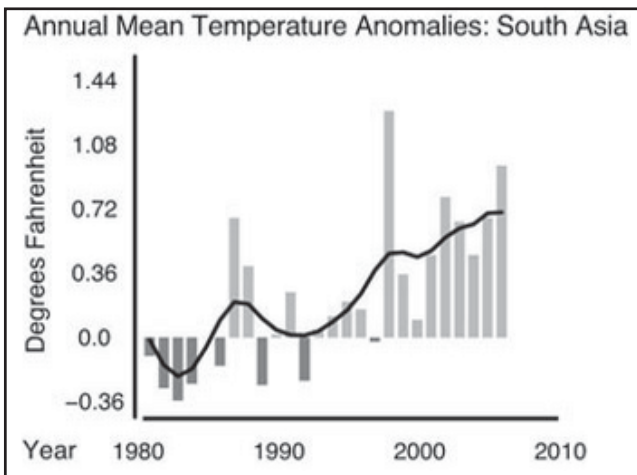
The atmosphere holds a key position in the earth system supporting evolution of life, mediating between the radiation from the sun and the earth system and removing nutrients from the ecosystem to oceans. As the atmosphere changes, drastically and rapidly in some regions, as in South Asia, its impact on all earth system components also changes. These changes are limited not only to long-lived greenhouse gases (GHG), but also cover short-lived gases like CO, NO<sub>x</sub>, SO<sub>2</sub>, as well as particulate matter. In South Asia, all of these are increasing at rates several times larger than the developed world.

The load of GHG emissions in the atmosphere is commonly treated as an outcome of economic development process which encompasses complex social processes. Any development pathway is a complex reflection of choices made within a set of institutional arrangements to enhance the wealth and well-being of an entire population. This inherent complexity needs to be understood in order to take action and remove obstacles towards an alternative low emission development pathway. A development pathway is defined by the goals, priorities, and choice of policies which are shaped by historical past, culture, social structure, dominant ideology and political will. The South Asian region, which



*The black carbon aerosols act to increase lower tropospheric heating over South Asia and reduce the amount of solar radiation reaching the surface during the dry season.*

## Guest Article



Source: New York Times

...from page 7 - *Global Change Research in South Asia*

comprises developing countries, also faces diverse dynamics of developmental pathways in order to achieve sustainable regional development.

The monsoon is a key feature of the climate in South Asia and has significant impacts both on the economy and ecosystems. The monsoon system has been observed to be a stable atmospheric phenomenon but with high variability around a mean value, changes in spatial distribution and timing. Instrumental records indicate a warming trend during the past few decades but with a spatially variable amplitude. While precipitation has not shown much variability over the past century, the incidence of major flooding has increased in the past few decades. The frequency of cyclonic storms has decreased over the past century but the frequency of severe cyclonic storms has nearly doubled in the past few decades.

The availability of water resources in South Asia is directly linked to the monsoon. Water resources are quite scarce in most of South Asia, especially during the dry season. Although most of the national governments in South Asia have their respective national water policies or plans, the climate change factor has not been incorporated into these. However, there is now a growing realisation in the region of the importance of climate change phenomenon in the planning process for utilization of water resources.

Future climate change projections for the region indicate the possibility of increasing intensity of precipitation in high latitude regions and increasing sea-surface temperatures (SST) in the Indian Ocean due to the weakening of the thermohaline circulation. This will affect the ventilation of deep waters of the North Indian Ocean, especially the Arabian Sea, and result in intensification of the oxygen minimum layer. The expected intensification of coastal and offshore upwelling in response to climate change will lead to increased biological production and, consequently, further intensification of the oxygen minimum layer, and increased rates of emission of GHGs. Similarly, the intensified monsoon precipitation will result in further thickening of the low salinity lens in the coastal waters of the eastern Arabian Sea and northern Bay of Bengal. This thickening of low salinity lens will have opposite effects in the two basins. While in the Arabian Sea it will result in an increased rate of GHG

emissions to the atmosphere, in the Bay of Bengal, it will help to further suppress the pumping of deepwater CO<sub>2</sub> and other gases to the surface layer. The increasing levels of atmospheric CO<sub>2</sub> will result in increased pCO<sub>2</sub> of surface water and, consequently, the lowering of its pH. This will cause surface water to become more corrosive to skeletal carbonates and lead to an upward shift of the aragonite saturation depth in the Arabian Sea.

There is significant progress in the quantification and understanding of land-use/cover change over the last decades in South Asia. Land transformations in the region are complex and have resulted in measurable consequences across various categories of land-use/cover with spatial variability. However, data sources are inconsistent and undergo scaling problems. Much remains to be learned for a realistic assessment of the role of land transformation in the functioning of the earth system for identification of conditions for sustainable land use.

Rapid economic growth and an increasing energy demand in South Asian have had an impact on atmospheric composition change and air quality in the region. The Indian Ocean Experiment (INDOEX) conducted during the late nineties showed the spread of aerosol haze over most of the tropical Indian Ocean during the winter months, and an increase in the concentration of pollutant gases such as carbon monoxide (CO) and ozone. The reported wintertime clear sky aerosol radiative forcing was in the range of 23 to 27 W/m<sup>2</sup> over the polluted ocean region and a sufficiently large atmospheric absorption, in the range of 16 to 20 W/m<sup>2</sup>. The presence of a significant amount of soot particles was found to be responsible for the large atmospheric forcing. The air quality in most of the urban areas of this region is generally bad because of the heavy loading of pollutants like suspended particulate matter (SPM), nitrogen oxides (NO<sub>x</sub>) etc. due to anthropogenic activities. National governments in the region have enforced several policies but are still under increasing pressure from civil society to take additional policy measures to improve the ambient air quality and to reduce the risk of its impact on human health.

South Asia is especially vulnerable to climate change impacts due to the region's high dependence on climate sensitive sectors. The problem is further compounded in the region due to population pressure, lack of resource availability, poverty, weak infra-structure and institutional capacities. The adverse impacts of climate change include impacts due to extreme climate events such as cyclones/windstorms, floods, droughts, landslides and extreme temperature events. To minimize the impacts of climate change, it is important to first understand the nature and extent of the impacts, identify the vulnerable areas, and devise incremental strategies to combat climate change through appropriate adaptation measures.

In South Asia three main thematic research areas have been identified which need to be targeted for undertaking global change research in future. These include (i) Himalayan and Indo-Gangetic Plain (HIGP) region (ii) Coastal Zones and (iii) Monsoon Stability. Individual and institutional capacities in the region need to be further strengthened through inter and intra-regional collaboration.

*This article was compiled based on the inputs to the proposed South Asia Rapid Assessment Book Volume*

## *A tribute*

**To the Memory of Dr. Ashesh Proshad (A.P.) Mitra**  
**February 21<sup>st</sup> 1927 - September 3<sup>rd</sup> 2007**

*By Dr. Linda Stevenson, Scientific Officer, APN Secretariat*

Since the early days of the APN, first in the planning workshops to establish the Network and then since its formal establishment in 1996, Dr. A.P. Mitra's presence was always prominent. Spanning over 10 years with the APN in his capacity as Scientific Planning Group (SPG) Member for India, Dr. Mitra worked both diligently and flawlessly for the APN in formulating and steering a strong and effective scientific agenda that has successfully led to the international recognition and high regard in which APN is held today in global change research. All SPG members and the new SPG member for India (who at the time of writing has not yet been appointed), have a challenging task to afford such commitment to the APN.



*Dr. Mitra in the early days of APN (Tokyo, 1995)*

Dr. Mitra carried out numerous APN activities through several routes and interventions including the APN's annual review of regional research and capacity-building proposals, participation at annual SPG meetings and Inter-Governmental Meetings, as well as representation at scientific and science-policy fora both regionally and internationally. During his time with the APN, Dr. Mitra was involved directly in many APN-funded projects, either as project leader or collaborator. A synopsis of some of these projects is outlined in the bulleted text (pages 10-11). Dr. Mitra was also instrumental in forging the strong partnership that APN has with the START community, both at the sub-regional level via SASCOM and the international level via the START International Secretariat in Washington D.C.

Dr. Mitra's work for the APN was merely a fraction of the vast activities he performed at national, regional and international levels. In fact, in recognition of his exceptional research and contribution in many scientific and academic fields, the **Padma Bhushan**, an Indian civilian decoration, was awarded to him in 1989 for his distinguished service of a high order to the nation of India. This was one of numerous awards bestowed on this Professor of Eminence.

Dr. Mitra's career soared from 1954 when, as a young 27-year old physicist, he was handpicked by pioneer Dr. Kariamanikkam Srinivasa Krishnan to work at the National Physical Laboratory (NPL) in New Delhi. In addition to his innovative and ground-breaking physics and radio science research he would conduct for the next four decades, Dr. Mitra dedicated more than the last decade of his career to making the world a better place by focusing on global change research. His contributions to atmospheric science and greenhouse gas emissions have been noted internationally. The work of Dr. Mitra resulted in over 200 publications throughout his career.



*Dr. Mitra collaborated in a South Asia Water Project*

In his final days, perhaps even to the last minute, Dr. Mitra worked on the effects of high particulate pollutants on pulmonary health in selected mega-cities of South Asia, an APN-funded project that will be continued by his esteemed colleagues, including Dr. Chhemendra Sharma and Professor Amir Muhammed. The APN is honoured to have had such an enduring association with Dr. Mitra.

On a personal note, I can recall the last time I spent with Mrs. and Dr. Mitra. This was in Bangkok at the APN's 11<sup>th</sup> IGM, in March 2006. He was a good friend and mentor, and was highly entertaining company, especially at the dinner table.

*continued on page 10 ...*

## *A tribute*



*Mr. Yukihiko Imanari, APN Secretariat Executive Manager with Mr. and Mrs. Mitra (APN IGM/SPG Meeting in Hanoi, 2003)*

*...from page 9 - To the Memory of Dr. Mitra*

He adored his family and never missed an opportunity to show off the many family photos that were safely kept in his wallet. He was most at ease in the presence of Mrs. Mitra and it was fascinating to watch them, husband and wife, interact. It was also fascinating to hear Mrs. Mitra relate stories of a very compassionate family man spending time with his children and grandchildren - he was simply putty in their hands.

*Professor of Eminence, Dr. Ashesh Prosad Mitra, passed away in the early morning of September 3, 2007 in New Delhi, India. Dearest Dr. Mitra, you may be gone but you will never be forgotten.*

### Dr. Mitra was involved in the following APN projects either as project leader or collaborator:

- Led a project on **South Asian Rice Research under Elevated CO<sub>2</sub> Conditions** (Project Reference APN99008). This project focused on the screening of rice varieties under elevated CO<sub>2</sub> based on the projected rise of CO<sub>2</sub> in the atmosphere by the first half of the 21<sup>st</sup> century. Using Open Top Chamber (OTC) technology, the data generated was published in the form of a compendium (SASCOM Scientific Report No. 13) containing important publications relating to the work as well as the nucleation of an experimentally operational South Asian Regional OTC/Mid-FACE (Free-Air Carbon dioxide Enrichment) Network for CO<sub>2</sub> research.
- Led a project on **Asian Aerosol Data Synthesis and Measurement** (Project Reference APN99009). Through compilation and synthesis of existing aerosol data in Pan-Asia, capacity building in data-assimilation and generation and interfacing science and policy via a regional workshop in Kobe, Japan comprised of scientists and policy-makers, this project recognised that aerosols should be considered as an integrated problem across time and spatial scale; and effectively identified priority areas of urban air quality, human health, agricultural productivity and climate change (hydrological cycle) for strengthening science-policy linkages.
- Jointly led a project on **South Asian Regional Experiment to Characterise and Evaluate Physiological Response of Rice Varieties to CO<sub>2</sub> Enrichment for use in Crop Production, Modelling, Policy-Making and Management Technology Assessment** (Project Reference APN2000-08). This project was a continuation of the above-mentioned APN project APN990008 and led to the first-time operation of an OTC South-Asia Network to study crops under elevated CO<sub>2</sub> conditions. The project also operated the mid-FACE facility, developed at NPL, at the Indian Institute of Agriculture (IARI) and identified rice varieties from participating countries responsive to CO<sub>2</sub>, including Bangladesh, India, Nepal, Pakistan and Sri Lanka. Data was generated and processed regarding physiological parameters such as photosynthesis, respiration, growth, yield, etc., of the crops studied from all participating countries. Dr. Mitra conducted this project jointly with Dr. S.C. Garg of NPL and Dr. D.C. Uprety of IARI.
- Collaborated in the **Training Workshop for Capacity Building and Networking on Global Change Issues for Scientists in Bangladesh, Nepal and Sri Lanka** (Project Reference APN2000-NC01). The workshop provided an opportunity for scientists in the region to familiarise themselves with APN procedures and for the group to exchange ideas on research being conducted in climate change and variability, and other global change issues. The workshop led to the development of proposals that were submitted to the APN. This workshop was organised by the Janaka Ratnasiri of the National Science Foundation of Sri Lanka.
- Jointly led a project on **The Budgets of GHGs, Urban Air Pollutants and their Future Emission Scenarios in Selected Mega-Cities in Asia** (Project Reference APN2002-04). This project focused on the dynamics of industrial transformation taking place in Asian cities and analysed the environmental implications, particularly with regard to energy consumption and GHG Emissions. The study focused too on the role of cities in achieving sustainable and cleaner utilisation of resources and end energy. Dr. Mitra conducted this project jointly with Professor H. Imura of Nagoya University, Japan.
- Collaborated in **An Assessment of Nutrient, Sediment and Carbon Fluxes to the Coastal Zone in South Asia, and their Relationship to Human Activities** (Project Reference: APN2002-05). This project was undertaken to better understand the global biogeochemical cycles and the impacts of global change in coastal zones, including human activities. This project was led by Dr. J. Ratnasiri of the National Science Foundation of Sri Lanka and was considered an "outstanding project" in the evaluation of APN's activities in its first strategic phase.

## A tribute

...from page 9 - To the Memory of Dr. Mitra

- Collaborated in **Water Resources in South Asia: An Assessment of Climate Change-Associated Vulnerabilities and Coping Mechanisms (Project Reference APN2004-02-CMY)**. This project focused on the assessment of the impacts of and vulnerability to global climate change on regionally shared water-resources in Bangladesh, India, Nepal and Pakistan. This project was led by Dr. Amir Muhammed, Rector, National University of Computer and Emerging Sciences, Islamabad, Pakistan; and Dr. Bonnie A. Stewart, Executive Director, Fred J. Hansen Institute for World Peace in California, USA.



*A project workshop in Chiangmai, Thailand (February, 2005)*

- Led a project on the **Assessment of the Effects of High Particulate Pollutants on Pulmonary Health Status in Selected Mega-Cities of South Asia** (Project Reference APN2006-03-CMY). This project is on-going and is aiming to investigate the impacts of high-particulate matter on human respiratory health in selected mega-cities where the particulate matter loading, in general, in ambient air is very high due to anthropogenic activities. The countries involved are Bangladesh, India, Nepal, Pakistan and Sri-Lanka.

## ...from friends and colleagues

The first time I met Dr. Mitra was back in 1992 when he had a post at the United Nations University in Tokyo as a scientist representing India. Over the next several years, he became a key supporter from the scientific community in efforts to establish the APN and articulated his views clearly from the scientific perspective.

After the Earth Summit in 1992, there was considerable discussion about how the world should proceed in global environmental change research. Encouraged by the United States, discussions resulted first in the establishment of the Inter-American Institute for Global Change Research (IAI) in the Americas, while working groups made steady progress on a network in the Asia-Pacific region. Here, Dr. Mitra provided the Indian perspective and advice that was broad, global and future oriented. Over the next few years, participating countries worked for the establishment of the APN and Dr. Mitra continued to participate actively and provide input, based on his clear understanding of its objectives.

I had many opportunities to work with Dr. Mitra before, during, and after my time with the APN. One special memory is from the time when Dr. Mitra and his institute hosted an APN workshop on human dimensions in New Delhi in 1996. To prepare for that workshop, immediately after the APN's first Scientific Planning Group meeting, I accompanied Dr. Mitra to India, and, as we were waiting at Singapore airport for a New Delhi-bound flight, I witnessed a steady stream of Indians approaching Dr. Mitra to greet him in the waiting lounge. It was then that I really began to realise the extent of his network and the esteem in which others held him. At the workshop in New Delhi, Dr. Mitra did everything possible to ensure that participants enjoyed the meeting, and it concluded with a wonderful cultural event organised by his wife, Mrs. Mitra.

Dr. Mitra made many contributions to the APN and to global change research. He was a first class researcher and has left his mark in the history of global environmental change. We cherish fond memories of his kindness and generosity, and regret that the world has lost an eminent and precious scientist.

*Ms. Kazuko Watanabe  
APN Deputy Director (1995-2001)*

I first met Dr. Mitra in 1995 at a workshop for the formation of the APN, and right away noted that he was an entertaining speaker and clear thinker. I worked with the Secretariat from before the official launch of the APN until 1999, but was invited back in 2004 and 2005 as a consultant for the APN's 10-year review and second strategic plan.

Over the years, and especially during the review and planning process, Dr. Mitra was generous with his time, and his frank comments and constructive input were valuable for the further development of the APN. His support was a steady thread running through the tapestry of the APN, and his contributions live on today in what the APN has become, and in the important work it continues to do.

*Randal Helten  
APN Programme Manager  
(1995-1999)*

## *A tribute*

*...from friends and colleagues*

### **Dr. Mitra - A True Friend of Sri Lanka**

*By Dr. Janaka Ratnasiri, SASCOM Member, Sri Lanka,  
Chair, Sri Lanka National Committee of IGBP  
Project Leader: APN Projects 2000-07, 2001-02 and 2002-05*

Dr. A. P. Mitra had a long association with Sri Lankan scientists, both in radio science and global change. I had the good fortune to meet Dr. Mitra during a visit to the National Physical Laboratory (NPL) in 1965 when I was engaged in ionospheric research in Colombo. At that time Dr Mitra was the Head of the Radio Science Division at NPL where similar work was being carried out. Though I was only a novice, he was gracious to extend a warm welcome to me and personally explain the various activities in the Division. My next encounter with him was in 1971 when he visited the Aeronomy Laboratory of the University of Illinois where I was doing post-graduate research on the D-Region of the ionosphere, an area where he himself had a special interest. After my return to Sri Lanka, my association with Dr. Mitra grew with the years, particularly with my involvement in climate change studies.

With the establishment of the START South Asia Committee (SASCOM) in the early nineties, its first planning meeting was held in Colombo in 1994 under the Chairmanship of Dr. Mitra. It was at this meeting that each country in the region was assigned various activities as part of SASCOM programme. The choice for Coastal Studies was Sri Lanka. To begin with, a regional workshop was held in Colombo

*continued on page 13 ..*

Professor A.P. Mitra was really one of the sincerest and toughest scientists I have ever met and I admire his excellent academic achievements, as well as his active leadership in organizing scientific programmes, not only through APN, but also through the global environmental research society.

*Dr. Shuzo Nishioka  
Former APN  
Scientific Planning  
Group Member  
for Japan*

I feel sad to know that Dr. Mitra of India who had been with APN since its birth passed away. APN is fortunate to have Dr. Mitra as an eminent scientist-member who had distinctly represented his country both at the SPG and IGM levels. Certainly, APN will miss his presence especially at this time when global warming and climate change are at the forefront of issues being discussed at many international fora. I am certain that the most favourite topic of Dr. Mitra on aerosols will always be a part of scientific discussions on how it affects the current issue of global temperatures. During my time with APN as SPG member for the Philippines, I can recall that most of the proposals from Dr. Mitra were on aerosols, and during our informal conversations, I called him Mr. Aerosol from India. In my 10 years with the APN as SPG member, I will always treasure the delights and professional associations with Dr. Mitra, the APN staff and country members as well.

The demise of Dr. Mitra has left a void in the APN structure and perhaps no one can fill that vacuum in the many years to come. His extensive experience in science and technology will always be in wanting by the APN. In my personal capacity, I would like to take this opportunity to extend my condolences and sympathy to his family and loved ones.

*Mr. Celso Diaz  
Former APN Scientific Planning Group Member for the Philippines*



*Dr. Mitra and Mr. Diaz, standing beside each other in the group photo (APN IGM/SPG Meeting, Kobe, Japan, 2005)*

## *A tribute*

It is painful to understand that Dr. A.P. Mitra will not participate in APN activities any more. It is painful to understand that we will not have future opportunities to meet this person again. He was involved in activities from the very early days of the APN, and was one of the key persons who worked on APN's strategies.

Dr. Mitra was very generous to people around him; he was very attentive and heedful of others' needs. He always gave precise and reasonable comments and solutions to the wide spectrum of obstacles that were presented at APN events, both in official and unofficial discussions. He perfectly represented his great country of India, but his role was much more appreciable - he represented the worldwide Global Change Research Community.

Among his credentials, there was a title of 'eminent.' Really, we had the chance to meet an eminent person...

*Dr. Alexander Sterin*  
Scientific Planning Group Member for Russia



*Left to right: Former APN nFP for Pakistan, Mr. Shahzad Iqbal; APN SPG Member for Russia, Dr. Alexander Sterin; and Dr. Mitra (13<sup>th</sup> IGM/SPG Meeting Reception Dinner, Honolulu, U.S.A, March, 2007)*

*...from friends and colleagues*

*...from page 12 - Dr. Mitra - A True Friend of Sri Lanka*

supported by START and LOICZ in April 1999 to assess on-going coastal studies being done in the region and to identify new areas to be addressed. Dr. Mitra participated actively in this workshop contributing many new ideas.

As a follow up to this workshop, a capacity building workshop, funded by APN, START and LOICZ, was held for the benefit of young coastal scientists in the region in 2000 in Colombo. LOICZ and SASCOM provided the necessary resource persons. Dr. Mitra was an active participant here too as the Director of the START Regional Research Centre. He was responsible for identifying the participants and resource persons from India.

In order to give an opportunity for the trained scientists to collect data necessary for modelling of coastal systems, a third workshop was held in 2002 with funding from APN, START and LOICZ. On that occasion, Dr. Mitra came to Sri Lanka accompanied by Mrs. Mitra, a fulfilment of a wish he made at the previous visit. Dr. Mitra was instrumental in persuading research institutes in India to participate in these studies.

During his visits to Sri Lanka, Dr. Mitra inspired Sri Lankan scientists to participate in research studies that he had initiated, particularly the CO<sub>2</sub> elevation studies on rice carried out with APN funds. With the seed money given by APN for this project and the experience gained, Sri Lankan scientists were able to generate their own funds to carry out further work in this area that led to many publications. He was quite happy to see that this technique was made use of in carrying out similar studies on coconut and tea as well in Sri Lanka and visited these sites during one of his visits. I must say that this was a success story on capacity building. Another study where he got Sri Lankan scientists involved is the APN Project on Respiratory Health and Air Pollution.

Dr. Mitra, being basically a Radio Scientist, had the vision to see new and innovative future applications of radio science in development activities and had established a separate centre to promote these activities. He was very keen to see that not only India, but also other countries in the region benefited from it. He made numerous attempts to involve Sri Lankan scientists in workshops that he organised.

Dr. Mitra visited Sri Lanka on several other occasions too. He was the Distinguished Guest at the inauguration of the Annual Session of the Sri Lanka Association for the Advancement of Science in 2000, and represented the Indian Science Congress at its 2002 inauguration. He was the key-note speaker at a Seminar organised by the Sri Lanka National Committee of IGBP in 1996 to apprise policy-makers on Climate Change and its Impacts, and was a resource person at the APN Workshop held in Colombo in 2000 to create awareness on APN activities among scientists in the region.

Being a highly respected scientist in India, he used his influence to overcome problems faced by scientists. A team of Sri Lankan scientists working on the AIACC project on coconut and tea were attending a training programme on crop modelling at the Indian Agricultural Research Institute in Delhi were permitted to visit another Indian research institute readily only because of Dr. Mitra's intervention. During his many visits to Sri Lanka, Dr. Mitra made it a point to meet government officials to apprise them of various schemes available in India for post-graduate training which young Sri Lankan scientists could pursue.

*continued on page 14...*

## *A tribute ...from friends and colleagues*

The report of Dr. Mitra's demise came as a shock. Just a couple of months ago we were together attending the Scientific Steering Committee meeting of MAIRS (Monsoon Asia Integrated Regional Study) in Beijing and the Semi-arid region land-atmosphere interaction Workshop in Lanzhou of China. In memory of Dr. Mitra, I cannot help recalling the days in which we worked together for the development of global change research in the Asia-Pacific region as early as the 1990's.

Dr. Mitra had long been engaged in the study of atmospheric physics and chemistry and made significant contributions particularly in climate-chemistry interaction studies, covering the emission of greenhouse gases, acid rain and the impacts of greenhouse gases and aerosols on climate. He was one of the organisers of the Methane Asia Campaign and the South Asia regional FACE (Free Air Carbon Dioxide Enrichment). He was also one of leading scientists of INDOX (Indian Ocean Experiment) and ABC (Atmospheric Brown Cloud) programmes, etc.

Dr. Mitra was one of the pioneers in the initiation of START (Global Change System of Analysis, Research and Training) and the APN (Asia-Pacific Network for Global Change Research). As the director of the START Regional Center for South Asia (SASCOS) and member of APN's Scientific Planning Group, he has made great contributions to the implementation of the scientific agendas of both START and the APN. Recently, as one of the Vice-Chairs of the MAIRS SSC, Dr. Mitra actively participated in the development of the initial science plan of MAIRS and the promotion of the participants of Indian scientists in the MAIRS programme.

Dr. Mitra was one of those extraordinary people who never be forgotten.

*Prof. Congbin Fu  
Chinese Academy of Sciences*



*Prof. Congbin Fu  
and Dr. A.P. Mitra  
sitting beside each  
other at the 6<sup>th</sup>  
APN SPG Meeting  
in Jeju, Korea,  
March, 2001*

*...from page 13 - Dr. Mitra - A True Friend of Sri Lanka*

Dr. Mitra had the knack of convincing administrators and policy-makers on the importance of undertaking various scientific studies that he had initiated, which resulted in him getting large sums of money for research. Once he was narrating to me how he managed to get funds for the INDOEX experiment carried out with international collaboration. A mere telephone call to the right person was more effective with him than a lengthy proposal. This again shows the high regard and respect that he earned among policy-makers.

Dr. Mitra's sudden demise saddened all of us who knew him closely. We were impressed by his sincerity to help Sri Lankan scientists whenever he had the opportunity. On behalf of the Sri Lankan scientific community and in particular the global change scientists, I take this opportunity to extend our heartfelt condolences to Mrs. Mitra and other members of his family.

## ...from friends and colleagues

We are sad to hear about the demise of Prof. Mitra, which is a great loss to the environmental community indeed. Our deepest sympathies to his family and the APN Secretariat.

**Channa Bambaradeniya**

The World Conservation Union (IUCN)  
SRI LANKA

*It was very unbelievable for me after receiving the sad message. As I know Dr. Mitra since 3<sup>rd</sup> APN Scientific Planning Group Meeting in 1998, he was my oldest friend among the APN group. Now we will miss him very much. My condolence to his family.*

**Tsogtbaatar Jamsran**

APN Scientific Planning Group Member  
MONGOLIA

*I wish to express my deepest sorrow upon receipt of the sad news about the passing away of the late Prof. A. P. Mitra. I have known the late Professor Mitra for many years both as Regional Director of SASCOM and as a brilliant atmospheric scientist. On behalf of the African Global Change Community, we pray that God's grace console his family and rest his soul in peace. Please accept my sincere condolences and sympathy.*

**Eric Odada**

African Network of Earth System (AfricaNESS)  
KENYA

*Dr. Mitra was a great person. I have lost a mentor who had always been a source of encouragement. I will always cherish the memorable times I spent with him.*

**A.K. Gosain**

Indian Institute of Technology  
INDIA

*Dr. Mitra was a very kind and helpful friend, as well as a very active scientist in the global change community.*

**Wenjie Dong**

APN Scientific Planning Group Member  
CHINA

*We are indeed saddened to hear about the passing away of Dr. Mitra. We would like to extend our condolences to his family and our colleagues in India.*

**Yap Kok Seng**

APN national Focal Point  
MALAYSIA

*It's very sad to hear the news. Now, we all have to carry out his work at the APN.*

**Mizan Khan**

North South University  
BANGLADESH

*He is a great scientist who gave an immense contribution in the field of atmospheric science.*

**Santosh Kumar Sarkar**

University of Calcutta  
INDIA

*It is sad to hear the loss of a useful member in our network. We, on behalf of the Cambodia team, share our regrets.*

**Pich Sereywath**

Department of Fisheries,  
CAMBODIA

*Everyone here at the IHDP Secretariat was greatly saddened at the news of Professor Mitra's passing. He was truly an inspiring individual, and we wish all the best in this difficult time for his friends and family.*

**Elisabeth Mullin**

International Human Dimensions Programme  
on Global Environmental Change  
GERMANY

*I am really shocked to hear the passing of Dr. Mitra. He is a good friend of mine and he has done a great service to the scientific community.*

**G.H.P. Dharmaratna**

APN Scientific Planning Group Co-Chair  
SRI LANKA

*It is a great loss to the global change community, with the demise of Prof. Mitra. I was closely associated with Prof. Mitra for over two decades and know him as a good man and an outstanding scientist. My heartfelt condolences to the bereaved family.*

**Bhujang Rao Dharmaji**

The World Conservation Union  
SRI LANKA

*It is very sad to learn of the passing of Dr. A.P. Mitra. It is not only a loss for Dr. Mitra's family, but also a loss for APN community as well. My condolence to his family and all the colleagues at the APN Secretariat.*

**Kowit Chaisurisri**

Ministry of Natural Resources and Environment  
THAILAND

*It is our regret to hear that Dr. Mitra passed away and my condolences to his family and the APN.*

**Hourt Khieu**

Scientific Planning Group Member  
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*To view the complete address of  
the nFP and SPG Member in your  
country, you may visit the Who's  
Who Section of the APN website  
[http://www.apn-gcr.org/en/  
aboutapn/whoswho.html](http://www.apn-gcr.org/en/aboutapn/whoswho.html).*

# ARCP 2007/08 Projects

**ARCP2007-01CMY-Ziegler:** Sediment Dynamics and Down-stream Linkages in Tropical Streams as Affected by Projected Land-Cover/Land-Use and Climatic Change  
Project Leader: Dr. Alan D. Ziegler, University of Hawaii, USA; Email: adz@hawaii.edu

**ARCP2007-02CMY-Koike:** International Integrated Water Data Access and Transfer in Asia (IIWaDATA) Project  
Project Leader: Dr. Toshio Koike, University of Tokyo, JAPAN; Email: tkoike@hydra.t.u-tokyo.ac.jp

**ARCP2007-03CMY-Nadaoka:** Integrating Support System for Managing Environmental Change and Human Impact on Tropical Ecosystems in East Asia and the Pacific  
Project Leader: Prof. Kazuo Nadaoka, Tokyo Institute of Technology, JAPAN; Email: nadaoka@mei.titech.ac.jp

**ARCP2007-04CMY-David:** Integrated Vulnerability Assessment of Coastal Areas in the Southeast Asia and East Asian Regions  
Project Leader: Dr. Laura T. David, University of the Philippines, PHILIPPINES; Email: ldavid@upmsi.ph

**ARCP2007-05CMY-Lasco:** Linking Climate Change Adaptation to Sustainable Development in Southeast Asia  
Project Leader: Dr. Rodel D. Lasco, World Agroforestry Centre, PHILIPPINES; Email: r.lasco@cgiar.org

**ARCP2007-06CMY-Huda:** Climate Crop Disease Risk Management: An International Initiative in the Asia-Pacific Region  
Project Leader: Prof. Samsul Huda, University of Western Sydney, AUSTRALIA; Email: s.huda@uws.edu.au

**ARCP2007-07CMY-Oanh:** Investigation of the Impacts of Urban-Rural Air Pollution on Air Quality and Climate in Southeast Asia  
Project Leader: Dr. Nguyen Thi Kim Oanh, Asian Institute of Technology, THAILAND; Email: kimoanh@ait.ac.th

**ARCP2007-08CMY-DeCosta:** Assessment and Management of Change in Coastal Zone Caused by Salinity Intrusion  
Project Leader: Dr. Gregory De Costa, Open Polytechnic of New Zealand, NEW ZEALAND;  
Email: gregory.decosta@openpolytechnic.ac.nz

**ARCP2007-09NSY-Skole:** Carbon Financial Markets, Rural Poverty, and Global Climate Change in Southeast Asia - Scoping Workshop, Training and Project Site Development  
Project Leader: Dr. David L. Skole, Michigan State University, USA; Email: skole@msu.edu

**ARCP2007-10NMY-Baguinon:** Collaborative Studies in Tropical Asian Dendrochronology: Addressing Challenges in Climatology and Forest Ecology  
Project Leader: Dr. Nestor T. Baguinon, University of the Philippines Los Baños, PHILIPPINES;  
Email: ntbaguinon2001@yahoo.com

**ARCP2007-11NMY-Park:** Regional Collaborative Research on Climate Change Impacts on Surface Water Quality in Eastern Monsoon Asia: Towards Sound Management of Climate Risks  
Project Leader: Dr. Ji-Hyung Park, Kangwon National University, Republic of KOREA;  
Email: jihyungpark@kangwon.ac.kr

**ARCP2007-12NMY-Adrianov:** Marine Biodiversity of Coastal Zones in the Northwest Pacific: Status, Regional Threats, Expected Changes and Conservation  
Project Leader: Dr. Andrey V. Adrianov, Institute of Marine Biology, RUSSIAN FEDERATION;  
Email: inmarbio@mail.primorye.ru

**ARCP2007-13NMY-Li:** Quantification of Land Use Urbanisation Levels in Three Developing Asian Countries Based on the Analysis of Scale Effects in Landscape Patterns  
Project Leader: Prof. Jianlong Li, Nanjing University, CHINA; Email: jlli2008@nju.edu.cn; jianlongli@hotmail.com

**ARCP2007-14NMY-Dutta:** Climate Perturbation and Coastal Zone Systems in Asia Pacific Region: Holistic Approaches and Tools for Vulnerability Assessment and Sustainable Management Strategy  
Project Leader: Dr. Dushmanta Dutta, Monash University, AUSTRALIA; Email: dushmanta.dutta@sci.monash.edu.au

**ARCP2007-15NSY-Parish:** Assessing the Mitigation and Adaptation Options for Tropical Peatlands to Reduce GHG Emissions and Increase Resilience to Climate Change  
Project Leader: Mr. Faizal Parish, Global Environment Centre, MALAYSIA;  
Email: fparish@genet.po.my

**ARCP2007-16NMY-Chen:** Asian Mega-deltas: Monsoon Circulation in Relation to Deltaic-Coastal Hazards and Future Mitigation – Millennial to Seasonal Dimensions  
Project Leader: Prof. Zhongyuan Chen, East China Normal University, CHINA; Email: Z.Chen@ecnu.edu.cn

**ARCP2007-17NMY-Espaldon:** Assessing Vulnerability of Communities and Understanding Policy Implications of Adaptation Responses to Flood-related Landslides in Asia  
Project Leader: Dr. Ma. Victoria O. Espaldon, School of Environmental Science and Management, PHILIPPINES;  
Email: voespaldon@yahoo.com

**ARCP2007-18NSY-Nawa:** Using CDM Opportunities to Mitigate the Release of Greenhouse Gases by Improving Waste Management Practices  
Project Leader: Dr. Nawa Raj Khatiwada, Nepal Development Research Institute, NEPAL;  
Email: nawa@ndri.org.np; nawaraj9@yahoo.com

**ARCP2007-19NMY-Sheikh:** Development and Application of Climate Extreme Indices and Indicators for Monitoring Trends in Climate Extremes and their Socio-economic Impacts in South Asian Countries  
Project Leader: Mr. Muhammad Munir Sheikh, Global Change Impact Studies Centre, PAKISTAN;  
Email: gcisc@comsats.net.pk, munir.sheikh@gcisc.org.pk, mmunirsheikh@yahoo.com

**ARCP2007-20NSG-Kwon:** Development of Indices and Indicators for Monitoring Trends in Climate Extremes and its Application to Climate Change Projection  
Project Leader: Dr. Won-Tae Kwon, Korea Meteorological Administration, Republic of KOREA;  
Email: wontk@metri.re.kr

## APN 2007/08

### Projects from the Annual Regional Call for Proposals

You may check the abstracts of each project at : <http://www.apn-gcr.org/en/activity/list2007projects.htm>



## CAPaBLE 2007/08 Projects

APN 2007/08  
Projects  
under the  
CAPaBLE  
Programme

### CAPaBLE Comprehensive Research Projects

**CRP2007-01CMY-Dixit:** Improving Policy Responses to Interactions between Global Environmental Change and Food Security across the Indo-Gangetic Plain (IGP)  
Project Leader: Dr. Ajaya Dixit, Nepal Water Conservation Foundation, NEPAL;  
Email: nwcf@wlink.com.np

**CRP2007-02CMY-Yan:** Integrated Model Development for Water and Food Security Assessments and Analysis of the Potential of Mitigation Options and Sustainable Development Opportunities in Temperate Northeast Asia  
Project Leader: Prof. Xiaodong Yan, START Regional Centre for Temperate Asia, CHINA;  
Email: yxd@tea.ac.cn

**CRP2007-03CMY-Jintrawet:** Climate Change in Southeast Asia and Assessment on Impact, Vulnerability and Adaptation on Rice Production and Water Balance  
Project Leader: Dr. Attachai Jintrawet, Multiple Cropping Centre, THAILAND;  
Email: attachai@chiangmai.ac.th

### CAPaBLE Capacity Building Projects

**CBA2007-01CMY-Bambaradeniya:** Removing Barriers to Capacity Building in Least Developed Countries: Transferring Tools and Methodologies for Managing Vulnerability and Adaptation to Climate Change  
Project Leader: Dr. Channa Bambaradeniya, IUCN - The World Conservation Union, SRI LANKA;  
Email: cnb@iucnsl.org

**CBA2007-02CMY-Aalsbersberg:** Climate Change and Variability Implications on Biodiversity — Youth Scenario Simulations and Adaptations  
Project Leader: Prof. Bill Aalbersberg, University of South Pacific, FIJI;  
Email: aalbersberg@usp.ac.fj

**CBA2007-03NSY-Nunn:** Understanding Environmental Decision-Making in the Rural Pacific Islands

Project Leader: Prof. Patrick D. Nunn, The University of the South Pacific, FIJI;  
Email: nunn\_p@usp.ac.fj

**CBA2007-04NSY-Iino:** Developing Chemical Analysis Capability in India and Pakistan and Risk Perception of Policy-Makers and People in Asia  
Project Leader: Dr. Fukuya Iino, United Nations University, JAPAN;  
Email: iino@hq.unu.edu

**CBA2007-05NSY-Kelkar:** New Risks of Climate Change – Building Capacity to Protect the Most Vulnerable  
Project Leader: Ms. Ulka Kelkar, The Energy and Resources Institute, INDIA;  
Email: ulkak@teri.res.in

**CBA2007-06NMY-Mathur:** Communicating Economic Implications of Climate Change Impacts and Net Benefits of Adaptation Measures to Policy Makers to Enable them to Take Informed Decisions  
Project Leader: Mr. Udit Mathur; Development Alternatives, INDIA;  
Email: umathur@devalt.org

**CBA2007-07NSY-Bin Wang:** Workshop on "The Monsoon System: Prediction of Change and Variability"  
Project Leader: Prof. Bin Wang, University of Hawaii, USA;  
Email: wangbin@hawaii.edu

**CBA2007-08NSY-Gordov:** Capacity Building to Study Interrelations between Atmospheric Composition, Anthropogenic Load and Climate Change in Northern Asia  
Project Leader: Evgeny Gordov, Siberian Center for Environmental Research and Training/Institute of Monitoring of Climatic and Ecological Systems SB RAS, RUSSIAN FEDERATION;  
Email: gordov@scert.ru

**CBA2007-09NSY-Soejachmoen:** Capacity Building in Asian Countries on Climate Change Issues Related to Future Regime  
Project Leader: Ms. Moekti Handajani Soejachmoen, Yayasan Pelangi Indonesia, INDONESIA;  
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You may check the abstracts of the above projects at :

<http://www.apn-gcr.org/en/activity/capable/capableprojects/list2007capableprojects.htm>

The APN is seeking **external mail reviewers** to review global change research proposals submitted under its Annual Regional Call for Proposals (ARCP) and capacity development proposals submitted under its Scientific Capacity Building and Enhancement for Sustainable Development in Developing Countries (CAPaBLE) Programme. For more details and to download the Reviewer Background Information Form, please visit: <http://www.apn-gcr.org/en/callforproposals/mailreviewsystem.html>.



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

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 Division: \_\_\_\_\_  
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 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_  
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5. We look forward to receiving any additional remarks or suggestions about what you would like to see included in the APN Newsletter.  
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 \_\_\_\_\_

## Updates from the Global Change Community

### Earth Systems Science Partnership (ESSP)

The second meeting of the Review Panel for the ESSP was held in parallel with the first Scientific Committee meeting in late October. The final report will be completed by April 2008.

### International Human Dimensions Programme on Global Environmental Change (IHDP)

The Strategic Plan 2007-2015 for the IHDP on Global Environmental Change that was recently published is now available online. The plan was developed as a direct response to the review of the programme — conducted by International Council for Science (ICSU) and the International Social Sciences Council (ISSC). ICSU met with the other two sponsors of IHDP, the ISSC and the United Nations University (UNU), to discuss how the sponsors can best collaborate to promote the programme. The sponsors also agreed to a revised Constitution of IHDP.

### International Geosphere-Biosphere Programme (IGBP)

ICSU and the International Group of Funding Agencies for Global Change Research (IGFA) have begun the review of IGBP. The Review Panel, chaired by Sir John Lawton from UK, has started the information gathering phase. The final report will be available in February 2009.

### World Climate Research Programme (WCRP)

Similar to IGBP, there is also an ongoing review of the WCRP. The Review Panel, chaired by D. James Baker, U.S.A., is being conducted by ICSU and IGFA in conjunction with the World Meteorological Organisation and the Intergovernmental Oceanographic Commission. The information gathering phase has begun and the final report will be completed in February 2009.

### An International Programme of Biodiversity Science (DIVERSITAS)

Worldwide consultations on an International Mechanism of Scientific Expertise for Biodiversity (IMoSEB) had been held throughout the year 2006 and finished with a final meeting of the International Steering Committee in Montpellier, France, on 15-17 November. DIVERSITAS ensured that scientists from around the world had been involved in this consultation. Final recommendations will be made to the 9<sup>th</sup> Meeting of the Conference of the Parties to the Convention on Biological Diversity in May 2008.

## Calendar of Worldwide Global Change Events

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

### JANUARY

2-12 JAN. Workshop on "The Monsoon System: Prediction of Change and Variability" East-West Center & the University of Hawaii, Honolulu, Hawaii, USA. (with MAIRS, START, CLIVAR, EWC)  
Contact: start@agu.org;  
<http://www.start.org/curfinopp.html>

6-13 JAN. **An International Conference on DELTAS: Deltaic Gateways – Linking Source to Sink of IGCP-475 DeltaMAP and APN Mega-Delta.** Dhaka, Bangladesh.  
Contact: Z.Chen@ecn.u.edu.cn

14-18 JAN. **Training and Scoping Workshop on Carbon Financial Markets, Rural Poverty, and Global Climate Change in Southeast Asia.** Lao Plaza Hotel, Vientiane, Lao PDR.  
Contact: skole@msu.edu

24-25 JAN. **Meeting and Workshop on Model Integration.** Marine Science Institute, Diliman, Philippines.  
Contact: nadaoka@mei.titech.ac.jp

### FEBRUARY

7-8 FEB. Project Intermediate Coordination Meeting "Thematic Educational Resources Providing Necessary Foundation to Study Interrelations Between Atmospheric Composition, Anthropogenic Load and Climate Change in Northern Asia and their IT-Based Implementation/Usage". Yokohama, Japan  
Contact: gordov@scert.ru

8 FEB. **Joint Workshop for Model Verification and Linkages Development.** Colombo, Sri Lanka.  
Contact: gregory.decosta@openpolytechnic.ac.nz

11-14 FEB. **Review of Research Findings and Project Planning Workshop on Climate Crop Disease Risk Management: An International Initiative in the Asia Pacific Region.** Dhaka, Bangladesh.  
Contact: s.huda@uws.edu.au

20-23 FEB. **Joint Workshop on Development of Indices and Indicators for Monitoring Trends in Climate Extremes and its Application to Climate Change Projection.** Seoul, Republic of Korea.  
Contact: wontk@metri.re.kr

20-23 FEB. Long-Term Policies: Governing Social-Ecological Change 2008 Berlin Conference on the Human Dimensions of Global Environmental Change - International Conference of the Social-Ecological Research Programme. Berlin.  
Contact: bc2008@zedat.fu-berlin.de

25-29 FEB. Symposium on Climate Change and Biodiversity in the Americas. Smithsonian Tropical Research Center (STR), Panama  
Contact: Don MacIver (don.maciver@ec.gc.ca) or visit [www.climatechangeandbiodiversity.ca](http://www.climatechangeandbiodiversity.ca).

### MARCH

2-7 MAR. Ocean Sciences Meeting – From the Watershed to the Global Ocean. Orlando, Florida, FL, United States  
Contact: <http://www.aslo.org/forms/orlando2008.html>

10-14 MAR. **Technical Meeting for the Consolidation of National and Regional Reports on the Development of Indices and Indicators for Monitoring Trends in Climate Extremes and its Application to Climate Change Projection.** Islamabad, Pakistan  
Contact: gcisc@comsats.net, munir.sheik@gcisc.org.pk

18-20 MAR. **APN 13<sup>th</sup> Inter-Governmental Meeting (IGM)/Scientific Planning Group (SPG) Meeting.** Kobe, Japan.  
Contact: info@apn-gcr.org

### APRIL

2-4 APR. GECAFS Conference 2008 "Food Security and Environmental Change: Linking science, development and policy", Oxford, UK.  
Please visit [http://gecafs.org/gecafs\\_conference\\_2008/index.html](http://gecafs.org/gecafs_conference_2008/index.html)

13-18 APR. NEESPI Open Science Session at the European Geophysical Union General Assembly. Vienna, Austria.  
Please visit <http://meetings.copernicus.org/egu2008/>

### MAY

4-9 MAY. The 4<sup>th</sup> International Geosphere-Biosphere Programme (IGBP) Congress, on Sustainable Livelihood in a Changing Earth System. Cape Town, South Africa.  
Please visit <http://www.igbp.kva.se/page.php?pid=362> for further details.

10-13 MAY. International Workshop on Evaluating Climate Change and Development Alexandria, Egypt  
Contact: IntWorkshop@theGEF.org

18-24 MAY. **Training on DSS Methodology.** Marine Science Institute, Manila/Puerto Galera, Philippines.  
Contact: nadaoka@mei.titech.ac.jp

25-27 MAY. G8 Environment Ministers Meeting. Kobe, Japan.  
Please visit <http://www.env.go.jp/earth/g8/index.html>

### JUNE

2-5 JUNE. 5<sup>th</sup> International Conference on Climate Change: The Karst Records Conference. Chongqing, China.  
Contact: <http://www.climatechange5.org>

### OCTOBER

16-19 OCT. International Human Dimensions Programme (IHDP) 7<sup>th</sup> Open Meeting. New Delhi, India  
Contact: mullin@ihdp.unu.edu

Please feel free to visit our online calendar (<http://www.apn-gcr.org/en/calendar.html>) for a more extensive list of events.



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