

APN

Asia-Pacific Network for Global Change Research

APN Newsletter
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Message from the APN Director

Making a change

As you are aware, the APN's tenth anniversary is approaching as the 10th APN Scientific Planning Group and Inter-Governmental Meetings will be held in March 2005. The 8th APN SPG and IGM Meetings that convened in Hanoi in March 2003 discussed this issue and endorsed the Secretariat's plan to evaluate APN scientific activities since its establishment as well as to prepare a new 5-year strategic plan starting in 2005. It is a big challenge for the Secretariat to complete these tasks successfully in the coming 18 months. With this in mind, the Secretariat organized a one-day in-house brainstorming meeting in late August, using the ZOPP methodology.

ZOPP (Goal Oriented Project Planning) was developed by the GTZ (German Technical Cooperation) to provide a systematic structure for identification, planning, and management of projects. ZOPP workshops last from 1 day to 2 weeks and the final output is a planning matrix—the logical project framework—which summarizes and structures the main elements of a project and highlights logical linkages between intended inputs, planned activities and expected results. The uniqueness of this methodology is that you start with problem analysis, where major problems are grouped into a problem-tree with cause and effect, followed by an objectives analysis with a restatement of the problems into realistically achievable goals.

At the first ZOPP meeting Secretariat members openly exchanged their views and opinions regarding problem analysis. This resulted in the Secretariat reaching a common ground concerning constraints that the APN currently has and areas that we need to work on. We are now moving into the next step in the ZOPP process, hoping that this approach will be useful for making a change, and indeed to help us face the challenges that lie ahead.

Incidentally, making a change is a national thirst in Japan because of the recent recession. Indeed, against such a backdrop of uncertainty, the recent victory of the Hanshin-Tigers, a Hyogo-based Japanese professional baseball team, in the Central League pennant title sparked wild nationwide excitement, proving that such a big change is conceivable. The team's dramatic transformation from last to first, and their unexpected success generated something of a social phenomenon, awakening hope in the minds of many hapless people. As a Hyogo-based network, the Secretariat is also hoping that we will learn a lot from the Tigers experience to make an effective change and, in-so-doing, spur the APN on to reach its full potential as we approach the APN's tenth anniversary.

— Sombo T. Yamamura

NEWS FROM THE SECRETARIAT

Condolences

We have lost an extremely dedicated and valued member of the global change community. Professor Tsuneyuki Morita of the National Institute for Environmental Studies (NIES), Japan,

passed away last month. Professor Morita was a co-project leader for the APN sponsored APEIS Integrated Environmental Assessment project. He was also a key reviewer for the CAPaBLE Comprehensive Research Project proposals.

Not only did Prof. Morita devote a great deal of time and energy to APN, he was also actively involved in the IPCC process as a Coordinating Lead Author for long-term scenarios development of climate change mitigation;

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About the APN

The Asia-Pacific Network for Global Change Research (APN) is an inter-governmental network whose mission is to foster global change research in the Asia-Pacific region, increase developing country participation in that research, and strengthen interactions between the science community and policy makers. The APN cooperates closely with various scientific programmes and other networks to achieve these purposes.

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as well as being an extremely effective Director of the Social & Environmental Systems Division and Project Leader of Climate Change Research at NIES.

Environment Congress for Asia and the Pacific (ECO ASIA 2003).

Shonan Village, Japan. 7 June 2003.

Mr. Yukihiro Imanari and Dr. Linda Stevenson of the APN Secretariat attended the Eleventh Environment Congress for Asia and the Pacific, ECO ASIA 2003. As the first ECO ASIA to convene after the World Summit on Sustainable Development (WSSD), ECO ASIA was a welcome opportunity for ministers and officials to gather and take-on some of the key challenges that emerged in the wake of the WSSD, most notably a concrete means of establishing a sustainable society and the implementation of WSSD outcomes. It was also agreed that ECO ASIA would support the APN Scientific Capacity Building/Enhancement for Sustainable Development in Developing Countries Programme (CAPaBLE) under the framework of the APN. This programme was also included in the Joint Action Plan of the Third Pacific Island Leaders Meeting (PALM 2003).

3rd IGBP Congress. Banff, Canada. 19-24 June 2003.

The 3rd IGBP Congress was an important milestone in the evolution of the IGBP as it embarks on an ambitious restructuring of its research programme, built solidly on the results of the first decade of IGBP research but focusing on the emerging questions that are now challenging global change science. In addition, IGBP is joining with the other international global change research programmes (WCRP—World Climate Research Programme; IHDP—International Human Dimensions Programme on Global Environmental Change; and DIVERSITAS—an international programme of biodiversity science) to launch four new joint projects centred on key issues of societal concern: water resources, the carbon cycle, food systems and human health.

At the IGBP Congress the APN was actively involved in sessions devoted to the Integrated Regional Study on Monsoon Asia (MAIRS), and the Earth System Science and Capacity

Building session where Dr. Linda Stevenson, APN Programme Manager for Scientific Affairs, gave a presentation. The Congress also gave the APN an opportunity to network with various contacts from within the IGBP research community as well as with the global change community in general.

Professional level workshop/training on "Inventory of Glaciers, Glacial Lakes and the Identification of Potential Glacial Lake Outburst Floods (GLOFs) Affected by Global Warming in the Mountains of the Himalayan Region." Kathmandu, Nepal. 28 July to 8 August 2003.

This training was an integral component of the APN 2003-05 GLOFs project and was hosted by the International Center for Integrated Mountain Development (ICIMOD) in Kathmandu and led by Mr. Pradeep Mool. The training course ran from 28 July to 8 August with participants, who were mostly hydrologists, from China, India, and Pakistan. Content included introduction to an inventory of glaciers and glacial lakes; introduction to GIS; database concepts and design; spatial data and data capture for inventory of glaciers and glacier lakes; and use of aerial photographs and remote sensing data for GLOFs.

During his time in Nepal, Mr. Martin Rice (Programme Manager, APN Secretariat) also had an opportunity to attend a Consultative Group Meeting for the APN project on Global Change Impact Assessment for Himalayan

Mountain Regions. The project leader, Professor Kedar Shrestha, presented project progress and introduced major stakeholders involved in the planning process to project activities. Stakeholders included representatives from the Nature Trust, Water and Energy Commission, and the Department of Irrigation of Nepal. Some preliminary field work results were also presented. This project will have an end-of-project workshop from 16-19 December 2003 in Kathmandu, during which scientific outcomes will be presented to policy makers and planners from the South Asia region. This workshop will be held back-to-back with another APN funded workshop on Water Resources in South Asia (APN 2003-04).

13th Asia-Pacific Climate Change Seminar. Miyazaki, Japan. 2-5 September 2003.

The 13th Asia-Pacific Seminar on Climate Change was held in Miyazaki, Japan and was hosted by the Ministry of the Environment, Japan (MOEJ), the Miyazaki Prefecture and City Governments, and the Overseas Environmental Cooperation Center (OECC). This forum provided an excellent opportunity for APN to disseminate information on its climate change & variability activities, particularly appropriated to adaptation strategies, and the CAPaBLE Programme. The seminar was attended by eighteen countries and thirteen international and regional organisations. The next Asia-Pacific Climate Change Seminar will convene in Sydney, Australia in 2004.



Course trainer, Pradeep Mool of ICIMOD, takes the APN funded GLOF project trainees through some practical aspects of managing remote sensing data

Workshop on the Monitoring of POPs in the East Asian Hydrosphere. United Nations University, Tokyo. 1-2 September 2003.

During this two-day APN/UNU funded workshop (attended by the APN Director, Mr. Sombo Yamamura) expert presentations and discussions focused on the interpretation of environmental monitoring data and the development of guidelines for environmental quality standards for pollution in coastal and inland waters. Discussions included consideration of existing health standards as presented by WHO and those adopted by countries in other regions.

Guidelines on environmental quality were agreed by the participants, and distributed by the organizers in order to provide the basis for planning, prioritizing and comparing future monitoring activities amongst the centres. They also provided important benchmarks for the interpretation of environmental data and trends identified by the current monitoring activities that are already being undertaken within the project. Most importantly, the workshop helped communicate the significance of environmental data to policy-makers and the public.

The discussion sessions were attended by the National Project Coordinators of the UNU project on environmental monitoring, and one junior laboratory



The Director of the Pacific Regional Environmental Program (SPREP), Mr Asterio Takesy, with Dr Andrew Matthews, Co-Chair, APN Scientific Planning Group at the 14th SPREP Meeting of Officials and Environment Ministers' Forum, Apia, Samoa.

staff member from each of the appointed laboratories in China, Indonesia, Japan, the Republic of Korea, Malaysia, the Philippines, Singapore, Thailand and Viet Nam. Expert speakers were also invited to make presentations and to join the discussions.

For more information about this workshop, please go to:
<http://landbase.hq.unu.edu/Workshops/TokyoSept2003/announcement.htm>

14th SPREP Meeting of Officials and Environment Ministers' Forum. Apia, Samoa. 8-12 September, 2003. Dr. Andrew Matthews, Co-Chair of the

APN Scientific Planning Group, attended and presented at the 14th SPREP meeting in Samoa. In his statement, Andrew outlined APN's mission and capacity building endeavours and, in particular, the Scientific Capacity Building/Enhancement for Sustainable Development in Developing Countries Programme, (CAPaBLE) and the opportunities it presents for the Pacific research community, as well as collaborative opportunities with organisations, such as SPREP. Real interest was shown in the APN activities, and it was felt that the SPREP work programmes are very closely aligned to APN's main work areas. [APN](#)

GUEST ARTICLE



WATER AND HUMAN SECURITY

Chris Cocklin, Monash Environment Institute. Monash University, Australia

At a conference of seven of the world's poorest nations in June 2000 (the so-called P7 Summit), delegates called for water to be treated as a fundamental human right, not as a market commodity. This view was echoed two years later, when the UN Committee on Economic, Cultural and Social Rights formally declared: "Water should be treated as a social and cultural good, and not primarily as an economic commodity". Earlier this year, the question of whether water is indeed a human right, or whether it can be treated legitimately as a commercial

commodity, became a central point of debate at the Third World Water Forum in Kyoto. The view that there is a role for the private sector in providing water services was put to the Forum in a report 'Financing Water for All' (the 'Camdessus plan'), which argues that water use fees, markets and financial institutions all have a role to play in improving global access to potable water. Although the report failed to achieve consensus support at Kyoto, members of the G8, led by France, continue to argue for private investment in water services. Despite

their contrasting view on private investment in water, at the G8's 2003 summit in Evian, the members proclaimed: "As water is essential to life, lack of water can undermine human security".

This statement, like many others, links water to security. That this association is drawn is hardly surprising, given that it is a resource essential to human survival, there are widespread scarcities of supply, water has value in economic terms, and there is the fact that some water bodies

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are of strategic significance as, for example, in the Middle East. The extent and intensity of social, environmental, economic and strategic problems associated with water are bound to increase in the future. In the *Global Environmental Outlook 2000* (UNEP, 1999), it was reported that 20 per cent of the world's population already lacks access to safe drinking water and that 50 per cent of the population do not have access to adequate sanitation. In its 2003 *World Water Development Report—Water for People, Water for Life*—the UN estimated that up to 7 billion people in 60 countries could face water shortages by the middle of this century (UNESCO, 2003). In 2000, 2.2 million people died from water sanitation related diseases and a further 1 million from malaria. The lack of access to both potable water and adequate sanitation is particularly acute in Asia (Fig. 1).

In the context of an increasing world population and the seemingly inexorable processes of industrialisation and urbanisation, many are predicting a global water crisis. According to UNEP's *Global Environmental Outlook* report: "Water security, like food security, will become a major national and regional priority in many areas of the world in the years to come" (p. xxii). Postel (1996, p 47) similarly predicted threats to human security as a result of increased competition for water, observing that: "Neither governments nor the international community is prepared for the internal social disruption and external conflict that could result as water scarcity deepens and spreads". Analyses of water scarcity issues typically emphasise the implications for human health and survival, the potential for economic disruption, and the extent of water and related environ-

mental degradation. Some authors have suggested that the threats posed by these various dislocations are potentially significant enough to bring about violent conflict (e.g., Postel, 1996), though others are sceptical about such claims (Wolf, 1999).

The IHDP's Global Environmental Change and Human Security project (GECHS, <<http://www.gechs.org/>>) maintains a core interest in understanding the links between water, global environmental change and security. Unlike those who have approached the environment and security issue from the perspective of national security and the potential for violent conflict (e.g., Homer-Dixon, 1994), the GECHS research agenda is based on a definition and conceptualisation that is much more broadly based. The term "human security" is used to characterize environment and security problems in ways that emphasize the importance of the 'human dimension'. This has been achieved through a recognition that the cultural, institutional, social, economic, and participatory aspects should be at the forefront of the analysis of human security in relation to the environment. Essential to this approach is the need to consider the place of the poor and the dispossessed. How do issues of access to, and the use of, water affect their security? And; how do extant human insecurities amongst the underprivileged influence their patterns of water use? These understandings are essential to increase our comprehension of the globally significant issue of human security in relation to water, and to develop the appropriate response mechanisms that will lead us toward both environmental sustainability and human security.

Human insecurities in relation to water manifest themselves in various ways. There are, for example, shortages of water—either in absolute terms or in terms of access to water of adequate quality for human use (particularly drinking). On the simple indicator of water available in relation to population (Fig. 2), Asia is water stressed, though there is wide variability across the continent: in Southeast Asia, for example, water shortages for the most part have been localised and of limited duration. As Gupta (1998) argued at an APN funded workshop on Water and Human Security in Asia and Oceania, though, the demand for water has increased due to the combined effects of a rising population, increased levels of consumption, the expansion of agriculture, urbanisation, and industrialisation. These increases in demand for water have occurred at the same time supply has become less dependable due to the degradation of the physical environment. The root causes of water stress in the region, he argued, lie partly in mismanagement by people.

At this same APN workshop Elliot (1998) argued, though, that water insecurity must be understood as more than just the per capita availability of clean water: "A human security approach to water insecurity mandates attention to inequities in access to water resources and the often inequitable social, economic, and environmental consequences of water management policies and practices". There is also an important cultural dimension; human security is undermined by culturally inappropriate uses of water and conflicts over water resources often uncover the fundamentally different "constructions of identity"—constructions that sit at the

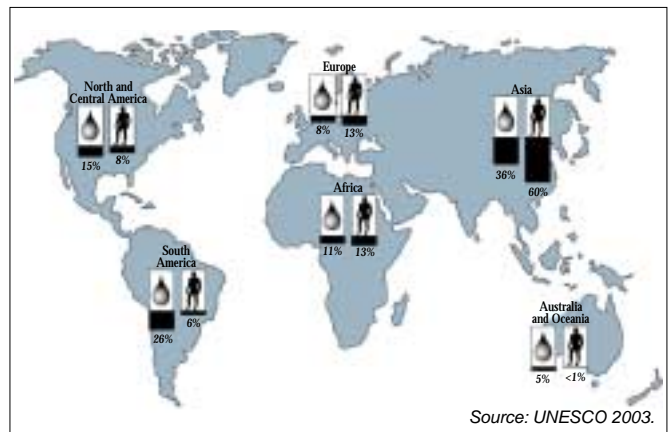
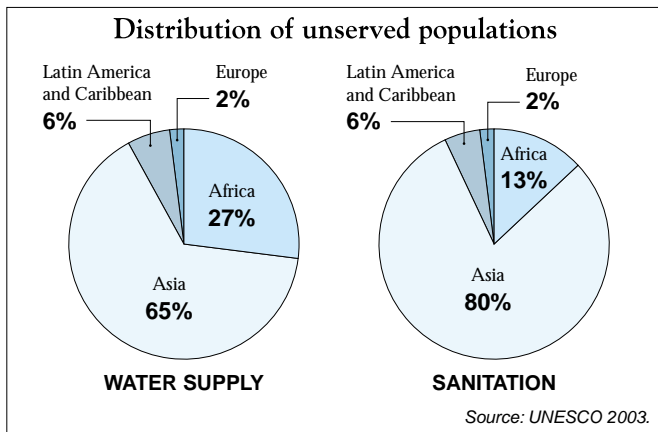


Fig. 1: Percentage of population unserved by water supply and sanitation.

Fig. 2: Water availability in relation to population.



For these people, housed beside the Tonle Sap River in Phnom Penh, the river is a source of food, a means of transportation, and supplies water for basic household needs. Human activities have the effect of degrading water quality, which can in turn undermine human security. Photo by author.

heart of the human dimensions of security (Cocklin, 2002).

Throughout Asia there is also an essential dilemma arising from the use of water resources for large-scale development projects, such as hydropower and irrigation, and the impact such developments will have on the social, economic, and environmental aspects of current lifestyles. The existing institutions are not well equipped to resolve this dilemma and the potential for conflict, which inevitably undermines security, is substantial. While the geopolitical threats to security have abated to some extent in the region, the new economic pressures for development presage equally widespread conflict, this time over natural resources. The Mekong River basin, for example, is an arena of contested resources and contested development visions. There, as in other parts of Asia, human security is under threat in multiple respects—socially, culturally, economically and in relation to the access to and use of a fundamental resource, namely water.

Through GECHS, the IHDP is concerned with developing new ways of looking at water and security issues, which emphasize a more integrated, human-centred perspective. Water is directly and indirectly a central component of security for people and communities. The reflexive relationship between water and human security, the inseparability of the social and physical dimensions of the resource, and the need for integrated management, cooperation, and cultural recognition are recurrent themes; they warrant a significantly increased investment in research and understanding. The heart of the

analysis should be the ‘human dimension’ of security in relation to water. This would emphasize the cultural, institutional, social, economic, and participatory aspects of the relationship between people and water. There is an essential and urgent need for more research into appropriate models of resource allocation and use that will provide for increased human security.

In terms of the future, instead of dealing only with technological issues surrounding the quantity and quality of freshwater, it is clear that issues of culture, integrated resource assessment, broadly-based participation in decision making, and cooperation among various stakeholders are not only important when dealing with water resource management, they are crucial. A failure to acknowledge and imbed participatory and inclusive approaches to water resource management will erode human security. Human security is undermined when human values and aspirations are overlooked in the development and use

of water, but there is simultaneously the potential to revalue human security through more inclusive, participatory and integrated approaches to resource allocation and management. There is a compelling case for a significantly enhanced investment in research and practice to achieve this revaluation of the human dimension. [APN](#)

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Water quality is essential to human food security. In some parts of the Mekong Basin, fish provide up to 80% of protein in diets. Degradation of water quality could lead to significant impacts in terms of human nutrition. Fishing in the Mekong River, Vientiane, Laos. Photo by author.

APN SPONSORED PROJECT 2003-06 “PABITRA NETWORK FOR COLLABORATIVE RESEARCH ON THE ECOLOGY OF GLOBAL CHANGE IN ISLAND LANDSCAPES OF THE TROPICAL PACIFIC”

PABITRA, the Pacific-Asia Biodiversity Transect Network, serves as the task force of the Pacific Science Association (PSA) for coordinating ecosystem research on island landscapes for the sustainability of biodiversity. A primary objective is to study the ecology of global change with involvement of Pacific islanders and conservation scientists in mutually agreeable capacity building for understanding the dynamics of ecosystems in island landscapes, which are the principal life support systems. An associated objective is the integration of natural science with social, cultural, and economic studies and to provide information for policy making with regard to ecosystem management as based on the islands' limited natural resources.

To accomplish this task, PABITRA uses a combination transect approach: horizontal, cross-island ecosystem studies within the same Pacific-wide biomes, and vertical, tri-zonal ecosystem studies including the upland/inland forests serving primarily as watershed covers, the agro-ecosystems usually below or integrated in part with the upland/inland forests, and the coastal zone habitats. PABITRA has developed a standard methodology for biodiversity assessment, which lends itself to interdisciplinary research across all Pacific islands. It promotes partnership development and trans-disciplinary information outreach. The global change

parameters recognized by PABITRA scientists include, enhanced levels of carbon dioxide with concomitantly enhanced green-plant metabolism, enhanced climatic perturbations and biological invasions, increasing fragmentation of natural habitats and loss, increased fire frequency and intensity. Rapidly changing market conditions are related to global stress factors. All impinge on biodiversity, the living indicators of global change.

Expected outcomes of the PABITRA project are (1) The participation, cooperation, and training of indigenous island scientists, graduate students, managers, policy makers, and land owners. (2) An enhanced understanding of ecosystem dynamics and its effects on island landscapes and its people. (3) Provision of tools and information needs for sustainable development without destruction of the essential island ecosystem services. (4) Improved communication among islanders with personal contacts promoting peaceful coexistence. (5) An integrated network of PABITRA sites, from isolated islands to those closer to continents.

APN Project 2003-06 was funded in April 2003. An initial synthesis meeting was held in Samoa from 9-16 June. It began with two PABITRA overseas collaborators (Dr. D. Mueller-Dombois and Dr. Art Whistler) and a local PABI-

TRA coordinator, Dr. Nat Tuivavalagi, making visits to NUS (The National University of Samoa), SPREP, the Alafua Campus, The Ministry of Environment, and a local NGO. Two full days were spent in conferences at NUS introducing the PABITRA concept and reviewing data in the form of land cover maps, check lists and existing environmental data. Two fieldtrips were organized, one around Upolo Island and a larger field trip to the neighboring island Savai'i. The second fieldtrip involved a number of hikes to investigate potential coast-to-mountain transects. A final conference day was spent discussing further information and data needs (e.g. air photo coverage), and the need to involve young scientists and land managers for a second, larger workshop. The timing for this was planned with NUS faculty involvement and set for November 25 to December 5, 2003. Currently, a number of preparations are underway including data collection and the preparation of logistics with an agenda to bring twelve overseas collaborators, resource people representing different disciplines and at least an equal number of local participants together for a major field workshop in Savai'i. [APN](#)

For more information about this project and PABITRA, please see: <http://www.botany.hawaii.edu/pabitra/>

REGIONAL NEWS



OCEANIA

4-8 August, 2003. Regional Workshop on Gender, Energy and Sustainable Development. Nadi, Fiji. The workshop brought together relevant stakeholders from the energy sector, donors, and partner organisations

within the region with the aim of developing regional strategies and national action plans that would assist in creating awareness and identifying barriers in the energy sector.

These strategies built and further expanded on relevant components of the strategic plan of Pacific Islands Energy Policy and Plan (PIEPP) endorsed during the Regional Energy Meeting in Rarotonga in July 2002. The workshop was supported by the following organi-

sations: Energia, Pacific Islands Forum Secretariat, SOPAC, Taiwan, ROC, UNDP and UNESCO.

4-8 August, 2003. Barbados +10 (BPOA+10) Preparatory Meeting. Apia, Samoa

The regional meeting was coordinated by SPREP in preparation for the BPOA+10 meeting in 2004.

In the lead up to the BPOA+10, participation by this region aims to:

1. Ensure Pacific Island Countries' priorities are not marginalised in the global debate;
2. Reinvigorate political support for existing agreements and programmes that are essential to the sustainable development of people in the region, their environment and resources;
3. Promote new and existing partnerships beneficial to the sustainable development of the region including the outcomes of the WSSD; and
4. Secure new and additional resources to build capacity for sustainable development.

4-7 August 2003. Regional Meeting on Ozone Phase-out. Nadi, Fiji

Pacific Island Countries met in Fiji to fine tune the world's first regional strategy, for phasing out ozone-depleting substances in the Pacific region. Under the Montreal Protocol, nearly U.S\$1m dollars is being granted by the protocols funding committee to assist with the work being managed by United Nations Environment Programme (UNEP), with support from Australia, New Zealand and the South Pacific Regional Environment Programme (SPREP).

The Federated States of Micronesia, Kiribati, Marshall Islands, Palau, Solomon Islands, Tonga, Tuvalu and Vanuatu all plan to be rid of chlorofluorocarbons (CFCs) by 2005. However, since 2000, Fiji has cut its entire CFC use, while the Cook Islands and Niue are currently preparing to ratify the Protocol, with assistance from New Zealand.

The regional strategy involves the eradication of harmful ozone, combining monitoring actions, regional facilitation, training and public awareness. Internationally close to U.S\$800m dollars is being made available.

11-12 September 2003. Practical Strategies for Achieving Equitable and Sustainable Water Use in the Pacific. University of the South Pacific, Fiji.

The Development Studies Network at the Australian National University in collaboration with the University of the South Pacific, TEAR Australia, WWF Pacific, Live & Learn Environmental Education and SOPAC organised a two-day workshop to develop practical strategies for improving com-

munity involvement and communication in water use and management. The workshop was a follow up on recommendations from the Pacific Regional Consultation on Water in Small Island Countries, Sigatoka, Fiji, in July 2002 regarding community participation in water management and communication/advocacy for sustainable water use.

The workshop provided an opportunity to:

1. Discuss on-the-ground experiences related to community participation and communication for sustainable water use;
2. Share lessons learned; and
3. Develop realistic strategies for implementing the recommendations from the Pacific Regional Consultation.

The strategies emerging from the workshop included practical activities for creating dialogue about sustainable water management between communities as well as between communities and government, and communities and aid donors.

Compiled from report by APN Liaison Officer, Ms. Leigh-Anne Buliruarua

SOUTH ASIA

26-27 May 2003. National Workshop on Spatial Information Analysis for the Sustainable Management of the Indus Basin in Pakistan. Islamabad, Pakistan

The workshop explored existing and potential utilization of modern spatial information technologies in improving the sustainable planning and management of water resources in Pakistan, with a special emphasis on the Indus Basin system. Environmental and social issues, such as salinity, water pollution, water logging, poverty, and water security, have long been identified as the principal threats to the sustainability of Pakistan's vital Indus Basin irrigation system. The recent onslaught of persistent drought conditions and predicted water shortages have highlighted the need for improved analysis, management, operations, and planning tools, utilizing the latest advances in informa-

tion technology, and this workshop addressed these formidable challenges. The workshop also brought together key agencies, researchers, NGOs, modern information system providers, and experts to discuss the issues, constraints, and opportunities in developing a collaborative and comprehensive spatial knowledge base relating to environmental and social issues in the Indus Basin, as well as strengthening other information management and analytical decision support tools for basin management. For more information on the workshop, please visit the web site at: <http://www.worldbank.org.pk>

15-17 July 2003. National Meeting on Regional Awareness-Cum-Training Workshop for Preparation of People's Biodiversity Registers. Pune, India

A National Meeting on Regional Awareness-Cum-Training Workshop for Preparation of People's Biodiversity Registers was held at the Indian Institute of Tropical Meteorology, in Pune. It was jointly sponsored by the Centre for Ecological Sciences, Indian Institute of Science, Bangalore and Biotech Consortium India Limited, New Delhi. During the meeting, a number of issues related to biodiversity were discussed.

Announcement: Establishment of Environment Information System (ENVIS) Node at Indian Institute of Tropical Meteorology, Pune, India for Data Assimilation and Visualization.

Under the 'Environmental Information System (ENVIS)' program of the Government of India, a new ENVIS node on "Acid Rain and Atmospheric Pollutant Modeling" has been established at the Indian Institute of Tropical Meteorology (IITM), Pune (Principal Coordinator-Dr. Gufran Beig, IITM, Pune). This node has been designed to build up an inventory of information material on the above subject area, disseminate information/ data electronically and provide an interactive web page for this purpose. A web site has also been developed and maintained by IITM for this ENVIS node (URL: <http://envis.tropmet.res.in>) which also contains a graphical online view of vari-

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ations of atmospheric concentrations of NO_x, CO, O₃, CH₄, etc., which are being monitored continuously at Pune.

Compiled from report by APN Liaison Officer, Dr. C. Sharma

SOUTHEAST ASIA

3-5 July and 23-24 July 2003. Aquatic Chemistry and Global Change Research: An Intra-regional Capacity Enhancement Cooperation between the National University of Laos and Chulalongkorn University, Vientiane, Lao PDR.

This cooperation was initiated by Chulalongkorn University's (CU) Department of Marine Science to offer a series of training on various analytical techniques for aquatic chemistry related to greenhouse gases and climate change for their counterparts at the National University of Laos (NUL). Two trainings were conducted at NUL Dong Dok Campus in Vientiane (Department of Chemistry) on 3-5 July and 23-24 July 2003 on nutrient analysis and on alkalinity and carbonate chemistry, respectively. The key resource persons from CU were Drs. Wilaiwan Utoompurkporn and Anond Snidvongs, and about 15 lecturers and senior students of the NUL's Faculty of Sciences attended these two training courses. Funding for these training activities were provided by the US National Science Foundation (NSF) Project on "Carbon Export to the Atmosphere and Oceans from the Humid Tropical Drainage Basins of Southeast Asia" award to the University of Washington. Additionally some laboratory equipment has also been donated by the National Sun Yat-sen University, Taiwan to support NUL involvement in the SARCS sponsored "South China Sea Regional Carbon Pilot Project." Over the next 3 years these Laotian scientists will participate actively in these regional projects to study the carbon and carbonate chemistry in the fluvial system of Southeast Asia.

21-26 July 2003. Application of Remote Sensing, Geographic Information System and Hydrodynamic Modeling for Flood Management Training. Hanoi, Viet Nam.

This training course was managed by the Department of Dyke Management, Flood and Storm Control, Ministry of Agriculture and Rural Development,

Viet Nam. The co-organizers of the Training included the School of Advanced Technologies, Asian Institute of Technology-Thailand; Japan-Viet Nam Geoinformatics Consortium; Space Technology Applications of the United Nation Economic and Social Commission for Asia and the Pacific; and UNDP Project VIE 97-002. The purpose of the meeting was to provide Vietnamese planners, decision makers, disaster management authorities and technical staff at central and provincial levels with basic knowledge of the latest achievements and developments in the field of remote sensing and GIS technologies. This knowledge had helped authorities to design policies and to make timely decisions for better management and mitigation of flood and flood-incurred damage in their area of responsibilities. In addition to the Vietnamese participants, 6 trainees from Lao PDR, Cambodia, Nepal, Bangladesh, Pakistan and Burma also attended this training. During the training, the trainees exchanged experiences which promoted international cooperation in disaster mitigation and management, and in the integration of hydrodynamic models, remote sensing and GIS technologies into flood mitigation projects. Furthermore, the participants learned more about flood-GIS based approaches, flood inundation mapping and flood warning and evacuation system; flood forecasting and inundation modeling; principles of remote sensing and its applications; MODIS data processing and utilization; managing and sharing disaster related information using open source software; and flood risks analysis.

4-22 August 2003. Southeast Asian Participation in the Training of Advanced Institute on Urbanization, Emission, and the Global Carbon Cycle. Boulder, Colorado, USA.

Four researchers based in Indonesia and Thailand joined the training component of the Advanced Institute on Urbanization, Emissions, and the Global Carbon Cycle held at NCAR in Boulder, Colorado, from 4-22 August, 2003. Those participants were Po Garden, Dewi Galuh Condro Kirono, Shanty Syahril and Danai Thaitakoo. The training was organized and sponsored by the National Center for Atmospheric Research (NCAR), START, David and Lucille Packard Foundation,

the Inter-American Institute for Global Change Research, the Global Carbon Project of IGBP-IHDP-WCRP, and the City and Industrial Transformation Project of IHDP.

This Institute allowed young natural and social scientists, engineers, and urban planners to critically examine the most environmentally significant interaction of cities with their environments: their emissions of both long-lived greenhouse gases and short-lived polluting gases and particulates. The Institute comprised three components; i.e. intensive training, follow-up research, and the final workshop.

In the first component of the intensive training, the curriculum emphasized the trans-disciplinary thinking and interdisciplinary collaboration including conceptual frameworks for the study of urban ecosystems and urban metabolism; the methodologies for estimating and measuring emissions of green-house gas (GHG) from metropolitan regions and their application in developing regions; the socio-economic factors controlling urban emissions including urban form, density, infrastructure, and transport modalities; the institutions and incentive/disincentive systems for managing urban carbon and GHG emissions and their likely impact; the innovative technologies and their potential impact on emissions; and, the future trajectories of urban emissions as a component of the global carbon cycle.

Follow-up to this initial training workshop will include a competitive seed grant program designed to provide the opportunity and resources for trainees to conduct research that applies new concepts and methods within their ongoing programs. The trainees and their institutions should engage in ongoing and emerging international networks such as the Cities and Industrial Transformation Projects and the Joint Carbon Project. Institute faculty and members of the international advisory committee will serve as mentors in research design and implementation. Participant's pre-proposals were refined during the training.

The final component of the Institute will be a summary workshop to provide an opportunity for participants to

meet, report, and discuss research results, and plan further collaborative activities.

20 August 2003. International Seminar on Innovation Model for Sustainable Water Resources Management "GAME-T Crystallization."

Bangkok, Thailand.

The International Seminar on Innovation Model for Sustainable Water Resources Management "GAME-T Crystallization" was organized by the Research and Training Center on Resource Management and Geoinformatic System, Faculty of Engineering, Kasetsart University on the 20th August 2003 in Bangkok Thailand. It was co-supported by the National Research Council of Thailand and the Institute of Industrial Science, University of Tokyo. During the seminar, participants from several countries such as Japan, India and Thailand discussed recent results of hydrology and meteorology for GAME-T region where the importance of the interaction between monsoon hydro-meteorology and social studies was realized. Proceeding this seminar, the International Symposium on the Climate System of Asian Monsoon and its Interaction with Society will convene from 11-13 November 2003 in Khon Kaen, Thailand to address the results of the completed and ongoing hydro-meteorological research activities in the region and the future plans of the extension and interactions.

28-31 August 2003. Regional, Multi-Scaled, Multi-Temporal Land-Use and Land Cover Data to Support Global Change Research, and Policy Making: A SEARRIN LUCC Project Training Workshop.

Hanoi, Viet Nam.
This APN supported workshop was organized by the Center for Global Change and Earth Observations at Michigan State University and co-hosted by the Japan-Viet Nam Geoinformatics Consortium and Hanoi University of Mining and Geology. Participants of the workshop comprised Southeast Asia Regional Research and Information Network (SEARRIN), Co-Principal Investigators or their representatives from Cambodia, Indonesia, Lao PDR, Malaysia, Philippines, Thailand and Viet Nam and a SEARRIN partner from China. The opening

ceremony of the Workshop was presided over by Professor Bui Hoc, Rector of Hanoi University of Mining and Geology and Dr. Nghiem Vu Khai, member of the Viet Nam National Assembly. Professor David Skole, APN 2003-08 Project Leader and Dr. Anond Snidvongs, APN Liaison Officer for Southeast Asia were also presented and gave remarks to the workshop. During the main part of the workshop, resource persons from Michigan State University trained participants on fractional cover assessment techniques using remotely sensed data as well as FAO/UNEP Land Cover Classification System. SEARRIN Co-PI's also had opportunities to discuss about a future project plan and coordination among validation sites and a regional data system.

15-19 September 2003. The Second Workshop on South China Sea Storm Surges, Waves and Ocean Circulation Forecasting—A Hands-on Ocean Forecast Training Laboratory for the South China Sea Region.

Kuantan, Malaysia.
The Second Workshop on South China Sea Storm Surges, Waves and Ocean Circulation Forecasting—A Hands-on Ocean Forecast Training Laboratory for the South China Sea Region was a follow up to a workshop previously organized by the Tropical Cyclone Panel of the World Meteorological Organization, Joint Commission on Oceanography and Marine Meteorology, and Intergovernmental Oceanographic Commission, in Hanoi, Viet Nam in January 2002. The first workshop addressed capacities for ocean forecasting amongst different nations within the South China Sea region, as well as recommended strategies and actions for the establishment of modern forecasting services for, in particular, waves and storm surges connected with the occurrence of tropical cyclones.

This second workshop, organized from 15-19 September 2003 in Kuantan, Malaysia, was in direct response to this request. It was structured as a hands-on training laboratory for ocean forecasting, and, aimed to familiarize attendants from South Asia, Southeast Asia, and East Asia with the elements of operational wave and storm surge forecasting associated with tropical cy-

clones by using a set of different cyclone forcing fields and a set of wave/storm surge forecasting models. The workshop was participated by 26 participants from 17 Asian countries with resource persons from India, Japan, Norway and Thailand.

Compiled from report by APN Liaison Officer, Dr. Anond Snidvongs

TEMPERATE EAST ASIA

I. Workshops:

June 30-July 11, 2003. XXIII General Assembly of the IUGG, Sapporo, Japan.

The 2003 IUGG General Assembly provided an extraordinary opportunity for earth and space scientists from around the world to gather and exchange expertise, research data, and results. Along with a full scientific program arranged by the IUGG Associations, there was a series of six, half-day symposia with the theme: "State of the Planet: Frontiers and Challenges." Invited speakers explored topics ranging from chaos to predictability, and geophysical measurements to geophysical risk. Four Union lectures by leading research scientists were presented as part of this special focus. These lectures and symposia demonstrated the cutting edge and relevance of geophysical sciences, and identified key challenges for the future.

27-29 August. 3rd Workshop of Regional Climate Model Studies. Shanghai, China.

This workshop was a crucial part of the activities of the APN supported project 2002-02 "A Continuation to Regional Climate Model Inter-Comparison for Asia (RMIP)." The Program of the workshop comprised of 2 main parts:

Part I: Scientific presentations of participating scientists on the analysis of model performance of phase II simulation, mainly on individual models. Re-analysis of phase I results and other studies in relation to RCM studies in general were also presented in addition to the main body of phase II.

Part II: Presentations and discussions on the inter-comparison of Phase II results among participating models and the preliminary results, and the plan for further analysis and publications.

6-10 September. NEESPI Science Plan Review Meeting. Yalta, Crimea/Ukraine.

The main objectives of this NEESPI Science Review Summit meeting was to review the scope of the Science Plan of NEESPI, including the program's international organizational structure, and to gather suggestions to fine-tune the SP and improve its relevance to and synergy with European, Japanese and Chinese research and operational programs in Earth Sciences, as well as to gather support for prospective institutional participants and contributors to the NEESPI program. This meeting was attended by 30-40 invited participants. Program managers and agency representatives who have the institutional and program knowledge and authority to properly represent the research interests, priorities and mandates of research sponsoring organizations, such as NASA, RAS, EC, ESA, EUMETSAT, NASDA and IGBP, as well as scientists not directly involved in the NEESPI Science Plan draft development attended this review meeting.

14-19 September 2003. The 3rd International Methane & Nitrous Oxide Mitigation Conference. Beijing, China

This meeting brought together participants from throughout the world to share experiences in developing innovative, project-oriented solutions to the problem of methane and related nitrous oxide emissions.

The conference also featured detailed discussions on important sources of methane and nitrous oxide, including landfills and sewage management, natural gas and oil systems, coal mining, and agriculture. Participants took part in source-specific discussions on characterizing emission sources, using proven and innovative technologies to reduce emissions, and overcoming the barriers to project development. Cross-cutting themes, such as monitoring and verification procedures, the economics of mitigation, and multi-gas/multi-source analyses featured throughout the conference. Moreover, participation of international experts helped establish a global picture of the potential for expanded methane and nitrous oxide mitigation. The Methane and Nitrous Oxide Conference is the only major international conference series focusing on the mitigation of methane. The first two conferences in the series were held in Kiev, Ukraine, in 1997 and Novosibirsk, Russia, in 2000.

II. Publications:

TEACOM PUBLICATION No. 8 (Reports of the Workshop on the Global Change Studies in the Far East, Vladivostok, Sept. 11-15, 2000)

Proceedings of workshop of APN Project #2002-11: **The Proceeding of the Symposium 2.1 in the 20th Pacific Science Congress, Adaptation of Asia Pacific to Global Change, August, 2003**

Asia Monsoon Environment System and Global Change, Global and Planetary Change 37 (2003), Volume 37, NOS. 3-4, 20 June 2003, ISSN 0921-8181, Edited by Sierd Cloetingh, Ann Henderson-Sellers, Lisa Cirbus Sloan and Paolo Pirazzoli, Guest-Edited by: Congbin Fu and Xiaodong Yan [APN](#)

Compiled from report by APN Liaison Officer, Ms. Yang Ying



Participants of the Regional Climate Model Studies Workshop. Shanghai, China.

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PROJECTS FUNDED BY APN IN 2003/2004

The APN's 8th Inter-Governmental Meeting decided to fund 17 projects from an APN funded activities budget of approximately 750,000 US dollars contributed by the Ministry of Environment of Japan; the National Science Foundation on behalf of the U.S. Climate Change Science Program (NSF/USCCSP); and Hyogo Prefectural Government. Projects may also be funded from other sources not noted here, including in-kind support from countries.

#2003-01: Indices and Indicators for Monitoring Trends in Climate Extremes

Project Leader: Michael Manton, Bureau of Meteorology Research Centre, Australia
 Email: m.manton@bom.gov.au

#2003-02: Applying Climate Information to Enhance the Resilience of Farming Systems Exposed to Climatic Risk in South and Southeast Asia

Project Leader: Holger Meinke, Department of Primary Industries, Australia
 Email: Holger.Meinke@dpi.qld.gov.au

#2003-03: Global Change Impact Assessment for the Himalayan Mountain Region for Environmental Management and Sustainable Development

Project Leader: Kedar Lal Shrestha, Institute for Development and Innovation, Nepal
 Email: klshrestha@wlink.com.np

#2003-04: Water Resources in South Asia: an Assessment of Climate Change—Associated Vulnerabilities and Coping Mechanisms

Project Leader: Amir Muhammed, National University for Computer and Emerging Sciences, Pakistan
 Email: amir@nu.edu.pk

#2003-05: Inventory of Glaciers and Glacial Lakes and the Identification of Potential Glacial Lake Outburst Floods (GLOFs) Affected by Global Warming in the Mountains of India, Pakistan and China/Tibet Autonomous Region

Project Leader: J.G. Campbell, International Centre for Integrated Mountain Development, Nepal
 Email: basanta@icimod.org.np

#2003-06: PABITRA Network for Collaborative Research on the Ecology of Global Change in Island Landscapes of the Tropical Pacific

Project Leader: Dieter Mueller-Dombois, University of Hawaii, USA
 Email: amdhawai@aol.com

#2003-07: 1st International Young Scientists Global Change Conference, November 16-19, 2003, Trieste, Italy

Project Leader: Roland Fuchs, International START Secretariat, USA
 Email: rfuchs@agu.org

#2003-08: Regional, Multi-scaled, Multi-temporal Land-use and Land Cover Data to Support Global Change Research, and Policy Making: a SEARRIN LUCC Project

Project Leader: David Skole, Michigan State University, USA
 Email: skole@msu.edu

#2003-09: Modelling Regional Climate Change for Southeast Asian Countries

Project Leader: John McGregor, CSIRO Atmospheric Research, Australia
 Email: John.McGregor@csiro.au

#2003-10: Building Local Capacity for Global Change Research: the Millennium Ecosystem Assessment Sub-global Activities in the Asia-Pacific Region

Project Leader: Walter Reid, Millennium Ecosystem Assessment, Malaysia
 Email: reid@millenniumassessment.org

#2003-11: 3rd Workshop on Climate Variability and Trends in Oceania

Project Leader: Jim Salinger, National Institute of Water and Atmospheric Research, New Zealand
 Email: j.salinger@niwa.com

#2003-12: The Mega-Deltas of Asia: a Conceptual Model and its Application to Future Delta Vulnerability

Project Leader: Zhongyuan Chen, East China Normal University, China
 Email: Z.Chen@sklec.ecnu.edu.cn

#2003-13: Capacity Development Training for Monitoring of POPs in the East Asian Hydrosphere

Project Leader: Zafar Adeel, United Nations University, Japan
 Email: king@hq.unu.edu

#2003-14: The 2003 Open Meeting of the Human Dimensions of Global Environmental Change Research Community

Project Leader: Ben Malayang, University of the Philippines, Philippines
 Email: mmmm@laguna.net

#2003-15: Travel Support for Asia Marine Scientists to Attend the Final JGOFS Open Science Conference

Project Leader: Mary Zawoysky, U.S. JGOFS Planning and Data Management Office, USA
 Email: mzawoysky@whoi.edu

#2003-16: Integrating Carbon Management into Development Strategies of Cities—Establishing a Network of Case Studies of Urbanisation in the Asia-Pacific

Project Leader: Rodel Lasco, University of the Philippines, Philippines
 Email: rlasco@laguna.net

#2003-17SG: Seed Grant for Proposal Development: Integrating Climate Variability and Human Activities in relation to Northeast Asian Land-Ocean Interactions and their Implications for Coastal Zone Management

Project Leader: Vladimir Kasyanov, Institute of Marine Biology FEB RAS, Russian Federation
 Email: inmarbio@mail.primorye.ru



CALENDAR OF GLOBAL CHANGE RESEARCH ACTIVITIES

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

2003

- 7-9 OCT Global Water System Project Open Science Conference. New Hampshire, USA. Contact: Web <<http://www.gwsp.org>>
- 16-18 OCT **Open Meeting of the Human Dimensions of Global Environmental Change Research Community.** Montreal, Canada. Contact: Web <www.sedac.ciesin.columbia.edu/openmeeting>
- 21-22 OCT International Conference on Tropical Forests and Climate Change. Manila, Philippines. Contact: Rodel Lasco <enfor@laguna.net>
- 29-31 OCT IGFA Plenary 2003. Cape Town, South Africa. Contact: IGFA Secretariat <sfia.wretblad@formas.se>
- OCT TBA **Integrated Environmental Monitoring Capacity Building Workshop.** TBA, Australia. Contact: Dr. Masataka Watanabe <masawata@nies.go.jp>
- 11-13 NOV International Symposium on the Climate System of Asian Monsoon and its Interaction with Society. Khon Kaen, Thailand. Contact: <<http://hydro.iis.u-tokyo.ac.jp/GAME-T/>>
- 16-19 NOV **1st International Young Scientist Global Change Conference.** Trieste, Italy. Contact: Kristy Ross <kristy@crp.bpb.wits.ac.za>
- 16-29 NOV Advanced Training Workshop on South China Sea Regional Carbon Issues. Chung-Li and Kaohsiung, Chinese-Taipei. Contact: SARCS Secretariat: <sarcs@sarcs.org.tw>
- 17-20 NOV 1st Southeast Asia Water Forum: Conflict Resolution and River Basin Organisations. Chiang Mai, Thailand. Contact: Dr. Choomjet Karnjanakesorn <choomjet@mrcmekong.org>
- 18-27 NOV **Pacific-Asia Biodiversity Transect (PABITRA) Joint Workshop.** Savai'i, Samoa. Contact: Dieter Mueller-Dombois <amdhawai@aol.com>
- 18-21 NOV EMECS 2003. 6th International

- 19 NOV Conference on the Management of Enclosed Coastal Seas. Bangkok, Thailand. Contact: EMECS Secretariat <secretariat@emecs2003.com> EMECS 2003. 6th International Conference on the Management of Enclosed Coastal Seas. ASIA-PACIFIC FORUM. Bangkok, Thailand. Contact: APN Secretariat <info@apn.gr.jp>
- 25-28 NOV Workshop on Climate Variability in Asian Monsoon Region: Past to Future. Bangkok, Thailand. Contact: Dr. Prunghan Wongwises <prunghan.won@kmutt.ac.th>
- 1-3 DEC International Workshop on Flux Observation Research in Asia. Beijing, China. Contact: Saoqiang Wang <wangsq@treis.ac.cn>
- 1-4 DEC Open Science Conference on Global Change and the Terrestrial Human-Environment System (Land Core Project). Morelia, Mexico. Contact: Websites: GCTE <<http://www.gcte.org>> and LUCC <<http://www.geo.ucl.ac.be/lucc/lucc.html>>
- 1-11 DEC Training on DSSAT Version 4: Assessing Crop Production, Nutrient management, Climatic Risk and Environmental Sustainability with Simulation Models & GIS Tools. Chiang Mai, Thailand. Contact: Dr. Attachai Jintrawet <attachai@chiangmai.ac.th>
- 8-10 DEC **3rd Workshop on Climate Variability and Trends in Oceania.** Auckland, New Zealand. Contact: Jim Salinger <j.salinger@niwa.com>
- 8-12 DEC East Asian Seas Congress. Kuala Lumpur, Malaysia. Contact: Web <<http://way.to/seascongress>>
- 15-18 DEC **Joint Workshop on Global Change Impact Assessment for the Himalayan Mountain Region and Water Resources in South Asia.** Kathmandu, Nepal. Contact: Kedar Shrestha (mountain) <kshrestha@wlink.com.np> and Amir Muhammed (water) <amir@nu.edu.pk>

2004

- 14-16 JAN Fifth International Conference on Asian Marine Geology. Bangkok, Thailand. Contact: Dr. Thanawat Jarupongsakul <thanawat@sc.chula.ac.th>
- 15-20 JAN Joint International Conference and First Annual Meeting of IGCP-475 DeltaMAP and APN Project (2003-12) on the Mega-Deltas of Asia. Bangkok and Ayutthaya, Thailand. Contact: Dr. Thanawat Jarupongsakul <thanawat@sc.chula.ac.th>
- 20-22 JAN **International Workshop on Global Change, Sustainable Development and Environmental Management in Central Asia.** Tashkent, Uzbekistan. Contact: Svetlana Nikulina <Nikulina@envp.uszci.net>

- JAN TBA **Workshop on Glacial Lake Outburst Floods.** Kathmandu, Nepal. Contact: <basanta@icimod.org>
- 15-20 FEB 2004 Ocean Research Conference. Hawaii, USA. Contact Web: <<http://aslo.org/honolulu2004/>>
- 22-24 MAR **9th APN Inter-Governmental Meeting and Scientific Planning Group Meeting.** Canberra, Australia. **Closed Meeting.**
- 31 MAR-3 APR IOC-SCOR-GLOBEC Symposium on Quantitative Ecosystem Indicators for Fisheries Management. Paris, France. Contact: Philippe Cury <curypm@uctvms.uct.ac.za> or Villy Christensen <v.christensen@fisheries.ubc.ca>
- APRIL TBA **Workshop on Indices and Indicators for Monitoring Trends in Climate Extremes.** Melbourne, Australia. Contact: Michael Manton <m.manton@bom.gov.au>
- 2-6 MAY Fourth World Fisheries Congress. Reconciling Fisheries with Conservation: The Challenge of Managing Aquatic Ecosystems. Vancouver, Canada. Contact: Congress Secretariat <fish2004@advance-group.com> Web <www.worldfisheries2004.org>
- 3-21 MAY Advanced Institute on Vulnerability to Global Environmental Change. Laxenburg, Austria. Contact: Ms. Sara Beresford <sberesford@agu.org>
- 26-28 MAY PAGES Open Science Meeting, Paleoclimate, Environmental Sustainability and our Future. Beijing, China. Contact: Web <<http://www.pages2004.org/>> Email <osm@pages.unibe.ch>
- 21-24 JUNE 6th International Conference on Hydroinformatics. Singapore. Contact: Secretariat: <hic2004@inmeet.com.sg> and Web <http://www.eng.nus.edu.sg/civil/conf/HIC2004>
- 5-9 JULY First Asia-Oceania Geosciences Society Annual Meeting and Exhibition. Singapore. Contact: Cheng-Hoon Khoo <kch@meetmatt.net>
- 1-3 SEP Climate Change in High Latitudes. Bergen, Norway. Contact: Web: <<http://www.bjerknes.uib.no/conference2004/>>
- NOV TBA IUCN World Conservation Congress. Bangkok, Thailand. Contact: Corli Pretorius <corli.pretorius@iucn.org>
- 9-13 DEC Lake 2004: International Conference on Conservation, Restoration, and Management of Lakes and Coastal Wetlands. Orissa, India. Contact: Lake 2004 Conference Secretariat <swadhyn@yahoo.com>
- TBA Third Worldwide Chinese International Conference on Oceanic and Atmospheric Sciences Beijing, China. Contact: Bin Wang <wab@lasg.iap.ac.cn>

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

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