# Project Bulletin

Volume 3, March 2008

Asia-Pacific Network for Global Change Research

**APN Project Bulletin**
**Volume 3, March 2008**


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## Preface

The Asia-Pacific Network for Global Change Research is an international network of member 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 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.

Changes in the Earth system are clearly impacting the societies and economies of the countries within the Asia-Pacific region. These countries support more than half of the world's population. Recent research and supporting observations have provided new insights into some of these changes and their impacts but have, at the same time, opened a number of new and challenging scientific issues. The APN seeks to identify such emerging issues and to promote and encourage regional cooperative research to address these. In doing so, the APN assures that the results of this research contribute to the development of a sound scientific base for decision- and policy-making related to issues for which global change is an important factor.

*As part of its dissemination activities, the present publication outlines abstracts of currently-funded activities in the APN under its Annual Regional Call for Research Proposals (ARCP) and its Capacity Development Programme, CAPaBLE.*

The APN supports and encourages the dissemination of the information contained in this publication and specifically notes that the potential results of the present research and capacity development activities can facilitate policy development relating to Global Change in the Asia-Pacific Region.

*This publication is also available on the APN website*
*www.apn-gcr.org*

Secretariat
Asia-Pacific Network for Global Change Research (APN)

*Left: Field site sampling for ARCP2007-12NMY-Adrianov (see Project Brief on page 17).*

## Section One:
## Projects funded under the Annual Regional Call for Research Proposals (ARCP)


*Right: Major cities in the Yangtze River Delta, China for ARCP2007-13NMY-Li (see Project Brief on Page 18).*

## 1.1 ARCP2007-01CMY-Ziegler

**Project Title:** Sediment Dynamics and Down-Stream Linkages in Tropical Streams as Affected by Projected Land-cover/Land-use and Climatic Change

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**APN Funding:** US$80,000 (For 2 Years)
(Year 3 expected funding US$40,000)

**Project Summary**
The project will increase the understanding of how water quality in headwater streams in Montane Mainland Southeast Asia will be affected by plausible changes in both climate and land-cover/land-use. The goals of the project are two-fold: to investigate the issue successfully during a field study in Thailand; and to develop the capacity to conduct similar projects in China, India, and Viet Nam. The Thailand field study will coordinate with an ongoing NASA-funded study of the role of land-cover change in altering regional hydrological processes under a changing climate. Using sediment dynamics and down-stream linkage data that will be determined in the field study; the project attempts to distinguish the degree of various types of anthropogenic change affecting erosion, sediment delivery, and water quality. The project is generating new data on the potential effects of climate change, which is important for developing sound mitigation strategies, as well as determining non-linear vulnerabilities of natural and human systems. Efforts include transferring the knowledge generated in the study to officials who make sustainability-related policy in the region. To date, the primary field measurement study in Thailand is on schedule. Various aspects of the collaborating NASA project are behind schedule, although this will be resolved soon. More modelling activities are expected as data becomes available for model calibration and validation. Pilot projects have already been initiated in China, Viet Nam, and India.

***Papers Submitted for Publication:***

Guardiola-Claramonte, M., P.A. Troch, A.D. Ziegler, T.W. Giambelluca, J.B. Vogler, and M.A. Nullet. Local hydrologic effects of introducing non-native vegetation in a tropical catchment. *Ecohydrology* (submitted).

Wood, S.H., and A.D. Ziegler. 2008. Floodplain sediment from recent 50-year-recurrence floods of the Ping River in northern Thailand. *Hydrology and Earth Systems Science* (in press).

## 1.2 ARCP2007-02CMY-Koike

**Project Title:** The International Integrated Water Data Access and Transfer in Asia (IIWaDATA) Project

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**APN Funding:** US$ 86,000 (For 2 years)


***Participants at the GEOSS/AWCI International Coordination Group (ICG) Meeting in Bali, September 2007.***

**Project Summary**
This project aims to improve knowledge and enhance prediction of the Asian Water Cycle Variation and its impacts on Water Resources (WR) through integrated observation systems and data management that will ensure relevant data access for research communities. It also aims to support informed decisions on WR management by providing specific tools and methods for transformation of observation data and scientific knowledge into information relevant for policy-makers. A draft implementation plan for the Asian Water Cycle Initiative (AWCI) has been made based on agreement at the 2nd Asia Water Cycle Symposium (AWCS) and the 1st Global Earth Observation System of Systems (GEOSS) Symposium on Integrated Observations (January, 2007). The IIWaDATA or AWCI schemes, a metadata structure of candidate river basins for demonstration and a metadata registry system, were designed based on experiences through the Coordinated Energy and Water Cycle Observations Project (CEOP). In addition, representatives of AWCI participating countries gathered in Bali, Indonesia in September 2007 at the International Coordination Group (ICG) and discussed the draft plan for further science implementation. The 3rd AWCS convened in Japan, December 2007, where the implementation plan was accepted and closer cooperation between GEOSS/AWCI and WCRP/CEOP was strongly encouraged. A report on the outcome of the 3rd AWCS is being drafted and the AWCI science implementation plans distributed and revised in cooperation with the ICG. A data quality control and integration system prototype is being tested by the participants.

***Paper Submitted for Publication:***

Saavedra, O., T. Koike, et al. Flood Simulation Using Rainfall Forecasts in the Huong River Viet Nam, *International Association of Hydrological Sciences (IAHS) publ.*, (submitted).

## 1.3 ARCP2007-03CMY-Nadaoka

**Project Title:** Integrating Support System for Managing Environmental Change and Human Impacts on Tropical Ecosystems in East Asia and the Pacific

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*Participants at a workshop on data exchange practices for science and management.*

**APN Funding:** US$ 56,500
(For 2 Years)

**Project Summary**

Coastal zones in East Asia and the Pacific are vulnerable to disturbances associated with natural climate variability coupled with anthropogenic forcing. Increased environmental loads from adjacent watersheds are of particular concern because of their effects on coastal habitats. The ability to detect, understand and predict coastal environmental changes in a timely and accurate manner is crucial for decision-making. Coastal zones contain complex interactions between social, economic and environmental systems, which need to be considered in managing coastal resources. Global/regional phenomena also need consideration to achieve sustainability in the management and utilisation of coastal resources in both the short and long term. Numerous research and monitoring programmes have been established involving the acquisition of physical, natural and socio-economic data. Most of these target either marine, coastal or terrestrial environments and communities or any combination, but rarely encompass all. There is a need to link science and decision-making stressing the continuum of expertise from basic science to applied science to policy, governance and management. This project aims to strengthen present and future coastal observational and modelling capabilities and decision-making by developing a region-wide, collaborative strategy for data exchange and analysis among coastal scientists and managers.

## 1.4 ARCP2007-04CMY-David

**Project Title:** Integrated Vulnerability Assessment of Coastal Areas in the Southeast Asia and East Asian Regions

**Project Leader**

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**APN Funding:** US $80,000 (For 3 Years)

**Project Summary**

This project recognises that, despite the increasing amount of scientific research that has contributed to improving the general understanding of Global Environmental Change (GEC) and the potential impacts of such change on coastal areas, there are still considerable gaps in our knowledge with respect to how multiple biogeographical and anthropogenic processes interact to create risk. This is being addressed with a regional collaborative effort to focus on the risk potential in coastal areas in Southeast and East Asia. The goal of the project is to achieve an integrated analysis of the complex and dynamic social, economic and environmental factors in this region, their effects on human communities, and their implications for management and governance of coastal systems and adaptation capacities. It focusses on training workshops, which expose regional participants to available tools for assessment and bring together secondary and primary data obtained by scientists from collaborating countries. Further refinement of tools to better suit the region will also be done as necessary. The guiding principle of the whole endeavour is to effectively influence policy and decision-makers in the selection of strategic and sustainable adaptive measures to reduce the future impacts of GEC. In so doing, the project, by achieving its objectives, will determine efficient and effective strategies to link GEC research results with policy-making, governance and conflict resolution.

***Publications Pending:***

Beta version of project webpage came out last February 2008.

Paper on regional and country-by-country analysis of mitigation practice effectiveness submitted to IOC WestPac Conference and IGBP Congress, respectively.

Combined paper entitled, "Accommodating Change in SE Asia," is to be submitted for *ISI publication*.

## 1.5 ARCP2007-05CMY-Lasco

**Project Title:** Linking Climate Change Adaptation to Sustainable Development in Southeast Asia

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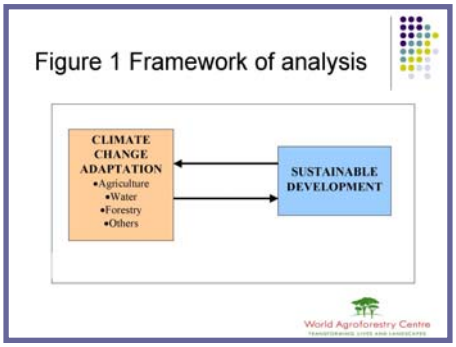
**APN Funding:** US$ 35,000 (For 2 Years)




***Framework of analysis linking climate change adaptation with sustainable development.***

**Project Summary**

Climate change is one of the primary concerns of humanity today and the Intergovernmental Panel on Climate Change (IPCC) Third Assessment Report concludes that there is strong evidence that human activities have affected the world's climate. As the climate changes, increasing attention is given to how societies and natural systems can adapt to a new climate regime. Many countries in Asia are striving to achieve sustainable development, with almost two billion people living at less than US$ 2 a day. The link between climate change adaptation and sustainable development is not explicitly recognised and, in many cases, the climate change community has little interaction with national development planners. As a result, mainstreaming climate change adaptation into development efforts is making little headway. By engaging policy-makers and relevant stakeholders, the project is contributing to the mainstreaming of climate change adaptation to the sustainable development agenda of Southeast Asian countries. The general objective of the project is to clarify the links between climate change adaptation and sustainable development. Specifically, the project aims to synthesise research on adaptation strategies for climate change and climate variability in Southeast Asian countries; analyse the links of adaptation strategies to the sustainable development goals of the countries; hold a science-policy workshop to disseminate the results and solicit recommendations; and publish in a format that is useful to policy-makers and stakeholders.

## 1.6 ARCP2007-06CMY-Huda

**Project Title:** Climate and Crop Disease Risk Management: An International Initiative in the Asia-Pacific Region

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**APN Funding:** US$ 70,000 (For 2 Years)

**Project Summary**
The project has been timely in terms of the growing importance of climate change and climate variability scenarios in developing a network to examine international relationships for sustained operational support for better forewarning of crop disease occurrence. The project now draws on and integrates a diverse body of knowledge that includes agrometeorological modelling, risk analysis, crop disease impact and community interaction. Baseline publications arising from the 2006 workshop to guide the way ahead included those on innovative modelling for connecting climate, crop and pest disease management, coping strategies for agrometeorological risks, agrometeorological services, regional data needs, linking short- and medium-term climate forecasting and institutional and stakeholder collaboration. Some results have appeared in *Managing Weather and Climate Risks in Agriculture*, a Springer publication under the auspices of the World Meteorological Organisation. Field experiments and data analysis for peanut, mustard and canola have indicated the importance of functional relationships between observatory and canopy weather in the development of models for weather-based forewarning systems. Results from these field experiments were discussed during the Bangladesh Workshop in February 2008. The workshop provided opportunities for participants to share their ideas and critically evaluate the results.

***Publications:***

Huda, A.K.S., Hind-Lanoiselet, T., Derry, C., Murray, G., and Spooner-Hart, R.N. 2007. Examples of coping strategies with agrometeorological risks and uncertainties for Integrated Pest Management. Chapter 16 in *Managing Weather and Climate Risks* (eds. Sivakumar and Motha), Springer, pp. 265-280.

Huda, A.K.S., Desai, S., Derry, C, Ramakrishna, Y.S. and Spooner-Hart, R. 2007. Climate and Crop Disease Risk Management: An International Initiative in the Asia-Pacific Region: Proceedings of the Scoping Workshop of 6-8 Nov 2006, Hyderabad, India: Central Research Institute for Dryland Agriculture. 46 pp. (ISBN: 978-81-904360-1-4).

Rathore, L.S. and Stigter, K. 2007. Challenges to Coping Strategies with Agrometeorological Risks and Uncertainties in Asian Region. Chapter 4 in *Managing Weather and Climate Risks* (eds. Sivakumar and Motha), Springer, pp. 53-69.

## 1.7 ARCP2007-07CMY-Oanh

**Project Title:** Investigation on the Impacts of Urban-Rural Air Pollution on Air Quality and Climate in Southeast Asia

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**APN Funding:** US$ 60,000 (For 2 Years)

**Project Summary**

This project investigates the influence of various emissions on air pollution levels and atmospheric climate-related properties. The goal is to initiate measurements of the climate change-relevant properties of airborne particles in two cities, Hanoi and Bangkok, which can be further expanded to other relevant cities in Asia. The focus is on airborne particles (PM), particle composition and key gaseous pollutants emitted from typical sources in the region such as traffic and open biomass burning. During the first year, the project completed sampling activities in Hanoi. All samples were analysed for mass and the chemical composition including ions, elements and Elemental Carbon/Organic Carbon (EC/OC). Data was analysed by the receptor modelling tool to identify major contributing sources of PM. In Bangkok, on-line measurements of climate change-relevant species of particles (i.e. EC/BC and OC), carbon monoxide (CO) and meteorology were conducted using Research Center for Advanced Science and Technology (RCAST) equipment. In addition, PM filter samples were collected and analysed for composition including water soluble OC. The activities in Viet Nam generated useful information on the pollution levels and climate relevant properties of urban aerosols. In particular, EC/OC data are the first of its kind in Viet Nam. The on-line measurements in Bangkok generated substantial data sets and results. Measurements of the climate change-relevant properties of particles in AIT will be completed mid-2008, and a regional workshop will be organised to disseminate the results.

***Publications:***

Investigation on the Impacts of Urban-Rural Air Pollution on Air Quality and Climate in Southeast Asia; *APN Newsletter, Volume 13, Issue 4, October 2007.*

Particulate matter air pollution in Hanoi with a focus on source apportionment study by receptor modelling, (*Manuscript is being prepared).*

## 1.8 ARCP2007-08CMY-DeCosta

**Project Title:** Assessment and Management of Change in Coastal Zones Caused by Salinity Intrusion

**Project Leader**

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**APN Funding:** US$ 70,000 (For 2 Years)

**Project Summary**

Unmanaged extraction of ground water, together with other effects, has resulted in continuous change within fresh water bodies in coastal zones. Changes in catchments' characteristics also interact with socio-economic changes. This project investigates these changes and explores ways of managing the resource/human interactions. It intends to equip policy-makers with the means to facilitate optimisation of multiple objective strategies for the management of change occurring in coastal zones. Currently, the project has enlisted scientists from six countries who are not only working together, but also collaborating with institutions and networks within their countries, resulting in scientific input to policy and decision-making. Since the project started in January 2007, salinity intrusion, including modelling and forecasting, has been studied in key locations in New Zealand and India. Further, the salinity situations in key locations in Japan, Pakistan, Australia and Sri Lanka have been comprehended. Increasing the profile and awareness of change in coastal zones and inland waters has been achieved not only through scientific communication but also through publicity received via the mass media. A research paper developed through this research was sent to the International Association of Hydraulic Engineering and Research – Asian and Pacific Division (IAHR-APD) Congress 2008 and has been accepted for publication in the proceedings and as an oral presentation.

***Publications Pending:***

Two papers resulting from this project are currently being written for publication in the *Journal of Hydrology*, New Zealand.

## 1.9 ARCP2007-09NSY-Skole

**Project Title:** Carbon Financial Markets, Rural Poverty, and Global Climate Change in Southeast Asia – Scoping Workshop, Training and Project Site Development


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**APN Funding:**
US$ 30,000 (For 1 Year)



*Participants at a Workshop in Vientiane, Lao PDR 14-16 January, 2008.*


**Project Summary**
Two of the greatest threats to planetary peace and prosperity are global climate change and extreme poverty. This project is based on the premise that both of these problems can be simultaneously addressed through a single intervention: The promotion of more carbon intensive, or "greener," forestry and agriculture in impoverished rural communities in developing countries. Aside from the combustion of fossil fuels, agriculture and the conversion of forest to agricultural land are the leading sources of greenhouse gas production. For many small-holder farmers in developing countries, the only alternative to a reduction in productivity is to expand the surface area under production. We believe introducing locally appropriate land-use changes, and linking these to the rapidly growing external carbon financial markets, will create the necessary conditions for poverty reduction and greenhouse gas mitigation, while making environmental conservation a profitable undertaking and thereby introducing a new type of sustainability. To achieve the long-term objectives of linking carbon offsets from agro-forestry and afforestation/reforestation activities at the community level with carbon financial markets, training and planning must take precedent. This project supports: (1) a training and scoping workshop, (2) site-based baseline mapping of land use and land cover changes, and (3) site visits for validation and *in situ* biomass measurements.

## 1.9 ARCP2007-10NMY-Baguinon

**Project Title:** Collaborative Studies in Tropical Asian Dendrochronology: Addressing Challenges in Climatology and Forest Ecology

**Project Leader**

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**APN Funding:** US$ 70,000 (For 2 Years)

**Project Summary**

The project provides new information about regional climate and environmental change in three areas for use by policy-makers. The first is the development of two dendrochronology laboratories, at the University of the Philippines Los Baños; and at the University of Peradeniya, Sri Lanka. These facilities will complement existing laboratories in India and Thailand. Working together, all four facilities will engage in intensive investigation of tree species in the Indomalayan sub-region, enhancing regional capability for paleoclimatological research. There is an ongoing investigation and documentation of tree species with annual rings in per-humid to humid tropics. The goal here is to expand the existing network of tree species useful for climate and ecological studies and to publish a series of field guides of useful tree species from the respective regions. Finally, the data generated from the project will be analysed to provide a better understanding of the variability and dynamics of climate across the Asian tropics, and to monitor the response of tropical forest systems to changes in climate and ecology. This information will be provided to governmental agencies, along with suggestions for implementation toward improved risk assessment policies and improved disaster-readiness capabilities.

***First Project Meeting in Bangkok (top) and hands-on dendrochronology study by the research team, Bangkok (bottom).***

## 1.10 ARCP2007-11NMY-Park

**Project Title:** Regional Collaborative Research on Climate Change Impacts on Surface Water Quality in Eastern Monsoon Asia: Towards Sound Management of Climate Risks

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**APN Funding:** US$ 42,000 (For 1 Year)
(Year 2 expected funding is US$ 38,000)

**Project Summary**
Freshwater resources in East Asia are vulnerable to climate change, due to hydrologic variability associated with monsoon systems and increasing water demand from rapid economic growth. To obtain scientific information essential for assessing climate change impacts on water quality, the project uses a combined approach of academic meetings (Module 1), field study (Module 2), and developing risk assessment and management systems (Module 3). The first workshop was held in Chuncheon, Korea on October 7-9, 2007, aiming to provide an overview of key issues related to climate change impacts on surface water quality in East Asia. A synthesis workshop is scheduled on February 2009, to evaluate the data collected from the field study and local monitoring networks to assess 'climate risks' associated with changes in water flow and quality as a function of changes in hydroclimates and pollution. Building on a pilot monitoring of surface water quality at four countries in 2006, two-season water quality monitoring has been conducted at nine watersheds in eight East Asian countries for cross-site comparison of seasonal differences in surface water quality across the East Asia region under monsoon climate. Practical methods for the assessment and management of climate risks to water quality will be developed using risk classification and predictive modelling.

*Water quality monitoring in Lao PDR (top); Cambodia (centre); and Viet Nam (bottom).*

## 1.11 ARCP2007-12NMY-Adrianov

**Project Title:** Marine Biodiversity of the Coastal Zones in the North West (NW) Pacific: Status, Regional Threats, Expected Changes and Conservation

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**APN Funding:** US$ 40,000 (For 1 Year)
(Year 2 expected funding is US$ 30,000)

**Project Summary**
In the heavy populated NW Pacific there are serious anthropogenic impacts on biodiversity, including the extinction of endangered species, anthropogenically induced bioinvasions, biodiversity loss, and ecosystem unbalancing. Coastal zones are the most sensitive areas experiencing long-term modifications in ecosystems and biodiversity. To address the issues of biodiversity assessment and modification, the project aims to: 1) collect information about overall species diversity and to compile species lists of biota; 2) to undertake coastal expeditions to survey inter-tidal and sub-tidal zone; 3) inspect and study the species composition and ecological characteristics of the biofouling communities and ballast waters of ships; 4) study toxic and harmful algae and their effects on fisheries and public health; e) to summarise data on biodiversity loss and modifications on tidal flats; 5) to document species diversity in island's ecosystems as a baseline study for conserving coastal and marine biological diversity. Several activities have been completed including fieldwork in the north-western part of the Sea of Japan, literature synthesis on regional bioinvasions, and analysis of data on the research status of marine biodiversity in China and Russia. A regional workshop with Russian, Chinese, and Korean scientists was held at the Institute of Oceanology Chinese Academy of Sciences (CAS), Qingdao, China. A predictive model of possible future biodiversity changes was developed based on the Holocene biotic modifications of coastal communities in the Sea of Japan.

***Selected Publications:***
Seven peer-reviewed papers and one book have been published to date. Selected publications include:

Pavlyuk O. and Trebukhova Y. 2007. Community structure of free-living marine nematodes in the area of agar-producing alga *Ahnfeltsia tobuchiensis* (Starka Strait, Peter the Great Bay, East Sea). – *Ocean Science Journal*, v. 42, no. 3, pp. 165-170.

Lutaenko, K.A., Zhushchikhovskaya, I.S., Mikishin, Yu.A. and Popov, A.N. 2007. Mid-Holocene climatic changes and cultural dynamics in the basin of the Sea of Japan and adjacent areas. In: D.G. Anderson, K.A. Maasch and D.H. Sandweiss (Eds.). *Climate Change and Cultural Dynamics: A Global Perspective on Mid-Holocene Transitions*. Amsterdam, etc.: Elsevier Inc., 2007, pp. 331-406.

## 1.12 ARCP2007-13NMY-Li

**Project Title:** Quantification of Land-use Urbanisation Level in Three Developing Asian Countries Based on the Analysis of Scale Effects in Landscape Patterns

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**APN Funding:** US$ 30,000 (For 1 Year)
(Year 2 expected funding is US$ 10,000)

**Project Summary**

Urbanisation, as a major driving force of land use and land cover change, has been a significant cause of global change. This process will undoubtedly continue as more and more people are swarming into cities. Urban areas occupy less than 2% of the earth's land surface, while urban population accounted for 50% of world population in 2000. Urbanisation affects land use elsewhere through the transformation of urban–rural linkages. Given that 60% of the people in the world will live in urban areas by 2025, urban land use change will draw more attention from global change scientists. This project quantifies the level of urbanisation from the aspect of land use and connecting land use patterns with urbanisation processes, which is a new attempt to integrate natural and social sciences in land use and land cover change. Other project outputs include an international research team, a database and two project websites: http://apn.ueplab.cn and http://www.usplab.cn/apn. We have trained eight young scientists from China, Viet Nam and the Philippines on advanced methods of remote sensing technology and Geographical Information System (GIS) and urban landscape pattern analysis. Most of the objectives of the project are completed, including the publication of five peer-reviewed papers which is currently being integrated in one technical report for stakeholders and policy-makers.

***Selected Publications:***
Five peer-reviewed papers have been published to date. Selected publications include:

Liangmei Huang, Jianlong Li et al. 2008. A fieldwork study on the diurnal changes of urban microclimate in four types of ground cover and urban heat island of Nanjing, China. *Building and Environment*, 43:7-17.

Liangmei Huang, Dehua Zhao, Jianlong Li *et al*. 2007. Scale impacts of land cover and vegetation corridors on urban thermal behaviour in Nanjing, China. *Theor. Appl. Climatol.*, DOI 10.1007/s00704-007-0359-4.

## 1.13 ARCP2007-14NMY-Dutta

**Project Title:** Climate Perturbation and Coastal Zone Systems in Asia-Pacific Region: Holistic Approaches and Tools for Vulnerability Assessment and Sustainable Management Strategy


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*Country participants at the Planning Workshop in Bangkok, September 2007.*


**APN Funding:** US$ 40,000 (For 1 Year)
(Year 2 expected funding is US$ 40,000)



**Project Summary**
There is increasing concern that current management practices for coastal zones in most countries in the Asia-Pacific region are not sustainable. Sustainable coastal zone management strategies are imperative to avoid extreme social upheaval in developing and developed countries in the Asia-Pacific region. Significant knowledge gaps prevent the development of such strategies, particularly for developing countries, where much of the population, significant infrastructure and large economic enterprises like shrimp fisheries are concentrated in the coastal zones. Lives, livelihoods, infrastructure and the environment are at risk from flood events; and information to facilitate effective planning is required. This project will develop a computer tool capable of predicting the impacts of flood events and water quality on coastal areas in various countries in the region. The model will be made available free of charge to researchers in Australia, Bangladesh, Japan, Sri Lanka, Thailand and Viet Nam. Researchers in these countries will then be able to assess risks and develop sustainable coastal zone management strategies. In addition, the project will provide a policy report detailing key issues and recommended specific action for each of the above countries in order to ensure sustainable management of coastal zone systems in the face of environmental impacts associated with climate change. This will result in the enhanced institutional capacity of the participating countries.

## 1.14 ARCP2007-15NSY-Parish

**Project Title:** Assessment, Synthesis and Promotion/Policy Guidance Related to Integrated Management of Tropical Peatlands to Reduce GHG Emissions and Increase Resilience to Climate Change


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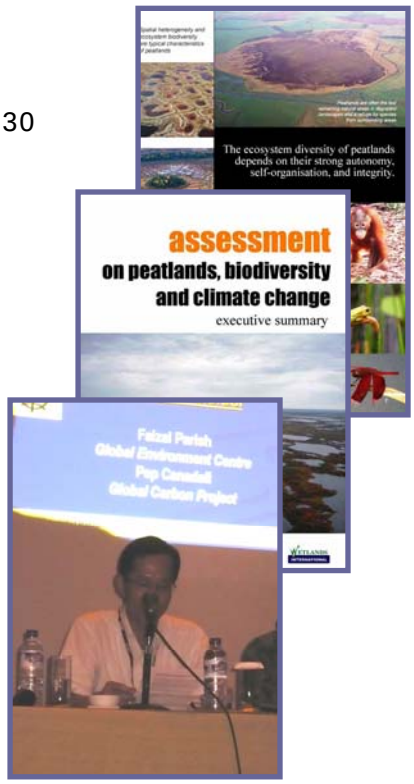
**APN Funding:** US$ 40,000 (For 1 Year)


***One of the inside pages (top) and the cover page (centre) of the Assessment on Peatlands, Biodiversity and Climate Change Executive Summary where the APN project made contributions.***

***APN Secretariat Director, Hiroki Hashizume, gives the opening address at the Bali UNFCCC COP13/MOP3 Side Event, Bali, December 2007(bottom).***


**Project Summary**
The vulnerability of tropical peatland ecosystems to land use change and degradation affects climate change patterns. Understanding the carbon fluxes which increase carbon dioxide ($CO_2$) concentrations in the atmosphere and the exploration of mitigation and adaptation options to reduce the impact from such changes is critical. The project leverages on partnership and collaboration of specialists in climate change and peat- related matters to help assess the changes and impacts as well as promotes strategic policy developments related to tropical peat management in the Southeast Asia (SEA) region. Inputs were provided into the Convention on Biological Diversity 12th Subsidiary Body on Scientific, Technical and Technological Advice (CBD SBSTTA 12) in July 2007 and the United Nations Framework Convention on Climate Change 13th Conference of Parties (UNFCCC COP13) in December 2007, in which the APN Secretariat also participated. The project contributed to the finalisation of a global assessment on peatland biodiversity and climate change. It also facilitated an expert workshop and stakeholder meeting in October 2007 to minimise the impact from palm oil and biofuel production on peatland biodiversity. A user-friendly web-based framework for peatland and climate issues was also developed.

## 1.15 ARCP2007-16NMY-Chen

**Project Title:** Asian Mega-Deltas: Monsoon Circulation in Relation to Deltaic-Coastal Hazards and Future Mitigation: Millennial to Seasonal Dimensions


**Project Leader**
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**APN Funding:** US$ 38,000 (For 1 Year)
(Year 2 expected funding is US$ 20,000)



***Selected photographs from the Dhaka Conference, 6-13 January, 2008.***


**Project Summary**
This project has completed the first of its two-year phase emphasising monsoon circulation in relation to deltaic-coastal hazards and future mitigation. Involved deltas are the Huanghe (Yellow), Changjiang (Yangtze), Zhujiang (Pearl), Song Hong (Red), Mekong, Chao Phraya, Ayeyarwady (Irrawaddy), Ganges-Brahmaputra (G-B), and Indus, etc. A combined pre-meeting and workshop was held on 5-6 July, 2007 in Hanoi, Viet Nam. In addition to a one-day discussion among project leaders, a one-day workshop gathered about 60 local participants to share information with project leaders about the Yellow River, Yangtze River, Red River, and G-B River delta systems. The results were fruitful in knowledge dissemination through communication. The combined APN-IGCP (International Geoscience Programme) conference followed in Dhaka, Bangladesh from 6$^{th}$ to 13$^{th}$ January, 2008. This unique forum demonstrated the results of delta-coast monsoonal processes and environmental hazard assessments. About 100 participants from 18 countries attended, of which 56 were from outside Bangladesh. Bangladeshi government officers and administrators also attended and actively interacted with participants, and listened to comments from scientists. The conference conclusion, warmed by 78 thematic presentations and 25 poster presentations, was followed by a trip to Sunderban wetlands (B-G delta) to view the impact of Cyclone Sidr, which devastated the coastal area.

## 1.16 ARCP2007-17NMY-Espaldon

**Project Title:** Assessing the Vulnerability of Communities and Understanding Policy Implications of Adaptation Responses to Flood-related Landslides in Asia

**Project Leader**
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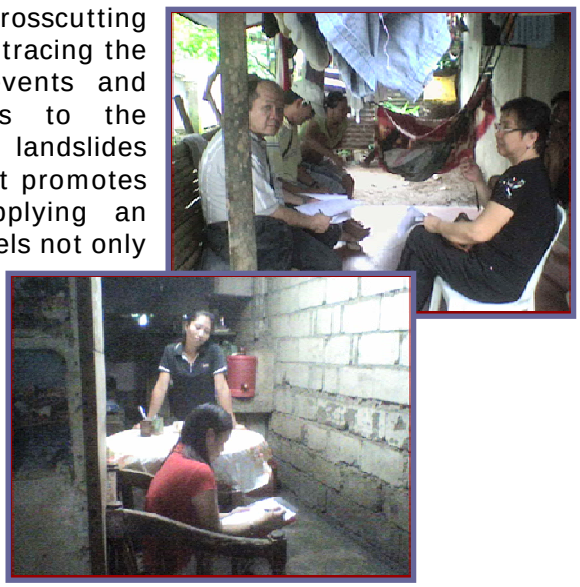
**APN Funding:** US$ 70,000 (For 2 Years)

**Project Summary**

The project addresses three crosscutting themes of APN's science agenda by tracing the links of both extreme climate events and unsustainable land use patterns to the occurrence and consequences of landslides through vulnerability assessment. It promotes the APN's policy agenda by applying an agent-based tool that explicitly models not only the link between affected people and their environment (human ecosystem), but also the decision processes of concerned authorities on adaptation. As the modelling activities require close interaction with policy and planning authorities to provide input to and validate the output of the model, the project facilitates a two-way transfer of knowledge between science and policy. The project aims to identify landslide prone areas in selected countries in Asia, such as China, Nepal, Philippines and Viet Nam and assess their vulnerability to flood-related landslide events by developing an agent-based modelling framework that could be used as a tool for decision- and policy-making. As these countries represent parts of Asia (i.e. East, South, and Southeast) with different economic, political, social, and cultural settings, the project compares the adaptive behaviour of vulnerable people and adaptation decisions of policy-makers.



*Project activities include survey (top) and interview (bottom).*

## 1.17 ARCP2007-18NSY-Nawa

**Project Title:** Using CDM Opportunities to Mitigate the Release of Greenhouse Gases by Improving Waste Management Practices

**Project Leader**
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**APN Funding:** US$ 40,000 (For 1 Year)

*Field trip to a landfill site (top, centre and bottom).*

**Project Summary**
Waste management is not a high priority development agenda in the urban areas of Nepal making both collected and uncollected wastes decompose anaerobically. On the other hand, the resources available for solid waste management in the municipalities is very limited. There is an urgent need to investigate non-traditional funding sources to tackle the problems of solid waste management. The project aims to harness the funding potential of Clean Development Mechanism (CDM) and, at the same time, addresses solid waste management issues. The major project activities included collection of information and organisation of a workshop, which were completed successfully on January 2008. The project introduced a plan for waste management utilising funds available under CDM initiative. The activity is considered relevant to APN topics in three basic ways: 1) it envisions its major focus on greenhouse gases (GHGs) and climate change, and efforts to reduce the emissions; 2) it links its results to sustainable development by addressing the CDM and waste recycling themes; and, 3) promotes capacity building and raises awareness on improving waste management practices to the municipal authorities and development practitioners.

## 1.18 ARCP2007-19NMY-Sheikh

**Project Title:** Development and Application of Climate Extreme Indices and Indicators for Monitoring Trends in Climate Extremes and their Socio-economic Impacts in South Asian Countries


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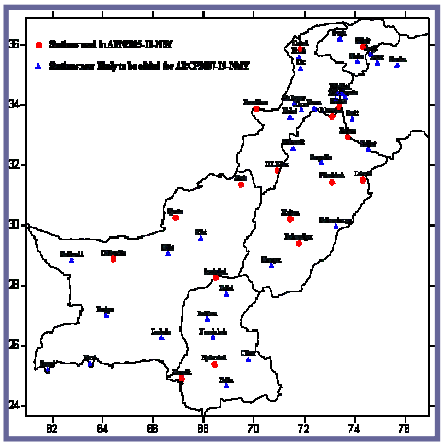
**APN Funding:** US$ 44,600 (For 1 Year)
(Year 2 expected funding is US$ 38,000)

*Meteorological stations in Pakistan being used for temperature and precipitation studies.*


**Project Summary**
There is little doubt that society has become more vulnerable to extreme weather events and changes in landscape use, rapid urbanisation, increased population density and that global climate warming have increased the catastrophic impacts of climate extreme events. The current project is an extension of the APN–funded project APN2005-10-NSY and is being built upon the work completed under that project, now with an expanded network of stations and with all the 27 core climate indices (19 were used earlier) for an extended investigation of climate extremes in participating countries. The participating countries, after having converted their time series data of key climate variables (daily rainfall totals and maximum/minimum temperatures) into high quality metadata by passing it through homogeneity and quality control test, will calculate the climate extreme indices for their respective countries. In the five-day Technical Meeting in Kathmandu, Nepal on 21-25 April 2008, the country reports based on the trends in climate extremes will be presented by each participating country. These extreme indices will then be linked to global climate warming, extreme weather phenomena worldwide and to natural forcing phenomena like El Niño Southern Oscillation (ENSO) and North Atlantic Oscillation (NAO) etc. Research studies using these outcomes will be produced both jointly and separately by the participating countries for their publication in international climate journals.

## 1.19 ARCP2007-20NSG-Kwon

**Project Title:** Development of Indices and Indicators for Monitoring Trends in Climate Extremes and its Application to Climate Change Protection (Seed Grant for Proposal Development)

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**APN Funding:** US$ 10,000 (For 1 Year)
(New proposal is to be submitted and considered in the APN's 2008 Call for Proposals)

**Project Summary**
The trends in 31 extreme climate indices based on surface observation data since the mid 1950s are being examined to monitor significant changes in climate extremes across ten western Pacific countries from Mongolia to New Zealand. Preliminary results demonstrate that since the late 1980s the number of cold days/nights has significantly decreased while the number of hot days/nights has increased and that the trend and magnitude of extremely wet/dry events vary from one location to another. Details have been presented by representatives from each country at the 6th Asia-Pacific Network Workshop in Seoul (February 20-23, 2008). The primary goal of this project is to evaluate currently-used climate indices in detecting fingerprints of current and future changes in extreme climate events along the western Pacific Rim. Spatially-consistent thresholds of indices applicable to all APN countries will be determined through the discussion. The coherence in trend and magnitude of extreme climate events across the region will be examined based on analyses of observations and climate model outputs. Such analyses will aid projections of extreme climate events in the 21st century and develop extreme climatic-event warning systems appropriate to the Western Pacific region. This scoping activity follows five previous APN-funded workshops and, through the seed grant, a proposal will be submitted to the APN for further consideration.

## 1.20 ARCP2006-11NMY-Samarawickrema

**Project Title:** Developing an Integrated Framework for Science Policy Interactions towards Enhanced Management of Coastal Systems in South Asia

**Project Leader**
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**APN Funding:** US$ 65,000 (For 1 Year)
(US$65,000 is expected for a further 2 years: total US$130,000)

**Project Summary**
A significant proportion of the population and the economy of the South Asian region are based within the coastal zone. The sustainable management of the coastal zone requires an understanding of the pressures exerted by natural and anthropogenic drivers in catchments, in the open ocean and within the coastal zone itself, and how the natural and social systems respond to these pressures. The goal of this project is to develop a framework that integrates the different approaches to the assessment of coastal change that have been developed by the natural and social sciences. A key goal of the framework will be to represent the social and economic impacts of changes in natural systems. This framework will be tested and modified by applying it to seven case study sites in four countries in the region. Finally, the framework will be used to assess science-policy interactions in the management of coastal zones and to propose policy options for the case study sites. The project will be implemented by the South Asian Regional Node of the Land-Ocean Interactions in the Coastal Zone (LOICZ) project. The goals of the project are closely related to the LOICZ Science Plan and current priority topics. The project involves natural scientists, social scientists and coastal managers from over twelve institutions in four countries.


*Participants of the First Regional Workshop, Maldives, October 2007.*

## Section Two:
## Projects funded under the CAPaBLE Programme

## 2.1 2005-CB06CMY-Ali

**Project Title:** Socio-Economic Impacts and Lessons Being Learned from the Management of the Social Forestry Program in Bangladesh

**Project Leader**

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**APN Funding:** US$ 20,000 (For 2 Years)

**Project Summary**

Bangladesh is a densely populated country with scarce cultivable land. As such, marginal land like road-sides, road-slopes, encroached land-space, railway sides etc., have been brought under participatory forestry for raising plantations to meet the increasing demand for fodder, fuel and timber as well as for ecological balance throughout the country. Participatory forestry started in 1981 in the north and northwestern parts of Bangladesh covering 23 districts. Subsequently, two more participatory forestry projects were implemented. Many kinds of approaches followed in the social forestry program and the project aims to analyse the best suited approaches for the country to ensure sustainable development for policy and decision-making. Following the interview of more than 210 beneficiaries (i.e., families involved in the social forestry program), we can say that this program has brought much joy among the poor and landless. Prior to their involvement in the program, respondents were unable to secure daily sustenance but later gained useful information, thus improving their livelihood, social status and purchase capacity to an extent. This program has reduced encroachment, developed ownership and reduced theft. The program has also developed and improved the beneficiaries' knowledge with respect to raising a nursery, plantation of saplings in the field, and a complete management system from laying crops to rotation.

*Selected photographs from the Social Forestry Program participation with APN funding.*

## 2.2 CBA2006-12CMY-Boer

**Project Title:** Increasing Adaptive Capacity of Farmers to Extreme Climate Events and Climate Variability through Enhancement of Policy-Science-Community Networking

**Project Leader**
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**APN Funding:** US$ 75,000 (For 2 Years)
(Year 3 expected funding is US$ 20,000)

***Discussion with the wider stakeholder community in capacitating farmers in addressing climate risk at the National Workshop, 15-16 January 2008, Jakarta.***

**Project Summary**
The CAPaBLE team comprises scientists from four agencies: Bogor Agricultural University (IPB), National Agency for Meteorology and Geophysics (BMG HQ), Agency for Agriculture and Research Development (AARD) and Directorate of Plant Protection-Ministry of Agriculture. Ten local scientists from five regions of Bandung, West Java; Makasar, South Sulawesi; Kupang, East Nusa Tenggara; Medan, North Sumatra; and Malang-East Java were recruited for the project. Members of the CAPaBLE team were trained on the use of climate prediction tools, techniques for evaluating climate forecast skills, and the process of developing climate field school modules for different cropping systems. Based on the action research activities and discussion with local agriculture offices and extension workers, the team developed a draft of the climate information application modules that will be used in the implementation of a climate field school. Some of the results of the action research were presented in the National Workshop on *Increasing National Capacity on Adaptation to Climate Change through Cross Sectoral and Regional Cooperation* held on 15-16 January 2008, Jakarta. The Directorate of Plant Protection, Indonesia Ministry of Agriculture, recommended that the CAPaBLE team assist them in developing a national curriculum and implementing a Training of Trainers' in the Climate Field School.

## 2.3 CBA2007-01CMY-Bambaradeniya

**Project Title:** Removing Barriers to Capacity Building in Least Developed Countries: Transferring Tools and Methodologies for Managing Vulnerability and Adaptation to Climate Change

**Project Leader**

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**APN Funding:** US$ 60,000 (For 2 Years)

**Project Summary**

The adaptive capacities of local governments to climate change in Least Developed Countries (LDCs) are often inadequate. There is hardly any available information or database(s) in place that can provide best practice guidelines for managing vulnerability, and mainstreaming adaptation processes into local livelihoods. The digital divide between developed and developing nations has also led to poor technology options available to non-Annex-I countries to assess vulnerabilities and adapt to changing climatic regimes. The project translates global thinking into local actions through building scientific capacities of local governments' technology transfer and other methods for assessing vulnerability and adaptation to global change at local levels. The project emphasises community-based adaptation approaches, and encourages ground level consultations and multi-stakeholder analyses. It aims to link an adaptation policy framework at the ground level with national priorities to help build the scientific capacity of LDC members. The approach encompasses multi-thematic and crosscutting issues that involve scientists, community leaders, policy-makers, academia and the public. Competency-based training modules have been developed including hands-on use of Remote Sensing and GIS. The sub-regional consultations have also laid emphasis on documenting community-based adaptation approaches to provide a platform for sharing best practices/lessons learned.

## 2.4 CBA2007-02CMY-Aalbersberg

**Project Title:** Climate Change Variability Implications on Biodiversity – Youth Scenario Simulations and Adaptations

**Project Leader**
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**APN Funding:** US$ 70,000 (For 2 Years)

**Project Summary**
The Pacific Islands marine and terrestrial ecosystems have some of the most significant biological diversity in the world, where there are pristine ecosystems and habitats, some of which harbour endemic species. These habitats are under threat from the effects of climate change and variability, e.g., adverse impacts on marine, coastal and terrestrial ecosystems undermining food and economic security. Pacific Island communities depend on these for their livelihood and maintaining their traditions and culture. This project uses drama as an awareness raising tool to undertake adaptation measures as a basis for increasing the resilience of communities and ensuring food security and sustainable livelihoods. Youth are the primary target, as they are future custodians of Pacific Islands and their realisation/contribution to community-based resource management is vital to ensuring security and availability of resources for future generation. The project is building regional capacity of four Pacific Island countries (Tuvalu, Solomon Islands, Fiji and Vanuatu) to understand climate change and variability implications on biodiversity through the appointment of a project coordinator, formation of project committee, a two-week regional training of trainers workshop in Fiji, project strategy review, first regional meeting and training of trainers. Individual country capacity is being built to conduct community-based drama and risk assessment workshops. Public awareness-raising drama performances and adaptation activities are also being conducted.

## 2.5 CBA2007-03NSY-Nunn

**Project Title:** Understanding Environmental Decision-Making in the Rural Pacific

**Project Leader**
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**APN Funding:** US$ 43,000 (For 1.5 Years)

**Project Summary**
This project intends to discover how decisions are made about environment management issues in the rural Pacific Islands. The rationale for the project is that much assistance to Pacific Island nations is predicated on the belief that top-down ways of environmental management are more effective than bottom-up ways. This project builds scientific capacity for sustainable development by focussing on understanding how environmental decisions are made in the rural Pacific Islands. This is argued as an essential prerequisite to informing rural communities more effectively in the future, which is something that will contribute significantly to sustainable development through the building of appropriate capacity in various sectors. The project involves nine Pacific Island nationals (from at least four countries) in a tertiary institution being made aware of key issues in contemporary environmental management and being involved in their improved understanding. It also focusses on policy-response interfacing, the logical corollary to science-policy interfacing. It is intended to increase awareness among scientists and higher-level decision-makers about the ways in which their knowledge and their policy filters down to the community level. It is hoped that enhanced awareness as a result of this project will significantly improve informed decision-making about global change among rural Pacific Island communities. The results of this work will be widely disseminated but, as a scoping exercise, this will be a primary focus of a later project.

***Shoreline erosion on Butaritari's south coast. Shoreline erosion and inundation continue to be major threats to the low-lying atolls of Kiribati (top).***

***Research team conducts an interview with the village disaster committee leader in Vanuatu on how the community addresses globally-induced environmental problems (centre).***

***A village elder in Kiribati points out an area that was once used for cultivating root crops. Saltwater intrusion has not only affected agriculture but has also threatened the islands source of drinking water (bottom).***

## 2.6 CBA2007-04-Iino

**Project Title:** Developing Chemical Analysis Capability in India and Pakistan, and Risk Perception on Policy-Makers and People in Asia

**Project Leader**

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**APN Funding:**
US$ 23,200 (For 1 Year)


*Selected photos from the POPs International Symposium held in Jakarta, 14th November 2007.*

**Project Summary**

This project provides the basic training necessary for scientists in India and Pakistan to initiate their own efforts to enhance the analysis capacity of POPs and disseminate POPs-related information in Asia. The project also aims to disseminate project results and risk perception concepts to the stakeholders, which is important for policy-makers in formulating chemical pollution-related policies. Two project trainees, a doctoral student from India and an analytical chemist from Pakistan, received POPs analysis training at the Korean Ocean Research Development & Institute (KORDI) that was organised as part of the APEC activities. A project symposium was held in Indonesia with more than 160 participants. Three international speakers (Australian researcher on Dioxin formation from forest fire, Swiss researcher on risk perception, and Japanese researcher on POPs management) and a University Support to Environmental Planning and Management (USEPAM) project key personnel from Denmark (Danish International Development Agency or DANIDA-supported project with AIT, and the University Support to Environmental Planning and Management) were invited to the symposium and shared their expertise and networks with symposium participants as well as the project partners. A project expert visited the Indian partner in January for a chemical analysis workshop involving academic researchers as well as governmental technical staff members. At the time of writing, a visit to Pakistan was postponed due to unforeseen circumstances.

## 2.7 CBA2007-05NSY-Kelkar

**Project Title:** New Risks of Climate Change – Building Capacity to Protect the Most Vulnerable

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**APN Funding:** US$ 20,000 (For 1 Year)

**Project Summary**
This project focusses on the need to protect the vulnerable communities in developing countries from climate change risks by recognising that a critical role can be played by policy-makers and practitioners not directly dealing with environment and climate issues. These include ministers of finance, water or agriculture, insurance regulators, and microfinance institutions. A modular web-based package is being developed to build the capacity of these stakeholders and address changing risks. In particular, it will attempt to build capacity to systematically screen climate change risks, and modify currently available risk-transfer mechanisms so that products and innovative delivery mechanisms are made available to the most vulnerable communities (like poor rural farmers). The package will use scientific inputs to inform those who have or influence decision-making capacity to prepare for the new risks posed by climate change, including policy-makers, regulators, financial institutions, grassroots organisations, and researchers. The source of literature will be drawn from the IPCC as well as National Communications and National Adaptation Programmes of Action. The package will emphasise sharing of scientific knowledge based on Global Circulation Model (GCM) outputs and integrated impact assessment models. It will use case studies from developing countries to explain the strategies that need to be adopted by both public and private players so that affordable risk-transfer mechanisms can be made available to vulnerable communities.

## 2.8 CBA2007-06NMY-Mathur

**Project Title:** Communicating Economic Implications of Climate Change Impacts and Adaptation Measures to Policy-Makers for Informed Decision-Making

**Project Leader**
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**APN Funding:** US$ 15,000 (For 1 Year)
(Year 2 expected funding is US$ 15,000)

**Project Summary**
This project seeks to demonstrate to local policy-makers ways to estimate climate change damage costs (both 'how much' and 'on whom') and deciding on the kind of investments to be made for different adaptation measures. This information has not been estimated at a district and sub-district level in India. Decision-makers are therefore in no position to make informed decisions on incorporating adaptation measures in resource management planning and minimise any negative climate change impacts. Climate change adaptation will be mainstreamed in the developmental planning process through their interest and capacity built on this aspect, and other complementary projects. Besides policy-makers, the project will also build the capacity of development practitioners and scientists in Development Alternatives (DA), the prime non-governmental organisation (NGO) involved in designing and implementing the natural, resource-based sustainable livelihood projects in the Bundelkhand region. It is building the capacity of DA personnel to research field-related aspects of global climate change and incorporate relevant features while designing their interventions. This will lead to, among other things, improved decision-making processes, greater alignment with existing Government programmes, field-level inputs to processes such as the IPCC, and the enrichment of work of other bodies in the region, such as United Nations Environment Programme (UNEP), via their Environmental Outlook publication.

## 2.9 CBA2007-07NSY-Wang

**Project Title:** Workshop on Monsoon System: Prediction of Climate Change and Variability

**Project Leader**

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**APN Funding:** US$ 50,000 (For 1 Year)

**Project Summary**

The Asian monsoon system exemplifies one of the most complex interactions between the Earth's land surface, ocean, atmosphere, hydrosphere, cryosphere, biosphere, and human activities. During the institute, lectures focussed on monsoon variability on a variety of timescales, the role of land surface hydrology, the effects of ocean coupling, monsoon predictability, and past and future changes. Much of the material discussed during the institute, including the agenda, participant and lecturer bios, and PowerPoint presentations, is available for download at the following website: http://www.start.org/Monsoon2008/home.html
In addition to lectures, each participant presented their current work and plans. Discussion with questions, constructive comments, and suggestions followed the participants' talks. During the second half of the institute session, the participants coalesced into four smaller groups based on their interests and focussed on intraseasonal variability, interannual variability, decadal variability, or prediction and predictability of the Asian monsoon. These focus groups were designed as catalysts for future collaborative activities. As a result, at least one proposal is planned for submission to APN in response to the next Round of ARCP Call for Proposals in 2008.

*Participants at the Monsoon Asia Institute, held in Hawaii, January 2008.*

## 2.10 CBA2007-08NSY-Gordov

**Project Title:** Capacity Building to Understand Interrelations between Atmospheric Composition, Anthropogenic Load and Climate Change in Northern Asia

**Project Leader**
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**APN Funding:** US$ 38,000 (For 1 Year)

*Young Scientists and Lecturers attending the Computational Information Technologies for Environmental Sciences (CITES) School.*

**Project Summary**
The project aims to engage the regional research community, especially young scientists, into professional activities in areas of experimental and theoretical studies of atmospheric composition, air quality and their interrelations with anthropogenic load and climate change in Northern Asia. As an initial step to this end, an international workshop on Atmospheric Composition and Air Quality was organised in Tomsk, July 20-22, 2007. To support this activity continuously, the project will launch a dedicated website as an information system tool aimed at the education/training of young scientists' in this domain. This website will also serve to further integrate thematic educational resources, especially those prepared on the base of the Workshop materials, including the applications of Atmospheric Chemistry and Physics of Climate. The transformation of the website into a powerful instrument for young scientists' training and a platform for dissemination of environmental information to the local population and decision-makers is expected. The outputs of the project will contribute directly to the APN Science Agenda, capacity building activities and sustainable development in the targeted region. In particular, the Workshop promoted the generation and transfer of new findings and methodologies in the areas of atmospheric composition, air quality and climate change and helped identify and assist in the career development of promising young scientists.

## 2.11 CBA2007-09NSY-Soejachmoen

**Project Title:** Capacity Building in Asian Countries on Climate Issues Related to Future Regime

### Project Leader

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### APN Funding:

US$ 45,000 (For 1 Year)

### Project Summary

The activity aims to increase the capacity of research institutes and negotiators in developing countries, namely Indonesia, Thailand, India, Bangladesh and China, in participating in the international climate negotiation. This is a continuation of the APN2005-25-NSY project titled Capacity Building in Asia and the Pacific on Issues Related to Future Actions on Climate Change. The project consists of three work streams. The first work stream is a research activity in Indonesia, Thailand, Bangladesh, India and China aiming to increase the quality of information, including the exchange and production of information, within the region. The second work stream is conducted through national and regional dialogues that will allow the exchange and sharing of information in a non-negotiation ambience to increase the capacity of negotiators and policy-makers. The third work stream is carried out to share the view from the region to the rest of the world through a number of briefing papers and public sessions. It is expected that the increased capacity of involved research institutes will enhance the capacity of developing countries negotiators to be actively involved in the international climate negotiation, especially the one related to the future regime.

***Country briefing papers in English and Native Language for Bangladesh, China, Indonesia and Thailand distributed at the Regional Dialogue, Bali, December 2007.***

## 2.12 CRP2007-01CMY-Dixit

**Project Title:** Improving Policy Responses to Interactions between Global Environmental Change and Food Security across the Indo-Gangetic Plain (IGP)

**Project Leader**
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**APN Funding:** US$ 120,000 (For 2 Years)
(Year 3 expected funding is US$ 60,000)

**Project Summary**

Floods and droughts are recurrent phenomena on the Ganga Basin, affecting food security and other means of livelihood. There is concern among national policy-makers in the IGP that Global Environmental Change (GEC) will seriously affect the production and provision of food in the region, and undermine efforts aimed at socio-economic development. Principal concerns are related to policy formulation in response to changes in the availability, quality and distribution of surface and ground waters, and changes in climate variability and mean values. The improved management of water resources is therefore a central aspect to all of these policy goals, especially in the context of GEC. The project is expected to determine how GEC will affect water availability, and identify the consequences of these changes on food systems in five case study sites across the IGP. By enhancing the understanding of the climate change impacts, the objectives of the study appear even more appropriate because the changing scenario of economic development, diversification of income sources, and increased mobility at local level present both opportunities and challenges for meeting food security. The information required to support appropriate policy formation needed to encompass these local nuances will help tease out the critical issues and enhance awareness among the public, policy-makers and researchers. NWCF is leading the study and is providing the overall project coordination and support to the project.

## 2.13 CBA2007-02CMY-Yan

**Project Title:** 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


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**APN Funding:** US$ 120,000 (For 2 Years)
(Year 3 expected funding is US$ 60,000)



*Jilin province participatory assessment workshop, held 23 October, 2007.*


**Project Summary**
Due to climate change and intensified human activities, water scarcity and land degradation have put the local sustainable agriculture development in great danger for north China, Mongolia and Far East region of Russia, seriously threatening the regional water and food security. This project focusses on the development of an integrated water and food security assessment model, which will contribute effectively to water and food security assessments, and therefore explore the potential of mitigation options and sustainable development opportunities in the region. The main objectives of this research project are to develop an integrated model system to assess the potential adaptation/mitigation options in relation to water and food security at local scale and to provide policy-makers with the much-needed information to achieve regional sustainable development. The integrated model system will incorporate modules from related disciplines, such as climate, ecology, hydrology, and land use/land change. A socio-economic component will be developed and integrated to the system. Now in its second year, the project is focussing on the further development and implementation of the integrated water and food security assessment model.

## 2.14 CBA2007-03CMY-Jintrawet

**Project Title:** Climate Change in Southeast Asia and Assessment on Impacts, Vulnerability and Adaptation on Rice Production and Water Resources

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**APN Funding:** US$ 120,000 (For 2 Years)
(Year 3 expected funding is US$ 60,000)

**Project Summary**
This research project enhances the scientific capacity of Southeast Asia (SEA) on climate change impacts, vulnerability and adaptation. Scientists from Thailand, Viet Nam, Lao PDR and Malaysia are engaged in the research to investigate long-term climate change impacts on crop production and water resources, as well as the vulnerability and adaptation of studied systems. The climate change study is based on projection of a high resolution future regional climate using a climate model to dynamically downscale datasets from GCMs. The climate change impact analysis on rice production will observe rice productivity under different crop management in different seasons. Crop models will be used to estimate future yields of rice cultivation under future climate projections, with data gathered taken into consideration in the model calibration process. This research project also covers the study of climate change impact on water resource by analysing change in risk profile of specific sector from hydrological regime change under different climate scenarios. This research project will also assess vulnerability and adaptation to impact of climate change on agriculture and water resource sectors. Research components of this project are: to generate multiple high resolution long-term climate change scenarios; to study climate change impacts on soil fertility and rice productivity in SEA; to study the impact of climate change on hydrological regime in watershed(s) in SEA; and to assess vulnerability and adaptation of watersheds and agriculture in selected sites in SEA.

## UPDATED PROJECT LEADER CONTACT INFORMATION

Should the contact information of any of the Project Leaders listed in this publication have changed, please kindly fill out the form below and return it by fax or email to:

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| **Contact Details** | |
|---|---|
| *Full Name* (write LAST NAME in CAPS) | *Title* (select as appropriate)<br>☐Dr. ☐Prof.<br>☐Mr. ☐Mrs. ☐ Ms.<br>☐Other _____ |
| *Qualifications/Specialty* | |
| *Specific areas of interest relating to Global Environmental Change* | |
| *Name of Organisation* | *Designation/Position* |
| *Type of Organisation:* ☐Government Agencies ☐Educational Institutions ☐NGOs/NPOs ☐Private Foundations ☐Professional Societies ☐Others | |
| *Business Address* | *Postal Code*<br>*Country* (in CAPS) |
| *Telephone* | *Facsimile* |
| *Email* | *Website* |

This form may also be downloaded from this link:
http://www.apn-gcr.org/en/downloads/blankform_apndirectory.pdf

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