



# COAST TO COAST

A roundup of APN activities  
on marine and coastal research priorities

Asia-Pacific Network for  
Global Change Research



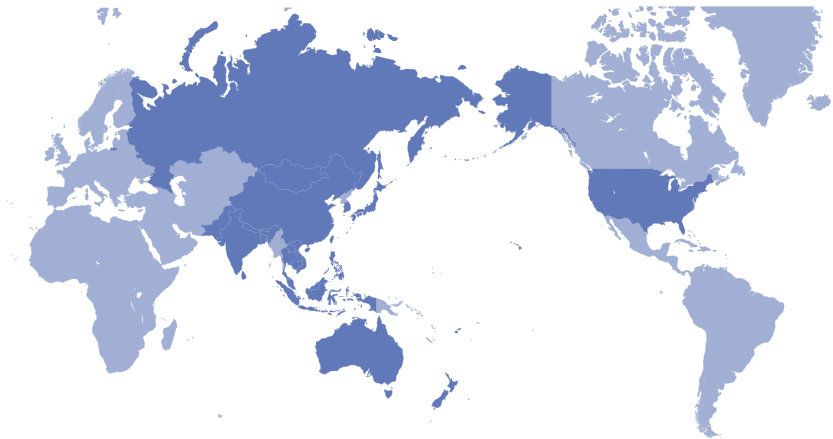
## APN at a glance

The Asia-Pacific Network for Global Change Research (APN) is a network of member country governments that promotes global change research in the region, increases developing country involvement in that research, and strengthens interactions between the science community and policy-makers.

Identify, explain and predict changes in the context of both natural and anthropogenic forcing

Assess potential regional and global vulnerability of natural and human systems

Contribute, from the science perspective, to the development of policy options for responses to global change



## Membership

From 12 countries in 1996, the APN's membership has grown to the current 22 member countries: Australia, Bangladesh, Bhutan, Cambodia, China, Fiji, India, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Mongolia, Nepal, New Zealand, Pakistan, Philippines, Republic of Korea, Russian Federation, Sri Lanka, Thailand, United States of America, and Viet Nam.

**1996**

Year of establishment

**22**

Number of Member Countries as of 2011

**3,422,000**

Financial resources for projects and other activities (2011/2012, USD)

Individuals and organisations in Pacific Island States and Singapore are able to participate in all APN programme activities and are considered to be from an APN Approved Country under the programme participation criterion.

# Core activities

## Annual Regional Call for Research Proposals Programme (ARCP)

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

### Supported activities:

- \* New research which addresses knowledge gaps in key scientific areas
- \* Synthesis and analysis of existing research
- \* Research planning/scoping activities
- \* The development of policy products such as integrated assessments, impact assessments, climate models, etc.

## Scientific Capacity Development Programme (CAPaBLE)

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

### Supported activities:

- \* Scientific capacity development for sustainable development
- \* Science-policy Interfacing
- \* Awareness raising Activities
- \* Dissemination Activities



An aerial photograph of a coastal city, likely Chicago, showing a multi-lane highway running parallel to a sandy beach and a large body of water. The city buildings are visible on the left side of the highway. The text 'VULNERABILITY ASSESSMENT OF COASTAL AREAS IN SOUTHEAST ASIA \*' is overlaid on the right side of the image, with a white horizontal line underneath it.

VULNERABILITY ASSESSMENT  
OF COASTAL AREAS IN  
SOUTHEAST ASIA \*

---



Vulnerability of coastal areas to sea level rise is driven not only by global environmental changes but likewise by socio-economic development and the ability of affected communities to cope with such changes.

As such we endeavoured to achieve an integrated analysis of the effect of the complex and dynamic social, economic and environmental factors found in the region to the vulnerability of human communities, and their implications for management and governance of coastal systems and adaptation capacities.

Coordinated through the LOICZ Regional Node SEAsia, the method of approach employed was to primarily focus on training workshops for regional participants to expose them to available assessment tools.

The endeavour also allowed for the synthesis of primary and secondary data from all collaborating countries.



(1) There is a high cost to inaction.

(2) Beach nourishment overall more cost-effective for Southeast Asia . Specifically for the preservation of wetland areas, coastal forests, and mangroves and to minimize net land loss due to erosion, sand loss, and migration due to land loss. It should be noted however, that sustainable coastal nourishment, in the team’s point-of-view, should incorporate coastal cover rehabilitation.

(3) Site-specific engineering intervention is recommended as well to mitigate people actually flooded, land loss due to submergence and associated sea flood costs.

(4) No effective mitigation is currently being recommended to mitigate for salt-water intrusion.

(5) For Southeast Asia, a global scenario of balanced source of energy and reduction of population growth (BI or AIT scenarios) is preferable. For these SRES, beach nourishment and site-specific engineering interventions are still effective. Climate change is perceived as an exacerbating factor in already existing coastal issues. At the same time existing coastal issues makes the coastal area more vulnerable to climate change effects. Using case studies coupled with in-country expert analysis, the most relevant coastal issues were identified and ranked (see table).

<b>Parameters</b>	<b>Rank</b>
Exploitation & Destruction of Coastal Resources	1.00
Natural & Anthropogenic Changes in Sediment Transport	2.00
Population Growth, Urbanization & Social Equity	3.00
Relative Sea Level Rise (including land subsidence)	4.00
Natural Disasters	5.00
Food Security	6.00

\*\*\*\*\*  
 \* "Vulnerability assessment of coastal areas in the Southeast Asian region" is a collaborative project funded by the APN and involving LOICZ as well as experts from Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Germany and the USA.

# CITIES AT RISK: DEVELOPING ADAPTIVE CAPACITY FOR CLIMATE CHANGE IN ASIA'S COASTAL MEGA CITIES\*

## PROJECT BACKGROUND

Much of Asia's rapid population and economic growth is occurring in large coastal cities at high risk from sea level rise and climate change.

The Cities at Risk workshop, held 26-28 February 2009 in Bangkok, brought together nearly 80 scientists, urban planners and officials, and representatives of disaster management and development agencies to review scientific findings and projections regarding climate-related risks (e.g., sea level rise, extreme climate events, intensification of storms and storm surges) for Asia's coastal megacities.

Participants examined potential vulnerabilities and current coping mechanisms, including possible planning and governance mechanisms that better integrate science information, planning, development, and disaster management.

Workshop participants also considered means for improving networking and communication among urban planners/officials and the scientific community in order to enhance urban resilience and adaptive capacities.

By bringing together key stakeholders under a common umbrella, the workshop contributed to the sharing of critical knowledge and experiences among participants and helped lay a foundation for future communication and collaboration.

## OBJECTIVES

- \* Review the most recent science findings and projections of climate change impacts on Asian coastal cities
- \* Enhance awareness on the part of urban officials of the need to take early action
- \* Examine vulnerabilities and major threats in selected cities (e.g., infrastructure, economic assets and livelihoods, population and health)
- \* Consider adaptation and response measures and the integration of climate risk





## RECOMMENDATIONS

- information with urban planning and disaster management
- \* Improve networking and communication between scientists, urban managers, and disaster agencies to enhance capacity in coastal megacities
- \* Consider future measures and activities to develop adaptive capacity in Asia's coastal cities, including scientific and technical capacity building, research, and new coalitions/alliances of individuals, scientists, practitioners, and governments.
- \* Recognize the urgent need to address the *disconnection between the geographic and time scales* at which the scientific and planning/policy communities are working.
- \* Encourage the urban planning community to take a *comprehensive view of climate risks*, including variability.
- \* Recognize and promote the importance of identifying an *"entrepreneur" in urban governments* to help make climate change a priority.
- \* Acknowledge *knowledge gaps* and invest in learning strategies.
- \* Move from the traditional top-down impacts modelling approach to a *critical threshold approach*.
- \* *Communicate* science, and vulnerability in particular, more effectively.
- \* Urgently *build capacity* for individual and institutional participation in responding to climate change in Asia's coastal megacities.
- \* Understand that *effective governance at the systemic level* is essential in mainstreaming adaptation strategies.



\* "Cities at Risk: Developing Adaptive Capacity for Climate Change in Asia's Coastal Mega Cities" is jointly supported by APN, Ibaraki University, International Council for Science (ICSU), the East-West Centre, and the Global Change SysTem for Analysis, Research, and Training (START).

# CLIMATE CHANGE VULNERABILITY ASSESSMENT AND URBAN DEVELOPMENT PLANNING FOR ASIAN COASTAL CITIES\*

## PROJECT BACKGROUND

This second “Cities at Risk” workshop builds on the first held in 2009 in Bangkok, and specifically addressed the limited capacity to carry out risk and vulnerability assessments in coastal Asian cities. The workshop brought together over 40 participants including academics, urban planners/ government representatives, and experts in disaster management.

The workshop clarified the current information/knowledge gaps and challenges, and identified future research opportunities for addressing climate change related risks and vulnerability assessments in Bangkok, Ho Chi Minh City, Jakarta, Manila and Mumbai.

Key findings distilled from the workshop were grouped into three categories: “assessment of climate change related risk”, “information/ knowledge management”, and “governance”. Some 25 specific observations and recommendations for future research were identified.

Two major projects are anticipated to commence in 2011, thereby offering the opportunity to address the identified gaps in information/ knowledge faced by the cities. These projects demonstrate how the cities at risk workshops are encouraging communication and generating collaboration in addressing the impact of climate change on cities in Asia and beyond.

## KEY RESULTS

The workshop clarified the current information/knowledge gaps and identified future research opportunities for addressing climate change related risks and vulnerability in Bangkok, HCMC, Jakarta, Manila and Mumbai. The City Reports (submitted prior to the workshop), City Report Presentations (Day 2), Research Proposal presentations (Day 5) and abstracts (submitted post workshop) were used as core sources of information for distilling and organizing findings, in addition to the training sessions and discussions.





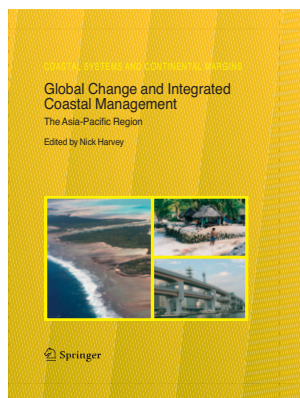
# Related APN publications

## Global Change and Integrated Coastal Management

*The Asia-Pacific Region*

ISBN-10 1-4020-3627-2 (HB)  
 ISBN-13 978-1-4020-3627-9 (HB)  
 ISBN-10 1-4020-3628-0 (e-book)  
 ISBN-13 978-1-4020-3628-6 (e-book)

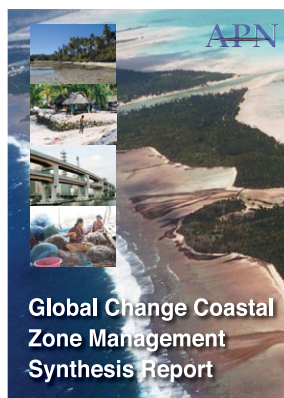
Published by Springer,  
 P.O. Box 17, 3300 AA Dordrecht, The Netherlands.



## Global Change Coastal Zone Management Synthesis Report

ISBN-10 4-990-25000-1

APN Global Change Coastal Zone Management Workshop, Kobe, Japan, November, 2004



APN Project Reference	Project Leader
1998-02	Max FINLAYSON
1998-05	Jeffrey RICHEY
1998-09	Steve LONERGAN
1998-11	Kanayathu KOSHY
1999-14	Hartwig KREMER
2000-06	Nick HARVEY
2000-07	Janaka RATNASIRI
2000-09	Nobuo MIMURA
2000-11	Nick HARVEY
2000-20	Hartwig KREMER
2001-07	Hideaki NAKATA
2001-11	Jon BARNETT; Mark BUSSE
2001-20; 2002-05	Janaka RATNASIRI
2002-11	Sun SHU
2002-16	Nick HARVEY
2002-17; 2003-06	Dieter MUELLER- DOMBOIS
2004-06-CMY	Zhongyuan CHEN
2003-13	Zafar ADEEL (Caroline KING)
2003-15	Mary ZAWOYSKY
2004-18-NMY	Vladimir S. KASYANOV

# APN coastal zone and inland water projects

## Project Title

Vulnerability Assessment of Major Wetlands in the Asia-Pacific Region

Toward an Integrated Regional Model of River Basin Inputs to the Coastal Zones of Southeast Asia

Workshop on Water and Human Security for Asia

Planning Workshop—Marine and Coastal Zone Studies in the Asia-Pacific Region

LOICZ Open Science Meeting

International Human Dimensions Workshop 2000—Human Dimensions Issues in the Coastal Zone

Training Workshop for Capacity Building and Networking in the Area of Bio-geochemical (BGC) Budgeting and Socio-Economic Modelling including Human Dimensions Aspects in the Coastal Systems of South Asia

APN/SURVAS/LOICZ Joint Conference on Coastal Impacts of Climate Change and Adaptation

Recent Sea-level Change and Coastal Management Implications for Oceania

East Asia BASINS Workshop

Workshop on the Causes and Consequences of Climate-Induced Changes in Pelagic Fish Productivity in East Asia

Ethnographic Perspectives on Resilience to Climate Variability in Pacific Island Countries

An Assessment of Nutrient, Sediment and Carbon Fluxes to the Coastal Zone in South Asia and their Relationship to Human Activities

Joint Support for Symposium on Adaptation of Asia and Pacific to Global Change in the 20th Pacific Science Congress

Atoll Island Change and Linkages to Sea-Level Variations in Oceania

PABITRA Network for Collaborative Research on the Ecology of Global Change in Island Landscapes of the Tropical Pacific

The Mega-Deltas of Asia: A Conceptual Model and its Application to Future Delta Vulnerability

Capacity Development Training for Monitoring of POPs in the East Asian Hydrosphere

Travel support for Asian Marine Scientists to Attend the Final JGOFS Open Science Conference

Climate Variability and Human Activities in Relation to Northeast Asian Land-Ocean Interactions and their Implications for Coastal Zone Management



---

**Coast to Coast: A Roundup of APN Activities on Marine and Coastal Research Priorities**

Executive Editor: Linda Anne Stevenson; Production: Xiaojun Deng

Full final reports of the APN projects highlighted in this brochure can be downloaded from the APN website at [www.apn-gcr.org](http://www.apn-gcr.org).

Photo credits: Wally Gobetz (cover, 4, 8, [www.flickr.com/photos/wallyg/](http://www.flickr.com/photos/wallyg/)); Eesti (6/7, [www.flickr.com/photos/eesti/](http://www.flickr.com/photos/eesti/)); APN Secretariat; other photos courtesy of APN project leaders and event organizers.

**Asia-Pacific Network for Global Change Research**  
4th Floor, East Building, 1-5-2 Wakinohama Kaigan Dori,  
Chuo-ku, Kobe 651-0073, JAPAN.  
Tel: +81-78-230-8017 / Fax: +81-78-230-8018  
Website: [www.apn-gcr.org](http://www.apn-gcr.org) / Email: [info@apn-gcr.org](mailto:info@apn-gcr.org)

---

