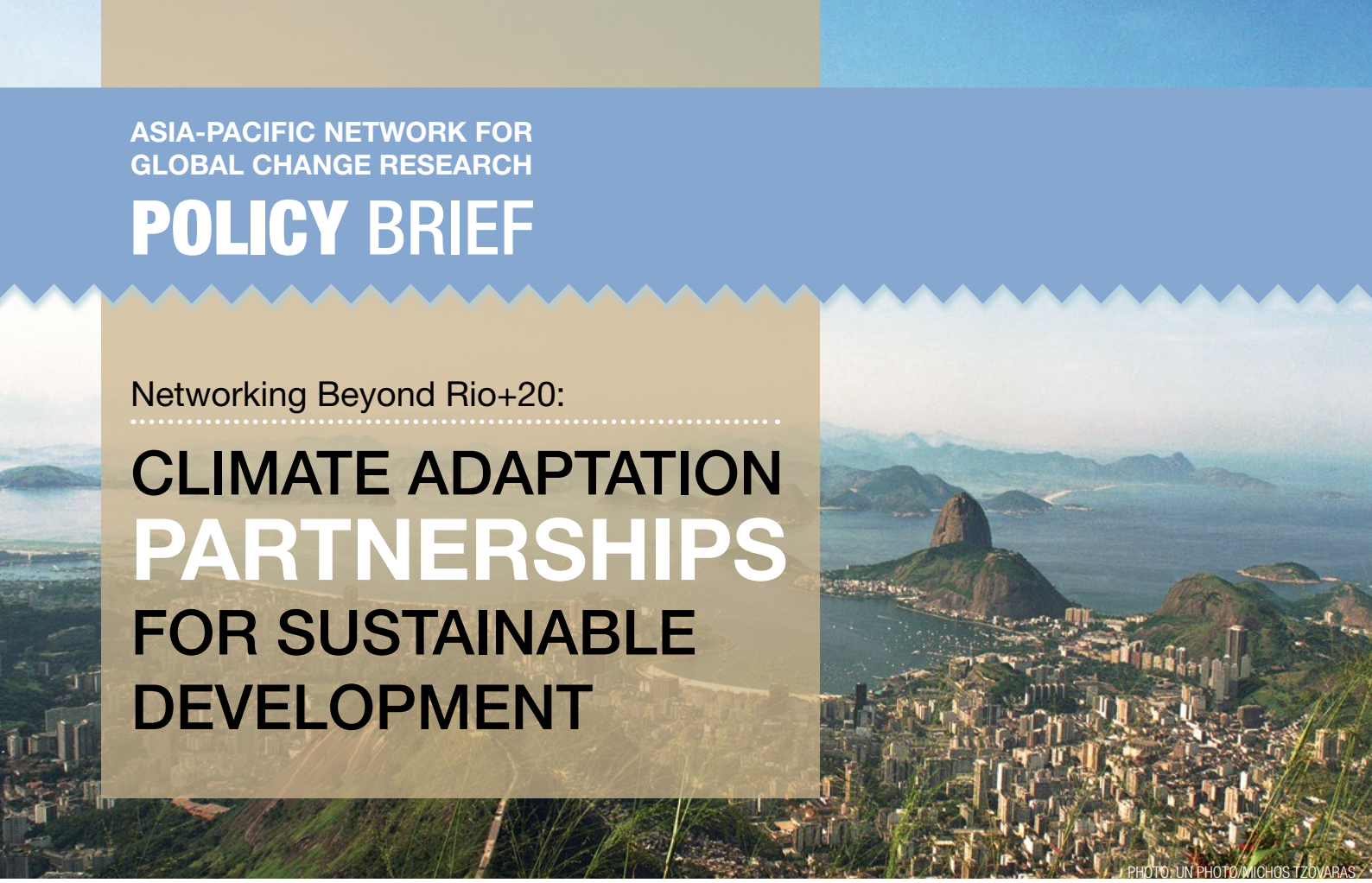
ASIA-PACIFIC NETWORK FOR
GLOBAL CHANGE RESEARCH

POLICY BRIEF

Networking Beyond Rio+20:

CLIMATE ADAPTATION PARTNERSHIPS FOR SUSTAINABLE DEVELOPMENT



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BACKGROUND

The need for climate change adaptation is increasingly being recognized by communities, with an initial focus on assessing vulnerabilities and identifying adaptation options. The complexity of adaptation due to the multidisciplinary nature of the required solutions and the lack of long-term data pose a great challenge, particularly in the Asia-Pacific region. Approaches at the grassroots levels that involve communities and local governments to incorporate climate change adaptation practices into development planning will be needed, and Integrated Assessment Models (IAMs) will need to be customized for local to regional and sectoral levels.

In the lead-up to the Rio+20 conference, the Asia-Pacific Network for Global Change (APN) organized a session at the Climate "Adaptation Futures" Conference held on 29–31 May 2012 at The University of Arizona, USA. The session focused on the importance of partnerships and networking to facilitate the adoption of local, national and regional adaptation strategies. The present policy brief builds on the collective messages that arose from the session, and is published to convey these messages at Rio+20 and beyond.

PARTNERSHIPS FOR SUSTAINABLE CLIMATE ADAPTATION SCENARIOS

Professor Nobuo Mimura
Ibaraki University

ICAS Adaptation Networking and the Two Approaches in Climate Change Adaptation

The **Institute for Global Change Adaptation Science (ICAS)**, Ibaraki University, focuses on climate change. There are two approaches to addressing these problems: prevention of warming through mitigation and reduction of greenhouse gas emissions on the one hand, and adaptation to a warming environment on the other. Given the profound effects of climate change in the Asia-Pacific region, the development of a framework, policies and measures for adaptation is a critical issue for the region's sustainability. ICAS will study adaptation in a range of fields such as disaster prevention, social safety and security, agriculture, and urban environments and lifestyle.

Two important dimensions of climate change adaptation, **science-driven approach and society needs-based approach**, were introduced. In the science-driven approach, projections of future climate are needed for proactive adaptation but most often are too complicated for local governments and communities. On the other hand, a society needs-based approach is believed to be effective for responses to today's problems based on the needs on the ground. The caveat to this approach, however, is that long term climate change risk may diffuse in a sea of problems.

"Means to reach and address issues at the local level are still at nascent stages, and there is a need to strengthen the channels that connect various stakeholders to the local level."

PHOTO: BALAZS GARDI

PHOTO: APN SECRETARIAT

University Network-Climate and Ecosystem Change Adaptation Research

Established in 2009, the **University Network for Climate and Ecosystems Change Adaptation Research (UN-CECAR)** is a network of universities and organizations in Asia and the Pacific as well as Africa who develops research and education programmes on climate change adaptation, ecosystems change adaptation, and sustainability science. The network aims to brings together the best resources and expertise in joint research for the design of appropriate policy and development strategies, and development of postgraduate education courses and training across disciplinary lines.

Dr. Rahman highlighted that capacity development for climate change requires a range of interconnected tasks, from selecting climate projections to prioritizing based on economic considerations and/or risk management perspectives. The postgraduate sector can be the engine that drives rapid dissemination and customization of useful global knowledge, especially in developing countries.

There is a great demand and potential to update knowledge dissemination and research through University higher education networks such as UN-CECAR. However, financing these efforts remains the main challenge. There should be a link between development funding and capacity development. It should engage the higher education sector, support national programs going beyond narrow project-based approaches.

Dr. Md. Mafizur Rahman
Bangladesh University of Engineering and Technology (BUET)

"There is a great demand and potential to update knowledge dissemination and research through higher education networks. Financing these efforts remains the main challenge."

BEST PRACTICE EXAMPLES FROM APN ACTIVITIES IN ASIA-PACIFIC

Prof. Juan Pulhin
University of the Philippines
Los Baños

Integrating Science and Local Knowledge for Climate Change Impacts and Vulnerability Assessments in the Philippines

The reality of climate change calls for a need to understand how it might affect a range of natural and social systems, and to identify and evaluate options to respond to these effects. This has led to in-depth investigation of vulnerability and adaptation to climate change, which has become central to climate science, policy and practice. The capacity, however, to conduct vulnerability and adaptation assessments in the Philippines is still limited, particularly with gaps in downscaling simulated scenarios and mainstreaming research findings into decision-making. A project undertaken with funding from the APN trained key stakeholders in Albay on impacts, vulnerability and adaptation assessments using a computer-based modelling system and participatory approaches. SimCLIM was used and developed for Albay Province (AlbayClim) as an innovative tool for assessing and creating climate change scenarios. This aided in characterizing future risks specific for the province. Case studies were conducted in upland and coastal communities to demonstrate the assessment of impacts, vulnerability and adaptation to climate change and sea level rise. The AlbayClim system was complemented with participatory techniques to solicit knowledge and experiences of the local people. This put into context the source of vulnerability, as well as facilitated mainstreaming adaptive responses.

"Science and local knowledge must be further integrated for a more robust assessment of climate change impacts, vulnerability and adaptation."

It is evident through this project the importance of integrating science and local knowledge towards a more robust assessment of climate change impacts, vulnerability and adaptation. The project found out that it is difficult for communities to imagine future impacts of climate change and sea level rise. Their proposed responses are driven by variability and extremes rather than long-term gradual changes. The use of computer models captured the "forward looking" aspect of climate change. **The success of this project was made possible through a strong collaboration and partnership between the implementing scientists and government officials concerned.** An indicator of this was the partnership created with the Philippine's Climate Change Commission.

Dryland Development Paradigm: Adaptation of Pastoral Social-Ecological Systems in Mongolia

Dr. Chuluun Togtohyn
Dryland Sustainability Institute,
National University of Mongolia

Mongolia is a vast country comprised of mountains, rangelands, and desert landscapes with scarce water resources. As a consequence of socio-economic conditions and climate change in the last two decades, social-ecological vulnerability of Mongolia's pastoral social-ecological systems has increased. Using the Dryland Development Paradigm (DDP) to analyse pastoral social-ecological systems in the *Tuin* and *Baidrag* river basins, the project explains the dynamics of a coupled human-environmental system that is defined by primarily two different variables: market forces and climate disasters. Privatization of livestock in the early 1990s triggered an interest in increasing private livestock numbers — especially in the number of goats due the value of their cashmere. However, a series of climate disasters, droughts followed by *zud* (severe winter conditions), has caused massive livestock loss. Global warming is the most critical slow variable in the drylands, with amplified consequences than in other regions. Results ultimately show that the desert-steppe region is becoming more vulnerable to climate and land-use change.

The increasing importance of integrated vulnerability assessments of social-ecological systems is demonstrated in this project. Ecoregion-based adaptation policy is suggested in different ecological-economic zones.

The increasing importance of integrated vulnerability assessments of social-ecological systems is demonstrated in this project.

PHOTO: CHULUUN TOGTOHYN

Associate Professor Do Minh Duc
Hanoi University of Science

Scientific Capacity Building for Climate Change Adaptation in Rural Coastal Zones of Viet Nam

Climate change impacts can cause greater potential damage in urban areas as compared with rural areas. Therefore, a great deal of effort has been focused on urban areas, especially coastal megacities and rural areas are not properly considered in some cases. Residents in rural coasts are vulnerable to climate change because of lower awareness and poor infrastructure and the research undertaken investigated climate change vulnerability and adaptation in rural coasts of Viet Nam. Activities concentrated on capacity building of local people and young scientists and several workshops and training courses were organized. While local authorities have better awareness on climate change than residents, they keep wondering about wise adaptation approaches which require a total solution from higher level. To do so, a sound emergence of science must be taken into account.

Findings of this project include:

- Rural coastal areas are most vulnerable to climate change in Viet Nam because of poor infrastructure, lack of awareness and knowledge, and high density of population;
- Adaptation capacity can be developed by improving awareness of communities, by communicating in "local language" and contributing to solving their own problems, as well as working closely with local authorities; and
- International cooperation is a sound way for capacity development of scientists in climate change adaptation.

PHOTO: ANDREA SCHAFFER

REGIONAL RESEARCH ACTIVITIES FOR CLIMATE ADAPTATION

Climate Change Modelling in Mangrove Ecosystems

Mr. Kashif Majeed Salik
Sustainable Development Policy Institute (SDPI), Pakistan

Mangrove forests are important ecosystems for sustaining biodiversity and livelihoods of their dependent communities. This project seeks to provide science-based information about the impact of climate change on mangrove ecosystems in South Asia. The impacts of sea level rise, decrease in fresh water flows, and other climatic parameters like temperature fluctuations, precipitation etc., are being assessed for developing future scenarios of mangrove forests in South Asia.

The overall vulnerability of mangrove ecosystems will be evaluated by hydrological, climatic, institutional and socio-economic assessments using regional climate models, GIS and RS techniques, ecological network models and applying statistical methods respectively. This information will help to devise adaptation measures through policies and interventions for mangrove sustainability, development and conservation by selection of appropriate site in the region to develop a conceptual institutional framework describing the drivers, pressures, responses, trends and impacts on mangrove ecosystems.

This is being achieved by involving researchers from participating countries of Pakistan, India, Bangladesh, USA and Sri Lanka conducting research on these issues. Robust and collective global to regional responses for climate change adaptation will be achieved through joint research and policy actions by sharing of technology, knowledge and experiences.

"Robust and collective global to regional responses for climate change adaptation will be achieved through joint research and policy actions by sharing of technology, knowledge and experiences."

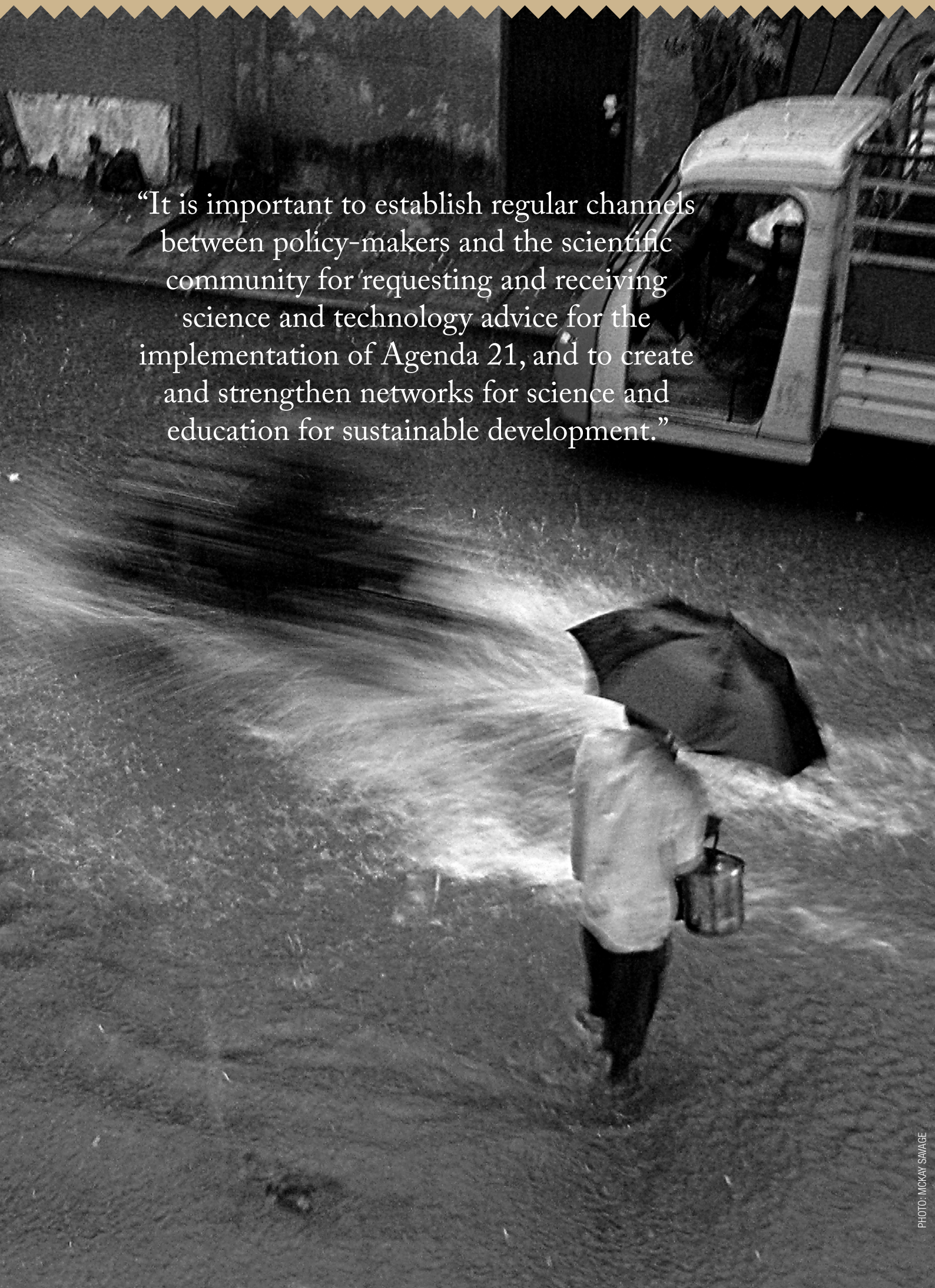
Dr. S.V.R.K. Prabhakar
Institute for Global Environmental Strategies (IGES)

Scientific Capacity Development for Mainstreaming Climate Change Adaptation

Analyses of policies in select countries reveal that important decisions in the agriculture and water sectors are implemented without consideration of projected impacts of climate change. One of the most important barriers identified was the limited capacity of research in the region to provide adaptation policy-relevant information. Research on indicators for monitoring the effectiveness of adaptation options at different spatial scales is completely lacking. Networking and communication among researchers and policy-makers focusing on adaptation is also extremely limited. This project was initiated in August 2009 in order to strengthen research capacity on mainstreaming climate change adaptation concerns into agricultural and water policies and also to create a network for adaptation policy research in Asia. The project adopts a three-pronged approach: firstly, identification of practical options for mainstreaming and metrics for monitoring the effectiveness of adaptation policies and measures; secondly, exchange of adaptation policy-relevant information through the creation of a network called ARPNAP (Adaptation Research and Policy Network for Asia and Pacific); and lastly, dissemination of outputs beyond the project boundaries.

At a pre-conclusive stage, the project recognizes that means to reach and address issues at the local level are still at nascent stages. There is also a need to strengthen the channels that connect various stakeholders to the local level. Specifically, it is recommended to:

- Channel resources for direct capacity development at local level;
- Translate scientific information into points that aid in daily decision-making;
- Develop decision support tools for *ex ante* and *ex post* decision-making; and
- Promote horizontal and vertical institutional collaboration.



"It is important to establish regular channels between policy-makers and the scientific community for requesting and receiving science and technology advice for the implementation of Agenda 21, and to create and strengthen networks for science and education for sustainable development."

PHOTO: MCKAY SAVAGE

Dr. Akio Takemoto
Asia-Pacific Network for Global Change Research

APN's Future Climate Adaptation Strategies in Asia and the Pacific

As a network that engages governments and scientific institutions from 22 member countries, the Asia-Pacific Network for Global Change Research (APN) is committed to achieving its second goal of strengthening appropriate interactions among scientists and policy-makers and providing scientific input to decision-making and scientific knowledge to the public and other non-science communities. The APN will continue to develop effective methodologies and procedures in its science thematic areas identified under its Science Agenda, and aim to transfer this knowledge and information to the science, non-science and decision-making communities.

In this context, and addressing one of the APN's scientific themes of climate change and climate variability, the APN adopted a three-year programme on climate change adaptation in April 2013. The new programme will utilize a networking approach and engage other institutions in partnerships to ensure that the best opportunities are available for developing countries in the Asia-Pacific region to react to the impacts of climate change in a manner that will also support their sustainable development.

PHOTO: ROGER WALCH

APN's Climate Change Programme

- **Component 1:** Scoping workshop to enhance climate adaptation action of APN developing countries
- **Component 2:** Joint Training Course on adaptation planning and implementation in the AP region
- **Component 3:** Proposal Development Training Workshop with a focus on adaptation

The APN will continue to further strengthen its programme on Scientific Capacity Building for Sustainable Development in Developing Countries (CAPaBLE), which was launched in April 2003, an initiative to realize parts 107 to 114 of the WSSD Johannesburg Plan of Implementation (JPOI) linking climate change and sustainable development. The CAPaBLE programme has been instrumental in exposing young and early-career scientists in scientific networking platforms such as conferences and training workshops that have helped to develop their capacity in global change-related areas that includes climate adaptation. Similarly, the Annual Call for Regional Research Proposals (ARCP) Programme of the APN has been making significant efforts to strengthen collaborative research among institutions in developing countries with support from their counterparts in developed countries.

The APN's Climate Adaptation Programme and ARCP and CAPaBLE Programmes are useful mechanisms that can establish regular channels between policy-makers and the scientific community for requesting and receiving science and technology advice for the implementation of Agenda 21, and to create and strengthen networks for science and education for sustainable development.

Networking Beyond Rio+20: Climate Adaptation Partnerships for Sustainable Development—A Policy Brief

The Asia-Pacific Network for Global Change Research (APN) is a network of 22 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.

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