

## **Acknowledgment:**

The APN welcomes and appreciates the continuing opportunity to inform, and engage in a dialogue with SBSTA on issues of global change research, capacity development and science-policy interfacing mechanisms within the Asia-Pacific region that is relevant to the convention. The present brief summarises the current main activities undertaken by APN to address some of the issues outlined in the recently published document **FCCC/SBSTA/2011/MISC.4** regards those topics for discussion at the dialogue meeting to take place during SBSTA 34, taking into account developments in research activities outlined in document **FCCC/SBSTA/2007/4, Paragraph 47 (a-f)**.

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### **1. What is the APN:**

Established in 1996, the Asia-Pacific Network for Global Change Research (APN) is a network of twenty-two member governments in Asia and the Pacific whose vision is to enable countries in the region to successfully address global change (GC) challenges through science-based response strategies and measures, effective science and policy linkages, and scientific capacity development.

As APN is an inter-governmental network, a high priority goal is to produce sound scientific results that can be made available as a supportive tool for policy-making processes. Accordingly, the APN conducts regular synthesis and assessment activities of the projects its supports in order to identify important outcomes, research gaps and/or emerging issues that could be used to support policy development.

APN is financially sponsored by the Governments of Japan (Ministry of Environment [MOEJ]; Hyogo Prefectural Government), New Zealand (Ministry for the Environment), Republic of Korea (Ministry of Environment [MEV]) and the United States (National Science Foundation [NSF]; United States Global Change Research Program [USGCRP]).

The APN goals are achieved through a number of activities selected from the APN's two main programmes, which involve **two annual open Calls for Proposals in which scientists based in APN member or approved countries can submit proposals for funding support**. The two main programmes are the *Annual Regional Call for Research Proposals (ARCP)* and the *Scientific Capacity Development Programme (CAPaBLE)*. Particularly encouraged to submit APN proposals are developing-country researchers working in collaboration with the APN's international GC partners including DIVERSITAS, ESSP, GEO/GEOSS, IGBP, IHDP, START, WCRP and their related core and joint projects.

Research and capacity building activities under the ARCP, CAPaBLE and other related initiatives of the APN focus on four scientific themes identified in the APN's Science Agenda. These are (i) **Climate Change and Climate Variability**; (ii) Ecosystems, Biodiversity and Land Use; (iii) Changes in Atmospheric and Terrestrial Domains; and (iv) Resources Utilisation and Pathways for Sustainable Development. Under these scientific themes, the APN supports activities that are interdisciplinary in nature and cut across natural, social, economic and political sciences.

Examples of the kinds of activities APN undertakes are:

- Promoting and strengthening GC research, including identifying gaps via syntheses and assessment work
- Identifying and developing existing methodologies and developing new methodologies and tools for effective transfer of scientific knowledge
- Strengthening the interface of policy- and decision-making processes and society in general for mainstreaming environmental concern
- Encouraging initiatives from developing countries for place-based, integrative research
- Aligning with programmes of the GC community

## **2. New APN Activities:**

### **2.1 APN Climate Synthesis Executive Summary (Synthesis report will be published June 2011):**

Work for the present Synthesis - Climate in Asia and the Pacific: A Synthesis of APN Activities began in November 2009 with a scoping workshop followed by an authors' workshop in August 2010. The work entailed summarising over fifty scientific research and capacity building projects funded by the APN that had a climate-related element - whether natural climate variability and/or climate change. The contributing authors' of the synthesis report are leaders in their field and many of them are authors for the next fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC AR5). The present report will be a useful tool not only for the IPCC, but also for scientists, decision-makers and educators; as it identifies both research gaps and future research activities for the Asia-Pacific region in the context of climate change and climate variability.

The adverse effects of climate change and natural climate variability pose a significant threat to humanity, with the poorest communities being the most vulnerable. Scientific understanding of our climate is advancing at a significant rate, with new information emerging about the likely impacts of climate change, the options to adapt to these changes, and new approaches to mitigation.

Through national and international fora, it is becoming clear that climate is one of the most, if not *the* most, pressing issue in the political arena today. This has been evident in government and stakeholder meetings such as the 34<sup>th</sup> G8 Summit (Japan, 2008) and the most recent UNFCCC 16<sup>th</sup> Conference of the Parties Meeting (Mexico, 2010), where commitments to climate change have been underscored, particularly the need to support developing countries for financing and transferring knowledge and skills to respond effectively to climate change.

The IPCC 4<sup>th</sup> Assessment reports that climate change will interact at all scales with other aspects of the global environment and aggravate existing concerns about the provision of natural resources, including water, soil and air pollution, health hazards, disaster risk, and deforestation. Their combined impacts may be compounded in the future in the absence of integrated mitigation and adaptation measures (IPCCAR4 [SPM], 2007).

The present synthesis report is part of the APN's larger aim to contribute, from the science perspective, to the development of policy options for appropriate responses to climate vulnerability and impacts, including adaptation and mitigation, which in turn will contribute to sustainable development. The timing of this publication also leads into three major activities, the Planet under Pressure and Rio+20 Conferences, both taking place in the first half of 2012, and the work of the current IPCC 5<sup>th</sup> Assessment with the report scheduled for release in 2014.

The synthesis report indicates that while there is much activity at the global level, there is a great need to intensify investigative research of climate change and climate variability and trends at the regional level, as these are still poorly understood. Consistent socio-economic data collection is needed. The increasing frequency and severity of floods, droughts and extreme temperatures requires use of appropriate indices to improve monitoring and prediction of extreme events.

The effects of climate on water resources have been studied in APN projects but many issues remain unclear. There is a need for models to predict better the effects of seasonal to inter-annual climate on water. Coastal cities continue to be highly vulnerable to sea-level rise and research is needed in identifying appropriate adaptation measures, strategies, and policies. Similarly small islands are especially vulnerable and research is required into relocation options. APN has supported international workshops to reduce vulnerability and devise coping strategies of agriculture to climate variability and change. These have built

the knowledge-base for developing predictive capacity to manage climate variability and climate change-related vulnerability, strengthen overall climate responses and build resilience to socio-economic, and environmental shocks, which is one of the region's urgent development needs.

APN projects have also contributed substantially to the building of regional capacity to include climate change in national sustainable development strategies and action plans. APN workshops on trends in climate extremes have provided a framework for international trend analysis in developing countries around the world. However, what is abundantly clear is that open access to climate data, including relevant socio-economic data, will be essential for countries in the Asia Pacific to carry out risk assessments of their vulnerability to trends in climate within a regional framework. It is, therefore, in the interest of all countries of the APN to promote the open exchange of climate-related data.

Modelling the effects of climate on agriculture and fishery production needs to be refined. Critical to climate adaptation research, practice and policy are downscaled climate data. Developing Regional Climate Models (RCMs) in Asia has helped provide more detailed information on monsoon circulation; and high-resolution regional/local information from RCMs can be used in impact, vulnerability and adaptation studies. There is a need for regional climate models and statistical downscaling methods to help localise GCM results. Especially problematic in the Asia-Pacific are small islands states and areas with rough and steep terrain like the Himalayas.

The investments by APN in projects aimed at improving the Asia-Pacific region's understanding of the climate of the region, at assessing the risks to society and nature from climate variability and change, and at raising awareness of these issues to decision-makers and the public are well justified in terms of need and benefits. Formal assessments and literature citations have demonstrated that these activities have been effective and of high quality.

Given the high quality of APN projects and the potential of many to yield longer-term benefits through the provision of marginal resources, there should be an investigation of innovative means to sustain such projects beyond the term of initial APN support.

Strategic planning of APN would benefit by ensuring that it maintains close contact with the relevant international developments on indicators of the impact of research and capacity building. The APN should continue to recognise the benefits of applying appropriate models to assist the integration of information in complex systems. The APN should recognise that effective application of climate knowledge to practical problems of societies across the Asia Pacific region requires effective dialogue across the traditional boundaries of science, technology and policy.

The APN has a role to play in promoting research in the region that clarifies the strategies that lead to true sustainable development. The Asia Pacific region has a rich variety of cultures, and the APN has been effective in promoting connections and alliances across all these cultures. This effectiveness comes from recognition of cultural differences and not imposing a one-hat-fits-all approach. These sensitivities to culture will be especially important as the APN continues to promote exchanges of knowledge on climate-related issues across disciplines and sectors.

Clearly, the most important aspect of interactions across a region is the human factor. The APN has been effective in promoting innumerable networks of participants in its projects related to climate. One potential element in the future development of sustained networks is through the engagement of young people who can carry their scientific and social networks into the future.

Finally, while substantial progress has been made by APN-supported projects on climate science, capacity

building and policy outreach, much remains to be done in the Asia-Pacific region. Among the key trends impacting the region are: rising population, increasing urbanization, rapid economic development, rising energy demand, massive land use and cover change, increases in temperature, heatwaves, floods and droughts, and globalisation. APN may wish to invest in some of these areas in its future strategies and research agendas.

## **2.2 APN Biodiversity Gap Analysis: Linking and Integrating Ecosystems Services and Biodiversity with Green Growth & Sustainable Development**

The Asia-Pacific region is spectacularly rich in biodiversity, but also home to more than half the world's human population. Policy- and decision-making to realise the objective of establishing sustainable, green growth practices in the Asia-Pacific region needs to be underpinned by sound scientific knowledge. However, much of the knowledge needed to effectively link biodiversity and ecosystem services to sustainable development and green growth is lacking throughout the region, particularly in developing countries.

With the above rationale and in the present "United Nations Decade on Biodiversity 2011-2020<sup>1</sup>," the APN seeks to contribute to this crucial and urgent period by promoting comprehensive scientific research, capacity development and science-policy connections in a new (initial) 5-year Biodiversity Framework: ***Linking and Integrating Ecosystems Services and Biodiversity with Green Growth & Sustainable Development.***

### Gap Analysis Workshop

With funding from the Ministry of the Environment, Japan (MOEJ), and as a contribution to the International Year of Biodiversity 2010, the APN conducted a Biodiversity and Ecosystem Services Gap Analysis Workshop (February 13-15, 2011). The aim of the workshop was to identify gaps in scientific research and capacity development and to establish APN's role in developing an agenda for this important area of research. The agenda would be in line with the UN Decade of Biodiversity, and contribute not only to the UNCBD, but also to the UNCSD (specifically the 2002 WSSD's Johannesburg Plan of Implementation[JPOI]<sup>2</sup>) and its lead up to Rio+20<sup>3</sup>; the Millennium Development Goals; and, where appropriate, contribute to the Second Millennium Ecosystems Assessment (MEA2) and the IPBES.

Prior to the Gap Analysis Workshop expressions of interest were sought from experts in the global change community, particularly from those working in the Asia-Pacific region. As a result, the workshop included participation from key experts from ICSU, DIVERSITAS, United Nations University and ASEAN ACB, GEOBON and other key organisations. Gaps and priorities outlined were based on analysis of feedback received from the global change community and invited experts to the APN Gap Analysis Scoping Workshop. Initially, the following issues were considered: vulnerability and predictions; impacts; adaptation and mitigation. The workshop also reviewed and took into account key publications and background papers on biodiversity and ecosystem services and all relevant issues at the sub-regional level.

The four Research Themes identified are indicated below all of which have a link with climate change:

- **Theme 1:** *Drivers and pressures for biodiversity change that influence ecosystem services (land-use change; climate change, etc.)*
- **Theme 2:** *Assessment of impacts of biodiversity loss and vulnerability to the shrinking of ecosystem services*
- **Theme 3:** *Model-based prediction of changes in biodiversity and ecosystem services*
- **Theme 4:** *Adaptation, Response and Mitigation of the Depletion of Biodiversity and Ecosystems*

<sup>1</sup> Official launch will be on the International Day for Biological Diversity, 22<sup>nd</sup> May 2011:

<http://www.cbd.int/doc/notifications/2011/ntf-2011-027-un-en.pdf>

<sup>2</sup> WSSD JPOI: [http://www.un.org/esa/sustdev/documents/WSSD\\_POI\\_PD/English/WSSD\\_PlanImpl.pdf](http://www.un.org/esa/sustdev/documents/WSSD_POI_PD/English/WSSD_PlanImpl.pdf)

<sup>3</sup> Rio+20 Summit, 4-6 June 2012: <http://www.uncsd2012.org/rio20/>

*Services*

The next steps are to have a steering group meeting to develop the framework further and integrate it into the activities of the APN. It is expected that a calls for proposals will be launched in the above themes for both regional research and scientific capacity development activities.