



STRATEGIC PLAN 2005-2010

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EXECUTIVE SUMMARY

Changes in the Earth system are clearly impacting upon the societies and economies of the countries within the Asia-Pacific region, which supports more than half of the world's population. Recognising this, the APN was established in 1996 as an inter-governmental network in the Asia-Pacific region to foster global change research in the region, increase developing country participation in that research, and strengthen interactions between the science community and policy-makers.

With a membership of over twenty countries, the APN today plays a significant role in supporting global change research in the region. It now has a successful ten-year record of promoting cooperation and enhancing scientific research capacity, particularly in developing countries. For the next five years, the APN will continue to build on these foundations, particularly through its Annual Regional Call for Proposals (ARCP) and its "CAPaBLE" capacity building programme.

The APN's Second Strategic Plan (2005-2010) is based on input from stakeholders and extensive scientific and institutional reviews of its first ten years. This plan contains a revised mission as well as revisions to the APN's basic goals. It also describes the three "agendas" that the APN will address: Science, Policy, and Institutional.

The APN's newly-formulated Science Agenda has four general themes: (1) climate, (2) ecosystems, biodiversity and land use, (3) changes in the atmospheric, terrestrial and marine domains, and (4) use of resources and pathways for sustainable development.

Under the Policy Agenda, the APN will dedicate particular attention to promoting interactions between science and policy processes; admittedly a challenge that also faces many science-based bodies around the world. The APN will aim to identify and develop effective methodologies and procedures in the areas under its Science Agenda and transfer this knowledge and information to the decision-making and scientific communities that the APN serves.

Under its Institutional Agenda, the APN will make a greater effort to strengthen itself as an inter-governmental network. It will encourage more active involvement of member governments, especially those of the developing member states. A greater effort will be made to diversify the APN's funding sources, as well as to mobilise resources and leverage funds through matching and in-kind contributions. The APN will also forge stronger strategic partnerships in the "Global Change community."

Through its activities, the APN's focus will be on achieving its mission and goals in the most effective and efficient way.

MESSAGE FROM THE DIRECTOR

It is my pleasure to present the APN's Second Strategic Plan (2005-2010).

As shown in the report of the Institutional and Scientific Evaluation of Phase 1 (1996-2004), the APN has seen impressive developments and achievements since its First Strategic Plan was prepared in 1999. The APN has contributed positively to the region by supporting cooperation on global change research. The expert reviewers, who provided their comments to the APN Augmented Steering Committee Meeting (ASCM) for the scientific review, gave the APN a solid rating, and identified outstanding projects that highlight examples of best practices. Overall, the APN was seen as efficient and effective. We will continue our efforts in the future to achieve more with the finite resources available.

The APN's Second Strategic Plan was prepared based on the evaluation of the past ten years, and it also incorporates comments and suggestions from APN national Focal Points, Scientific Planning Group members, and partners from the Global Change community. Numerous challenges still lie ahead, but I firmly believe that the APN will continue to achieve its mission, become more robust, and attract even greater recognition as a common asset of all member countries.

After approval of the Second Strategic Plan at the 10th IGM, its implementation will commence in April 2005. The next five years will no doubt be an exciting time for the APN and all member countries.



Sombo T. Yamamura
Director, APN Secretariat

PREFACE

This Second Strategic Plan has been prepared for the period April 2005 to March 2010 based on the evaluation of Phase 1 of the APN (1996 to 2004), as well as input from a wide range of stakeholders.

Aware that the APN's tenth anniversary in 2005 would be an appropriate opportunity to review the past progress and plan for the future, the APN launched a review in early 2004 with the following objectives: (1) to review and summarise APN activities, (2) to assess those activities, and (3) to reflect on lessons learned and incorporate them into the Second Strategic Plan. The review was conducted with an external consultant and was based on two components—scientific and institutional. Important components of the scientific review included follow-up evaluations by project leaders of past APN-funded activities, followed by an independent review by external scientific experts and an Augmented Steering Committee Meeting (ASCM) with the participation of external scientific experts. Information was gathered from many sources and stakeholders, and compiled into a draft, which was then reviewed by members for approval at the APN's 10th Inter-Governmental Meeting in April 2005.

1. MISSION, CORE STRATEGIES, AND VISION

Mission

The mission of the Asia-Pacific Network for Global Change Research (APN)¹ 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.

Core strategies

The core strategies of the APN are to:

1. Encourage and promote research that has the potential, in addition to improving 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.
2. Identify, in consultation with policy-makers and practitioners, the present and future needs for such research.

Vision

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 contributes to the development of a sound scientific basis for policy- and decision-making related to issues for which global change is an important factor.

¹ "The APN defines "global change research" as "research regarding global change (the set of natural and human-induced changes in the Earth's physical and biological systems that, when aggregated, are significant at a global scale) and its implications for sustainable development in the Asia-Pacific region."

The APN strives to enable the developing countries of the region to participate increasingly in, and to benefit fully from, cooperative research in the region. Finally, recognising the interactive role of regional processes in the overall Earth system, the APN also seeks to link the research it sponsors with research conducted in other regions and under the aegis of global-scale programmes.

2. GOALS AND ACTIVITIES

In order to achieve its mission, the APN has identified five goals. Each goal will be achieved by the activities outlined below, particularly through APN-funded activities; these activities are selected from the Annual Regional Call for Proposals (ARCP) process, as well as the APN's capacity building programme, CAPaBLE.

Goal 1. Supporting regional cooperation in global change research on issues particularly relevant to the region

This is the highest priority goal of the APN. It addresses the APN's core belief that international cooperation is essential to identify the causes and address the impacts of global change.

Key Investment Instrument: Underpinning knowledge creation

Activities to be conducted under this goal include:

- (a) Facilitating and supporting collaborative research projects in the region
- (b) Organising regional meetings to highlight global change research and its possible implications for policy-making
- (c) Systematically identifying key scientific priorities and emerging scientific issues for the region

Goal 2. Strengthening appropriate interactions among scientists and policy-makers, and providing scientific input to policy decision-making and scientific knowledge to the public

As the 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 will support research where knowledge gaps exist and where research outcomes can be used to support policy development. The APN recognises that policy decisions are made in a complex environment where many

factors must be considered; there is often no guarantee that the results of research will be appropriately translated into policy. The APN's approach is, therefore, to focus on strengthening the appropriate links between the science and policy communities. In addition, the APN realises the importance of building public awareness of global change issues based on sound science. Accordingly, the APN will use public fora to build public awareness of global change issues, when appropriate opportunities arise.

Key Investment Instrument: Facilitation of appropriate science-policy interaction

Activities to be conducted under this goal include:

- (a) Seeking out existing or creating new fora for discussion between scientists and policy-makers
- (b) Supporting training workshops for scientists to develop skills and techniques in providing science-based tools to support policy development
- (c) Providing scientific information to policy-makers in a suitable format
- (d) Identifying and maintaining databases of key policy bodies for the region
- (e) Improving communications and exchanges of information with relevant governmental fora in the region and relevant inter-governmental bodies
- (f) Cooperating with other organisations to provide scientific information to the public
- (g) Inviting the necessary press and science writers to conferences and workshops supported by the APN
- (h) Facilitating communications and interactions among APN members and the Secretariat

Goal 3. Improving the scientific and technical capabilities of nations in the region

It is vital that APN member countries have the capacity to conduct high quality research regarding global change that provides underpinning scientific support for policy-makers and policy-making processes. The APN believes that research must involve local scientists and that they must be given the capacity to continue their research, and analyse and utilise their research outcomes.

Key investment instrument: Indigenous capacity development

Activities to be conducted under this goal include:

- (a) Supporting research and other activities, particularly by developing country scientists
- (b) Providing financial support for capacity building projects, particularly in developing member countries
- (c) Cooperating with international capacity building programmes
- (d) Providing opportunities for all APN member countries, especially developing member countries, to participate in APN-sponsored projects

Goal 4. Cooperating with other global change networks and organisations

It is vital that the APN continue to develop strong partnerships with the other global change networks and organisations and, as a network, be aware of current and emerging research and related activities in the region and throughout the world. This goal supports each of the first three goals above and enables the APN to operate efficiently and effectively in the global change community.

Key Investment Instrument: Defining regional context of global issues

Activities to be conducted under this goal include:

- (a) Organising collaborative projects on areas of common interest
- (b) Inviting other global change research organisations to be involved in APN meetings and committees and for the APN to be represented at relevant meetings organised by others
- (c) Exchanging publications with relevant organisations
- (d) Setting common agendas and initiating cooperative arrangements where appropriate

Goal 5. Facilitating the development of research infrastructure and the transfer of know-how and technology

The APN generally does not allocate its resources directly to develop in-country research infrastructure, although it does recognise that this is an important issue. Instead, it seeks other opportunities to further this goal, such as by facilitating the exchange and provision of computer models that are regionally appropriate.

Key Investment Instrument: Technology development and transfer

Activities to be conducted under this goal include supporting projects that have the goal of developing research infrastructure in and transferring know-how and technology to developing member countries.

3. THE APN AGENDAS

During the period covered by this Strategic Plan, the APN addresses three “agendas”: Science, Policy, and Institutional.

3.1 SCIENCE AGENDA²

3.1.1 THE APN SCIENCE AGENDA

“The Asia-Pacific Network for Global Change Research (APN) enables activities that generate and transfer knowledge on the physical and human dimensions of change in the Earth system with a focus on:

1. Climate,
2. Ecosystems, biodiversity, and land use,
3. Changes in the atmospheric, terrestrial and marine domains, and
4. Use of resources (food/water/energy/materials) and pathways for sustainable development.³

The APN serves scientific and decision-making communities and other users in the Asia-Pacific region.

The APN will invest in identification of existing methods and the development of new methodologies and tools to improve the effectiveness of transfers of the necessary scientific knowledge to the decision-makers in Asia-Pacific communities.”

² Although this Science Agenda is expected to stay in effect until 2010, the APN recognises the need for flexibility. The Scientific Planning Group (SPG) will, therefore, review the themes of this Science Agenda each year to reconfirm or modify it according to any changing research priorities of the APN, its members, and the global change science and policy-making communities. SPG recommendations will then be presented to the Inter-Governmental Meeting (IGM) for approval.

³ See Endnote.

Examples identified at the ASCM of the sorts of activities that the APN might support are:

- (a) The identification of existing methods and development of new methodologies and tools for improving the effectiveness of scientific knowledge transfer to user communities.
- (b) The expansion of the area of APN activities and procurement of the necessary resources by playing a leading role in expanding research activities conducted with other bodies in the international community.
- (c) The strengthening of ties with policy- and decision-making processes and society in general for mainstreaming environmental concern, in order to develop pathways and effective mechanisms to approach economic and industrial planning processes, and enhancing practical research activities, in keeping pace with progress in international policy processes.
- (d) The encouragement of initiatives from developing countries, especially for place-based integrative research that includes interdisciplinary analyses of the effects and consequences of development pathways, and potential coping strategies pertinent to the region.
- (e) The promotion of science and technology relating to sustainability, by aligning with global scientific programmes such as those being coordinated by the International Council for Science (ICSU), etc.
- (f) The detection of global change, observing, and information gathering for early warning systems, disseminating this information to appropriate end-users, and contributing to the Global Earth Observation System of Systems (GEOSS).

3.1.2 CAPACITY BUILDING AND THE CAPaBLE PROGRAMME

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 Plan of Implementation for the World Summit on Sustainable Development (WSSD) and is registered as a WSSD Type II Partnership initiative.⁴

⁴ Of particular relevance to the CAPaBLE programme is part 111 of the plan: *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 create and strengthen networks for science and education for sustainable development, at all levels, with the aim of sharing knowledge, experiences and best practices, and building scientific capacities, particularly in developing countries.*

The CAPaBLE programme is enhancing scientific capacity in developing countries to improve decision-making relating to issues that are directly linked to their sustainable development—including climate change, water and food security, and global change in general. This effort is being achieved through a two-track process of *capacity enhancement* for experienced leading scientists and *capacity building* for aspiring scientists.

The APN's strategies are to:

1. Create a profile for the CAPaBLE programme to ensure that it continues to be a strong pillar of APN activities that it stands alone from the first pillar (the ARCP).
2. Continue its capacity building and capacity enhancement efforts in science and education at all levels from the local and community levels, to the national, regional and global levels, particularly in developing countries. This is distinct from the APN's ARCP, where activities must involve the participation of at least three APN-approved countries in the Asia-Pacific region.
3. Widen its capacity building and capacity enhancement activities in the broader context of global change, and not limit its activities to climate change or water and food security.
4. Commit the necessary time and funds to attract investments into the CAPaBLE programme. The "partnership" approach of the CAPaBLE programme will be used as the major key for seeking and securing investment from other stakeholders. In so doing, the APN will endeavour to show current investors that there is a good reason to continue investing in the CAPaBLE programme.

3.2 POLICY AGENDA

The APN is committed to "Strengthening appropriate interactions among scientists and policy-makers, and providing scientific input to policy decision-making and scientific knowledge to the public" (Goal 2.). One important role of science is to provide the underpinning information for policy- and decision-making, so it must respond to the needs of policy-makers and decision-makers. Conversely, it is important that those stakeholders indicate what their needs are. Regardless of the field, it is often a challenge to achieve appropriate linkages and interactions between science and policy processes. To address this challenge, the APN will aim to identify and develop effective methodologies and procedures in the areas under its Science Agenda, and transfer this knowledge and information to the scientific and decision-making communities. Also, as many science-based bodies face these same challenges in science-policy interactions, cooperation with them will be a good way to find solutions. The APN will strive to

achieve an excellent track record of strengthening appropriate science-policy interactions in the areas under its Science Agenda by the end of the period covered by the Second Strategic Plan.

The APN's strategies are to:

1. Support and invest in research activities that identify existing and potential good practices in approaches and options to promote appropriate interactions between science and policy. These approaches and options must be appropriate and targeted specifically for the APN and the themes in its Science Agenda (for the climate theme, for example, through science briefings, publications and the Intergovernmental Panel on Climate Change).
2. Make the greatest possible use of its findings in 1 above, for example, by publishing materials, supporting training (i.e., capacity building) activities, and incorporating these findings into the APN's ARCP and other activities (i.e., by making science-policy linkages one "deliverable" of APN-supported activities).
3. Involve APN national Focal Points, who represent their governments, in these APN activities, by seeking their guidance on best practices and opportunities to promote interactions between science and policy.
4. Cooperate with other institutions and bodies that, like the APN, address or face issues relating to science-policy interactions (e.g., by jointly investigating these issues with international global change programmes and scientific unions such as ICSU; by cooperating with the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC) or holding events in connection with the UNFCCC's Subsidiary Body for Scientific and Technological Advice (SBSTA), etc.).

3.3 INSTITUTIONAL AGENDA

The APN's Institutional Agenda includes (1) active involvement of member countries, (2) financial resources, and (3) alignment with the global change community.

3.3.1 Active Involvement of Member Countries

The APN was established as an inter-governmental network that spans the Asia-Pacific region. To be effective, it is important that each member government recognise the APN as an international network that belongs to all of its member countries and is actively engaged in addressing regional and national global change research priorities.

The APN's strategies are to:

1. Find ways to strengthen member governments' sense of ownership, including more effective efforts to determine their policy needs and priorities relating to global change.

2. Encourage member governments' APN Focal Points to play an active role in promoting the APN programme of action in their countries.
3. Enhance year-round communications between APN members, Liaison Officers, Project Leaders, the Secretariat and the global change community in general.
4. Investigate ways to obtain formal legal status as an inter-governmental network of governments in the Asia-Pacific region; this status is seen as a medium-term goal.
5. Seek ways to maximise the benefit to the APN of the knowledge and expertise of SPG members and Focal Points.
6. Encourage participation of all countries in the Asia-Pacific region.

3.3.2 Financial Resources

A limited programme budget was one obstacle the APN faced in its first ten years. In fiscal 2004, the APN's total budget was US\$2 million, of which about three-quarters was allocated to programme activities. Many stakeholders feel that more resources will be needed for the APN to better fulfil its mission in the future. Financial resources are important, and diversifying the APN's funding sources will be a high priority task during the period of this Strategic Plan. It must be mentioned that the APN sees this issue much more broadly, however, including not only financial contributions, but also all other kinds of resources from countries and institutions involved in APN activities—including in-kind contributions, such as equipment, facilities, and human resources. In fact, during the first ten years, the APN and its members were able to benefit from considerable leverage on its funds, thanks to large in-kind contributions.

The APN's strategies are:

1. The Resources Development Committee, to be formally established under the Steering Committee, will work with the Secretariat to strategically address the issue of resources for the APN, including achieving consensus on funding targets, reviewing discussions to date and realistically analysing the obstacles to raising funds, devising concrete options to raise funds, and taking action.
2. The APN will look broadly at the entire issue of resources, including ways to: (1) raise more funds directly from members, (2) leverage the impact of APN funds, including through matching and in-kind contributions, (3) mobilise more funds for the APN's scientific and capacity building activities from new sources inside and outside the APN region who have an interest in this region, (4) strategically allocate available resources among the APN's administrative and various programme activities, and (5) introduce cost effective measures to achieve its mission.
3. With continued generous support (financial and in-kind contributions) from the

Hyogo Prefectural Government, the APN Secretariat will remain in Kobe for the duration of this Strategic Plan.

3.3.3 Alignment with Programmes of the Global Change Community

The APN believes that working in partnership with other organisations involved in global change research and policy development is essential to maximise available resources and to deliver the best possible results. Key partners include the global change programmes (the International Programme of Biodiversity Science (DIVERSITAS), the International Geosphere-Biosphere Programme (IGBP), the International Human Dimensions Programme on Global Environmental Change (IHDP), and the World Climate Research Programme (WCRP) and their Earth System Science Partnership (ESSP)), the Global Change SysTem for Analysis, Research and Training (START), and the APN's sister network (the Inter-American Institute for Global Change Research (IAI)). Moreover, opportunities are constantly emerging for the APN to find new synergies (for funding, research, and network-building, etc.).

The APN's strategies are:

1. The APN will communicate and collaborate closely with organisations in the global change community to achieve shared goals. Such collaboration will include joint research projects, scientific capacity building activities, science-policy interfacing, enabling Asia-Pacific participation at international conferences, scoping workshops and developing and strengthening networks of scientists and policy-makers. In order to build momentum, whenever possible, the APN will plan joint activities using a multi-year time frame (e.g., two to three years).
2. APN-initiated and APN-funded projects will proactively seek collaboration with institutes and organisations that provide co-sponsorship and in-kind contributions. They will also seek the active involvement of host institutions, which will lead to greater sustainability of projects.
3. When appropriate, the APN will consider entering into formal arrangements with partners through exchanges of letters or memoranda of understanding that clearly state the shared goals and differentiated tasks.
4. The APN will consider establishing partnerships with countries outside the Asia-Pacific region that have an interest in scientific research being conducted within the region.

4. IMPLEMENTATION AND EVALUATION

As of 2005, the two main pillars for the APN to fulfil its mission are (1) funded activities under the competitive ARCP process and (2) the CAPaBLE programme. More activities could be added in the future, but this will depend on the development of new activities and contributions of new and additional resources by member countries. The Steering Committee and the Secretariat will be the two main organs responsible for the implementation of strategies and actions described in this Strategic Plan. The structure and flow of annual planning are shown in the figure below.

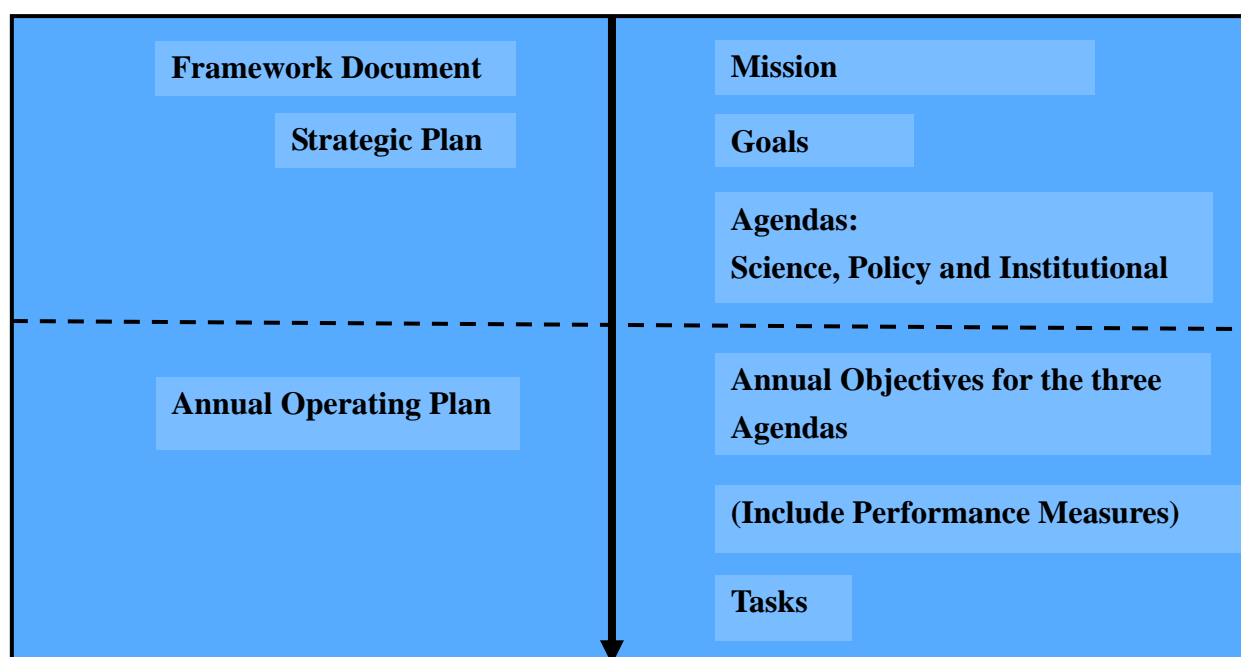
The APN's strategies are:

1. The APN will consider reforming the Steering Committee to enhance its ability to guide the APN in the intervening months between IGM sessions. The Steering Committee will periodically review the mandates and roles of the organs of the APN and propose changes, if appropriate, to ensure smooth and efficient implementation of the Second Strategic Plan.
2. The APN will consider reforming the Secretariat (including assignment of the Director for a longer term).
3. Based on the Second Strategic Plan, the Secretariat and the Steering Committee will prepare an annual operating plan for approval by the IGM. The plan will include, among other things, objectives for the year, a detailed budget, a calendar of activities, a description of activities to be implemented during the coming year in reference to the Strategic Plan, and concrete measures of performance. During the year, the Secretariat will collect and summarise data on each performance measure.
4. At the end of each year, the Steering Committee will evaluate APN's achievements related to the annual operating plan. This evaluation will be based on the annual report of activities and the audited financial report.
5. The Secretariat will develop, update, and implement a "communications and information plan" including procedures for information collection, handling, and dissemination in a strategic way that will support the entire APN network.
6. The APN will empower a committee to propose changes to the Framework Document for approval at the 11th IGM (reviewing the roles of each organ, including the "Small Group" that pre-processes proposals) and find ways to strengthen member governments' sense of partnership and ownership, including more frequent efforts to determine their policy needs and priorities relating to global change.
7. The APN will enhance year-round communications between national Focal Points,

SPG members, Liaison Officers and the Secretariat and strengthen the role of the IGM, develop a more interactive relationship with national Focal Points, and strengthen the role of Focal Points within the APN and the global change research community (scientific and policy-making). The APN will also conduct a review of the role of Liaison Officers and make changes to better meet APN objectives.

8. The APN will continue seeking ways to fulfil its mission most efficiently, by reducing administrative costs and increasing impacts (e.g., a biannual IGM, allocation of resources to different activities in the APN's overall "portfolio" of activities, seeking more joint activities with other partners that will fulfil needs but lower cost, etc.).
9. The APN will engage more proactively in dialogue with each of the main global change research partners (especially DIVERSITAS, IGBP, IHDP, WCRP and their ESSP; START; and APN's sister network, the IAI) to identify ways to contribute to the achievement of each others' goals.
10. The Steering Committee will produce a set of concrete measures by which the APN's performance can be evaluated annually and over the whole of implementation period for this Strategic Plan. In principle, the evaluation will be conducted in relation to the APN's five goals, using criteria of relevance, efficiency, effectiveness, impact, and sustainability.
11. In 2009, the APN will perform a review of performance covering the whole period of the Second Strategic Plan, and prepare a new one for the period April 2010 to March 2015.

Figure: Structure of APN Planning



5. ACKNOWLEDGEMENTS

The APN gratefully acknowledges the following parties for their generous support and input to develop this Strategic Plan:

- National Focal Points from each member country
- Scientific Planning Group members from each member country
- International bodies, particularly DIVERSITAS, IAI, IGBP, IHDP, START, and WCRP
- Scientific experts who contributed to the APN's scientific review in the Augmented Steering Committee Meeting (2004)
- APN Liaison Officers for Oceania, South Asia, Southeast Asia, and Temperate East Asia

APPENDIX

Acronyms

APN	Asia-Pacific Network for Global Change Research
ARCP	Annual Regional Call for Proposals (APN)
ASCM	Augmented Steering Committee Meeting on Oct. 2004 (APN)
CAPaBLE	"Scientific Capacity Building and Enhancement for Sustainable Development in Developing Countries" programme (APN)
DIVERSITAS	International Programme of Biodiversity Science
ESSP	Earth System Science Partnership
GEOSS	Global Earth Observation System of Systems
IAI	Inter-American Institute for Global Change Research
ICSU	International Council for Science
IGBP	International Geosphere-Biosphere Programme
IGM	Inter-Governmental Meeting (APN)
IHDP	Int'l Human Dimensions Programme on Global Environmental Change
SBSTA	Subsidiary Body for Scientific and Technological Advice (UNFCCC)
SPG	Scientific Planning Group (APN)
START	Global Change SysTem for Analysis, Research and Training
UNFCCC	United Nations Framework Convention on Climate Change
WCRP	World Climate Research Programme
WSSD	World Summit on Sustainable Development

ENDNOTE

The APN supports a wide range of research programmes and other activities that help it achieve its objectives. Without prejudice to the APN's decisions, the following list of indicative topics is provided as examples of the range of research that may be of interest to the APN. **A crucial point of clarification here is that the list outlined below is not in order of priority and is not exhaustive.** It is essentially provided to facilitate in-country discussions and to assist those interested in working with the APN.

1. Climate

- Development and application of regional scenarios for climate change including climate extremes
- Implications of global change for predictability and stability of the Asian Monsoon, and societal consequences
- Synergies between adapting to current natural climate variability and that of future human-induced climate change
- Investigation of adaptation measures in the Asia-Pacific region
- Aerosols, clouds, climate, and human health
- Mitigation options and their implications for sustainable development

2. Ecosystems, Biodiversity, and Land Use

- Changes in the carbon cycle and the water cycle
- Research and information networks for land system change
- Assessment and enhancement of land use sustainability
- Nature, extent, causes and impacts of land use change
- Regionality of ecosystem services and their changes
- Global change and mountain systems

3. Changes in the Atmospheric, Terrestrial and Marine Domains

Atmospheric Change:

- Air quality changes at various spatial and temporal scales and their impacts
- Source and sink fluxes of greenhouse gases
- Impacts of increasing atmospheric carbon dioxide and air pollutants on agricultural and natural ecosystems in the Asia-Pacific region

Changes in the Oceans and Coastal Systems:

- Structure and composition of the marine food web and its response to physical forcing and chemical regimes in coastal up-welling systems

- Aspects of physical and biogeochemical cycles and ecosystems in oxygen minimum zones (OMZ)
- Ocean acidification
- Decline and degradation of marine biodiversity, e.g., mangroves and coral reef ecosystems
- Impacts of developmental activities on the ecology and socio-economic systems of the Asia-Pacific region
- Understanding regional ocean climate variability and implications for fisheries and aquaculture

4. Use of Resources (food/water/energy/materials) and Pathways for Sustainable Development

- Environmental implications of regional policy aimed at energy security and carbon limited society
- Renewable energy systems and sources
- Economic impacts of global change on the Asia-Pacific region through the food trade chain
- Transfer of environmental burden (external cost) associated with enhancing regional material/products flow
- Regional water resource issues related to international river flows

5. Crosscutting

The APN also encourages proposals that lie across several themes; some examples might include:

- Integrated assessment techniques
- Interactions between global change and regional change
- Global change impacts and sustainable development
- Science-policy interfacing relating to global change
- Global change and water, food and health management
- Institutional dimensions of global change
- Sustainable management of urban areas, coastal zones, etc.
- Globalisation (lifestyle, consumption patterns, transport systems, etc.) and global change
- Transforming scientific knowledge to policy (e.g., communicating science, translating scientific knowledge into decision making processes, knowledge brokers, stakeholder involvement)
- Global change impacts of multilateral financial institutions
- Technology or equipment that are environmentally friendly (recyclables,

- biodegradable materials, life cycle analysis of materials, etc.)
- Global change implications of urban sprawl/urban development

6. Science-Policy Linkages

The APN recognises the importance of linkages between science and policy, i.e., two-way communications between the communities that use scientific information (policy-makers and decision-makers in society) and scientific communities. These are:

- Research of best practices in science-policy interface options potentially appropriate for APN (e.g., IPCC, science briefings, publications)
- Development of additional science-policy interface approaches potentially appropriate for the APN
- Publication of guidelines for APN scientists based on this knowledge/experience
- Training and capacity building for science-policy interfacing



APN Secretariat

IHD Centre Building, 5F, 1-5-1 Wakinohama Kaigan Dori
Chuo-ku, Kobe 651-0073, JAPAN

Tel: +81-78-230-8017

Fax: +81-78-230-8018

Email: info@apn-gcr.org

Website: <http://www.apn-gcr.org>

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