

Collaboration among Regional Centres and Networks
with a view to facilitating
the development, dissemination and application of
Methods and tools, data and observations, and climate scenarios

i. Introduction

The Nairobi work programme on Impacts, Vulnerability and Adaptation to Climate Change (NWP) is a five-year initiative (2005-2010) under the Subsidiary Body for Scientific and Technological Advice (SBSTA) to the UNFCCC.¹ Its objective is to assist all Parties to the Convention, particularly developing countries including LDCs and SIDS to (1) improve their understanding and assessment of impacts, vulnerability and adaptation; and (2) to make informed decisions on practical adaptation options and measures to respond to climate change on a sound scientific, technical and socio-economic basis, taking into account current and future climate change and variability.²

At its 28th Session (June 2008), the SBSTA mandated the secretariat to organize, under the guidance of the Chair of the SBSTA and by its 32nd Session (June 2010), a technical workshop with representatives from Parties, relevant organizations, regional centres and networks, and communities, and experts on how regional centres and networks undertaking work relevant to climate change could collaborate, with a view to:

- Providing information on the use of different methods and tools for various users and types of assessment;
- Enabling users to share information on different methods and tools, including details on their application, limitations and usefulness for different types of tasks and users;
- Facilitating a dialogue between users and developers of methods and tools to encourage the development and application of more demand- and stakeholder-driven methods and tools;
- Enabling users to exchange good practices and lessons learned in accessing and applying data;
- Promoting a dialogue between the providers and users of data in order for providers to better meet the needs of different users;
- Disseminating good practices and lessons learned in the development and application of methods and tools;
- Providing information on available climate models, scenarios and downscaled projections, including on their application, limitations and usefulness for different purposes and geographical areas;
- Facilitating feedback between users and providers of climate models, scenarios and downscaled projections, in order to enable or enhance the development and to improve the usability of regional climate models and scenarios.³

Due to the wide range of topics (e.g. methods, tools, data, modelling and scenarios etc.), issues (e.g. regional centres/networks, collaboration etc.) and stakeholder groups (e.g. decision makers, researchers, practitioners, etc) that the workshop is mandated to address, this background note aims to provide the participants of the workshop some contextual and technical background information, as well as the structure around which discussions at the workshop will be organized,

¹ <http://www.unfccc.int/nwp>

² Decision 2/CP.11, Annex, paragraph 1.

³ FCCC/SBSTA/2008/6, paragraph 32.

with a view to facilitating effective exchange of views and ideas based on a set of common understanding of the objectives and expected outcomes of the workshop, and key technical terms.

2. Objective and scope of the workshop

As stated in the above mandate, this workshop aims to enhance adaptation efforts through:

- Facilitating the sharing and exchange of information on ongoing (collaborative) efforts undertaken by different entities;
- Deliberating on ways and means to enhance collaboration among regional centres and networks;
- Fostering collaborative initiatives among regional centres and networks.

Discussions on collaboration among regional centres and networks will be within the context of providing improved technical and policy support to Parties for adaptation assessment and planning, with relation to the following three technical issues:

- Methods and tools;
- Data and observations; and
- Climate modelling, scenarios and downscaling.

To achieve the above objective, discussions at the workshop will include:

- Ongoing collaborative initiatives undertaken by regional centres and networks, including good practices and lessons learned;
- Needs of Parties for enhanced support, and their expectations from potential collaboration among regional centres and networks;
- Opportunities for collaboration among regional centres and networks;
- Possible follow up plans to turn opportunities into concrete collaborative actions/activities.

3. KEY CONCEPTS AND TERMS

3.1. Regional centres and networks

Within the context of this workshop, regional centres and networks are considered as entities with operations/activities extending beyond national boundaries. Invited regional centres and networks can be described as follows, depending their mode of operation, scope of institutional mandate, and nature of work:

By mode of operation, there are two broad types of regional centres and networks:

- **Physical centres and networks**

These include institutions with regional mandates and physical presence, for example, the secretariat of the Pacific Regional Environment Programme (SPREP) based in Apia, Samoa. They are often established by national governments in the region, with dedicated physical infrastructure, work programmes responding to regional needs, personnel and operational budget. One could label these entities as traditional regional centres and networks.

- **Virtual centres and networks**

These include entities that do not normally have a physical presence in a specific location⁴, and represent a group of traditional entities (i.e. with physical presence) or interested individuals

⁴ In some cases, there might be a small secretariat or programme office to coordinate activities.

connected together by a common working theme. For the former, the centre/network is often linked to a time-bound programme/project. For example, the Ibero-American Network of Climate Change Bureaus - RIOCC (the coordinating office is hosted in Spain), coordinates a wide range of climate related activities amongst the climate change bureaus in Latin America. For the latter, collaboration among members of the centre/network takes place largely in electronic format. The Linking Climate Adaptation (LCA) Network connects a large number of practitioners, stakeholders, researchers and policy-makers for exchange of information on climate adaptation research and practices around the globe via the Network's email list.

Similarly, regional centres and networks could be differentiated by the focus of their activities/operations:

- **Sector-/ theme-focused centres and networks**

These centres and networks focus on a specific sector (e.g. the International Water Resource Management Institute - IWRMI, the Centre for International Forestry Research - CIFOR, FAO, WHO etc.), and therefore their operations often cover more than one region. These centres develop/deliver a wide spectrum of activities (covering the entire process of knowledge production, dissemination, to application and capacity building), focusing on their specific focus subject/theme.

- **Practice-oriented centres and networks**

Rather than focusing on a particular sector/theme, some centres and networks are oriented towards a specific practice area (e.g. knowledge management, research, training and capacity building, community-based adaptation, etc.). These centres and networks can have physical presence or operate in virtual terms. For example, the regional research networks of Global change System for Analysis, Research and Training (START) support research and capacity building on global change issues pertinent to their respective regions. The AfricaAdapt network facilitates the flow of climate change adaptation knowledge for sustainable livelihoods, mostly through virtual collaboration and knowledge sharing amongst a range of stakeholder groups.

- **Social group-focused centres and networks**

There are also centres and networks mandated to address the vulnerability of particular social groups/communities. For example, Practical Action works with poor communities around the world to help them choose and use appropriate technology to improve their lives for present and future generations.

There are possibly other ways to categorize regional centres and networks and some regional centres/networks can be placed under more than one category.

Determined by their operational characteristics as well as thematic focus, different regional centres and networks will inevitably play different roles in the chain of supply and demand of scientific, technical and socio-economic advice and information. These different roles could include, inter alia:

- As **knowledge “producers”** - developing knowledge products (e.g. a computer model, a conceptual framework, a guidance document, outputs of model simulations, and datasets etc) and technical advice (e.g. briefing notes on policy implications of new scientific information, technical notes on how to interpret and apply model outputs etc.)
- As **knowledge “distributors”** - interpreting and disseminating knowledge products and technical advice;
- As **knowledge “brokers”** - communicating the supply and demand of knowledge products and technical advice.

Discussions at the workshop will include the roles of regional centres and networks of all categories as outlined above, and ways they could collaborate for providing enhanced support to Parties.

3.2. Methods and tools

In general terms, a method refers to a systematic process of analysis. It can be part of an approach (an overall scope and direction of an assessment/analysis), and utilises different qualitative and quantitative tools.

Within the context of this workshop, methods and tools refer to the analytic processes, models and techniques used to assess climate impacts, vulnerability and adaptation options. They could include:

- *Generic, conceptual frameworks* (e.g. the “standard” IPCC 7-step approach, or the UNDP Adaptation Policy Framework, etc.);
- *Sector-specific impact assessment models* (e.g. flood depth models, burden of disease models etc.); and
- *Decision support techniques* (e.g. stakeholder consultation, elicitation of expert views, multi-criteria analysis, cost-benefit analyses, etc.).

Each method and tool is developed to serve one or more specific purposes and requires a certain level of technical expertise and input data for its application. As with methods and tools in other disciplinary fields, methods and tools for adaptation assessment and planning also come with caveats and are subject to misuse should the caveats not be adequately communicated. Therefore, developers of methods and tools need to take on the responsibilities of providing sufficient guidance material to avoid misuse or misinterpret results from the application.

In addition, different methods and tools are required for performing different tasks with relation to adaptation. For example, a simple sensitivity analysis can use a simple statistical correlation in conjunction with observed climate data (e.g. rainfall records) and system performance indicators (e.g. maize yields) to determine whether climate change poses a potential risk to the system/sector of concern. On the other hand, the design of a flood defence structure meeting certain protection standard at the lowest cost would involve complex analyses cutting across climate science, engineering, and socio-economics, and therefore need a set of tools, data and techniques. For this reason, discussions on methods and tools at the workshop will be structured around three main aspects of adaptation:

- Impacts, vulnerability and adaptation assessments;
- Adaptation planning and practices; and
- Monitoring and evaluation of adaptation.

3.3. Data and observations

Once the analytical methods and tools are chosen, requirements for data will have to be met. For a vast majority of methods and tools, data and information on the current state of our natural and socio-economic systems are required to:

- Provide a benchmark to analyze changes in climatic, other environmental and socio-economic conditions and their impacts in the future;
- Identify critical thresholds within our natural and socio-economic systems for defining potential risks under changing climate and socio-economic futures; and
- Assess the efficacy of adaptation measures (e.g. through a comparison of vulnerability indices under present and future conditions).

Within the context of this workshop, “data and observations” refers to data (climatic and non-climatic) and information that can be used to characterize present-day state of the natural and socio-economic systems. Specifically, they include historical and present data for:

- **Climate variables** (e.g. temperature, precipitation, wind speed, upper and surface air flow indices, etc.);
- **Other environmental variables** (e.g. sea level, land-use land-cover types, atmospheric composition, etc.)
- **Socio-economic indicators** (e.g. GDP, nutrition statistics, employment, access to education, etc.)

Similarly, we distinguish the requirement and provision for data and observations among the three main aspects of adaptation: assessments, planning and practices, and monitoring and evaluation.

3.4. Climate modelling, scenarios and downscaling

To assess the impacts of climate change and to plan for adapting to these impacts, we need characterizations of future climate conditions. Given the inherent uncertainties within the climate system, it is not possible to describe the state of the climate at a given time in the future, for a specific location and with absolute confidence. Scenarios, defined as coherent, internally consistent, and plausible description of a possible future state of the world, have been used as a way to represent uncertainties. Climate scenarios are descriptions of possible future states of the climate at a specific spatial scale and for a particular future time horizon. Climate scenarios could be either qualitative or quantitative. Though climate analyses have moved from a purely investigative academic endeavor to a more policy-oriented exercise (to meet the information needs for adaptation decision making), yet climate scenarios currently used are still largely quantitative, and mostly derived from climate models.

General Circulation Models (GCMs) have been a primary source for developing climate scenarios. Despite their limitations (e.g. not able to fully represent some of the complex feedback mechanisms within the climate system, particularly those related to convective activities etc.), GCMs can provide globally consistent projections of climate response to alternative emissions pathways into the future, for a suite of climate variables. In particular, model experiments can capitalize on the exponentially increasing computing power for more elaborate and detailed simulations. As a result, climate scenarios derived from GCM outputs have dominated the scenarios currently being used for adaptation assessment and adaptation planning. The Data Distribution Centre (DDC)⁵ of the Intergovernmental Panel on Climate Change (IPCC) archives and disseminates outputs from GCM experiments performed in conjunction with the various IPCC assessment cycle.

However, Parties have regularly reported the limitations and inadequacy of GCM-derived climate scenarios for regional and local analyses and adaptation planning. The current generation of GCMs can only resolve at a horizontal resolution of several hundred kilometres, a scale that is too coarse for a lot of sub-national and local level analyses, and robust adaptation planning. In more extreme cases, some small island countries are represented as an ocean grid within the models. Therefore, a large range of techniques have been developed to “downscale” outputs from GCM experiments. These techniques are either statistical or dynamic in nature. Using coarse GCM projections, statistical downscaling techniques project future climate conditions for a given location on the basis of statistical relations between the local climate and large scale upper air indices under present-day conditions. Contrary to this, dynamic downscaling, sometimes also termed as regional climate modelling, resolves the biophysical processes within the climate system at a much finer resolution but with limited spatial coverage (i.e. focusing on the area of interest), using outputs from GCMs as boundary conditions.

⁵ <http://www.ipcc-data.org>

The IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) has developed guidelines for use of climate scenarios developed from regional climate modelling experiments⁶ and from statistical downscaling methods⁷. UNDP's NCSP also developed guidance documents on the development and application of climate scenarios for impact, vulnerability assessments, and adaptation planning, within the context of supporting NAI Parties to prepare their second national communications.⁸

Discussions at this workshop could consider possible collaboration in developing and providing information on climate scenarios derived from a variety of methods and sources, including those from GCMs, regional climate models as well as statistical downscaling techniques.

As with methods and tools, data and observations, the workshop will distinguish the requirement for and provision of climate scenarios among the three main aspects of adaptation: assessments, planning and practices, and monitoring and evaluation.

4. RELEVANT RECOMMENDATIONS FROM ACTIVITIES UNDER THE NAIROBI WORK PROGRAMME (NWP)

Through discussions at the various technical workshops, expert meetings, submissions by Parties and relevant organizations under the NWP, recommendations, as included in the three Calls for Action,⁹ were made to advance the work under the three thematic topics¹⁰ to be discussed at this workshop. Broadly, these recommendations call for enhanced support to Parties through:

- Development of more practical and locally relevant methods and tools;
- Improvement of data recording, archiving and rescuing;
- Development of climate scenarios at the temporal and spatial scale appropriate for policy relevant assessments and adaptation planning;
- Enhanced dialogue between the providers and users of methods and tools, data and observations, and climate scenarios;
- Better provision of technical guidance on the application of methods and tools, data and observations, and climate scenarios;
- Improvement of access to and user-friendliness of methods and tools, data and observations, and climate scenarios;
- Technical capacity building and training of in-country experts;
- Enhanced sharing of experiences and lessons learned in developing, disseminating, accessing and applying methods and tools, data and observations, and climate scenarios for impact assessment and adaptation planning.

5. STRUCTURE OF THE WORKSHOP

As shown in the figure below, the workshop will consist of an opening and introduction (unshaded area in the figure), a series of substantive sessions (shaded boxes) and a wrap up session (unshaded area). Boxes with solid shading represent plenary session and boxes with gradient shading represent breakout group sessions.

⁶ http://www.ipcc-data.org/guidelines/dgm_n01_v1_10-2003.pdf

⁷ http://www.ipcc-data.org/guidelines/dgm_n02_v1_09_2004.pdf

⁸ [http://ncsp.va-](http://ncsp.va-network.org/UserFiles/File/PDFs/Resource%20Center/Climate%20Scenarios/NCSP_climate_scenarios_guidance.pdf)

[network.org/UserFiles/File/PDFs/Resource%20Center/Climate%20Scenarios/NCSP_climate_scenarios_guidance.pdf](http://ncsp.va-network.org/UserFiles/File/PDFs/Resource%20Center/Climate%20Scenarios/NCSP_climate_scenarios_guidance.pdf)

⁹ http://unfccc.int/files/adaptation/sbsta_agenda_item_adaptation/application/pdf/cfa_m_and_t.pdf,

http://unfccc.int/files/adaptation/sbsta_agenda_item_adaptation/application/pdf/cfa_d_and_o.pdf,

http://unfccc.int/files/adaptation/sbsta_agenda_item_adaptation/application/pdf/cfa_modelling.pdf

¹⁰ These three thematic topics (work areas) are: methods and tools, data and observations, and climate modelling, scenarios and downscaling.

Substantive discussions at the workshop will be organized around three components:

1. Stocktaking and setting the scene;
2. Sharing and learning from current practices, and exploring opportunities;
3. Turning opportunities into collaborative action

5.1. Stocktaking and setting the scene

A stocktaking exercise will kick off the discussion by a selection of regional centres and networks presenting their respective current collaborative activities with relation to the three thematic topics (i.e., methods and tools, data and observations, climate scenarios) and highlighting lessons learned and perspectives on further opportunities for collaboration, and an interactive discussion for Parties to share their perspectives on needs and potential roles regional centres and networks could play in providing enhanced support through collaborative efforts.

5.2. Sharing and learning from existing practices, and exploring opportunities

Following the stocktaking exercise, in-depth discussions on current collaborative practices, Parties' needs and expectations, and possible opportunities will take place in three blocks of 2-hour plenary session and 90-minute breakout group, each focusing on one of the three thematic topics. Plenary session consists of

- One overview presentation to be delivered by a resource person, highlighting the latest development in the area of the respective thematic topic, needs and gaps, potential roles regional centres and networks could play and opportunities for them to collaborate to provide enhanced support to Parties;
- Two presentations from Parties to outline the major gaps and needs, and perspectives on opportunities for collaborative actions by regional centres and networks;
- Two presentations by regional centres and networks to inform current collaborative initiatives, existing plans and further opportunities for collaboration with other regional centres and networks

Breakout group discussions are intended for participants, in a smaller group setting, to have more in-depth discussions on opportunities, and ways and means for regional centres and networks to collaborate, within the context of providing enhanced support to Parties in the respective topical area. As outlined in Section 3 above, different aspects of adaptation have different requirements for methods and tools, baseline and scenario datasets. Therefore, three breakout groups will be established to focus discussions on the collaboration of regional centres and networks with relation to provide enhanced support for methods, tools, baseline and scenario datasets for:

- Group A - Impact and vulnerability assessments;
- Group B - Adaptation planning and practices;
- Group C - Monitoring and evaluation of adaptation.

A list of key issues to be addressed by these breakout groups will be made available at the workshop as a rough guide.

Each breakout group will be helped by co-facilitators, and a rapporteur will be designated to record key discussion points and report them back to plenary session.

5.3. Turning opportunities into action

Having shared information on existing collaborative efforts among regional centres and networks, needs and expectations from Parties, as well as insights into potential opportunities for further collaboration among regional centres and networks, a plenary session will be convened to further elaborate on ways and means, and possibilities to enhance collaborative efforts. This will

A background note to the NWP Technical Workshop on Collaboration among Regional Centres/Networks, 2-5 March 2010, Apia, Samoa

be followed by a half-day breakout group segment for participants to map out potential steps for collaboration among centres and networks.

A final plenary on substantive issues mandated for this workshop will be held in the morning session of Day 4 to consolidate ideas emerged from the discussions, and ultimately, to map out concrete follow up steps for regional centres and networks to collaborate in order to provide enhanced support to Parties with relation to work under methods and tools; data and observations; and climate modelling, scenarios and downscaling.

Proposed Proceedings for the Workshop

Tuesday, 2 March	Wednesday, 3 March	Thursday, 4 March	Friday, 5 March
Opening Introduction	data and observations		
Stocktaking	climate scenarios		
methods and tools			Updates from NWP partners Key messages Chair's summary & closure
methods and tools	climate scenarios		

Sharing, learning and exploring

Turning opportunities into action