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PROGRESS REPORT

Future Directions of the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)

(Submitted by Richard H. Moss and Jose Marengo-Orsini, Co-Chairs of the TGICA)

IPCC Secretariat

c/o WMO • 7bis, Avenue de la Paix • C.P. 2300 • 1211 Geneva 2 • Switzerland
telephone : +41 (0) 22 730 8208 / 54 / 84 • fax : +41 (0) 22 730 8025 / 13 • email : IPCC-Sec@wmo.int • **www.ipcc.ch**

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PROGRESS REPORT

Future Directions of the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)

The Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) facilitates distribution and application of climate change related data and scenarios. It has since its inception focused on facilitating research on impacts, adaptation, and vulnerability using current IPCC scenarios. The TGICA oversees a Data Distribution Centre (DDC) that provides observational data sets and scenarios of climate change and other environmental and socio-economic conditions, as well other materials such as technical guidelines needed to properly apply the data in research and assessment. The TGICA contributes to building capacity in the use of data and scenarios for climate-related research in developing and transition-economy regions and countries. The TGICA also convenes expert meetings. Members of the Task Group serve in their individual capacity as experts for a term harmonized with the IPCC assessment report cycle. Expertise on the group includes energy/emissions modeling, climate modeling, impacts-adaptation-vulnerability assessment, and cross-cutting topics such as evaluation and communication of uncertainty.

At its final meeting in Geneva (TGICA XV, November 2008), the outgoing TGICA AR4 membership reviewed progress during its term and recommended topics and issues for the TGICA AR5. This document summarizes and builds on those recommendations, which are contained in a more extensive form in the Task Group's final report to the IPCC Bureau. Priorities for TGICA AR5 will be established considering: 1) the importance of the activity for the AR5; 2) the long-term potential for facilitating research and improving future IPCC assessments; and 3) readiness for progress.

I. IPCC Data Distribution Centre

The DDC will continue to provide a "one-stop repository" for data from IPCC sources, quality-controlled, carefully vetted, and operating within a mandate from the IPCC. In addition, it should provide pointers to other centers and groups for data beyond its current holdings but needed for impacts, adaptation, and mitigation assessments.

Ongoing DDC activities to be continued:

1. Data and visualizations from scenarios on both long and intermediate-term projections as they become available from the new scenario development process. TGICA will interact with users, including those in both WG II and WG III to set priorities for archiving data from models runs to suit user needs.
2. High-resolution observational data sets—with guidance on their use in observed impacts analyses.
3. Regional high-resolution information beyond GCMs.
4. Socio-economic information at scales needed for impacts, adaptation, and mitigation assessments.
5. Other environmental information on sea level, storm surge, air pollution, and other issues.

New directions for the DDC:

1. Improve coordination and sharing of resources with organizations such as the Global Climate Observing System (GCOS) that seek to provide climate data and scenarios. This will require increased interactions with such groups.
2. Work with modeling groups to develop and disseminate an increased variety and number of *simpler data products* derived from GCMs and regional models, and more contextual information to ensure data is used properly and not to support mal-adaptation.
3. Expand information and resources on socio-economic variables for use in research and assessment by reviewing and linking to socio-economic data and scenario libraries.
4. Support the emerging science of *detection and attribution of observed changes to physical, biological, and socio-economic systems* by providing data archiving and support services to WG II lead authors working on this topic.

II. Methodologies and technical guidelines

The TGICA oversees preparation and distribution of technical guidelines on the use of scenarios. These documents are classified as IPCC "Supporting Material" as defined in the Procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of IPCC Reports.

As of November 2008, three guidelines documents were available as PDFs for downloading from the DDC:

1. The use of scenario data for climate impact and adaptation assessment.
2. Development and use of scenarios from statistical downscaling methods.
3. Development and use of scenarios from regional climate model experiments.

Three new guidelines documents are already under preparation:

1. Sea-level scenarios (this document was approved by TGICA-XV, pending a small set of revisions to be carried out by the author team and overseen by a sub-group of TGICA).
2. Observed impacts (this document exists in draft form and will be revised by the author team for consideration at TGICA-XVI).
3. Socio-economic scenarios (the contents of this document were discussed at TGICA-XV but drafting has not progressed).

Some new candidate themes have been identified for consideration as guidelines (or as shorter fact sheets, which can be presented online as html pages):

1. A description of the new scenarios being developed for the AR5 (fact sheet).
2. Representing uncertainties in IAV studies, including a discussion of how to make use of probabilistic information.
3. Providing support for application of guidelines on assessment and communication of uncertainty in the IPCC process.
4. Applying data and scenarios of extreme weather events (this will draw on material from the Special Report).
5. The use and limits of decadal scale climate predictions for assessing near-term impacts and adaptation options.
6. Development and use of "storylines" in regional scenarios for impact, adaptation and vulnerability analysis.
7. Survey, evaluation, and preliminary guidelines on services to disseminate and support use of data and scenarios for impacts, adaptation, and vulnerability analyses.

III. Training and capacity building

The TGICA contributes to building capacity in the use of data and scenarios for climate related research in developing and transition-economy regions and countries. TGICA works with organizations and activities that have training as their core mandate but does not develop training programs on its own. It has prepared a framework for capacity building that is referenced by START and other capacity building programs.

TGICA notes the continued weak synergy between institutions with climate change capacity building activities, as well as constraints on capacity to undertake training in developing nations (e.g. infrastructure and data limitations, limited personnel to fulfill mentorship roles, few instructors for training, training material weakly tailored to developing nation contexts).

TGICA recognizes that there is an increasing shift toward adaptation alongside continuing mitigation interests. This changes the character of needed information, training and capacity building.

TGICA will examine a number of key options for activities to assist in developing needed capacity:

1. Establish a dialogue among the expanding number of climate information producing organizations and facilitate greater synergy between capacity building organizations.

2. Provide new forms of data appropriate to use in low capacity settings on the DDC in response to the shift in information needs, with special emphasis on improved support for small island nations and Least Developed Countries (for which there remains a notable knowledge gap).
3. Develop support material for AR5 data targeted at appropriate usage in low capacity settings.

IV. New Scenarios Process

The process of generating new scenario literature for assessment in the AR5 is being self-organized and carried out by different communities of scientists, including the Climate Modeling (CM) Community, the Integrated Assessment Modeling (IAM) Community, and the Impacts, Adaptation, and Vulnerability (IAV) community. The new approach is designed to facilitate coordination and integration across these groups in order to provide greater compatibility and consistency of results, facilitate more concurrent work, and explore a larger range of potential climates and uncertainties.

While the IPCC is not itself preparing new scenarios or managing the process, its Working Groups will intersect with the process in numerous ways. IPCC has established a “Catalytic Group” to serve as the primary point of contact with the research community for scenario development. Working within this framework, TGICA may assist in three ways. First, making use of the DDC and in coordination with the research community, it may assist in data distribution of the various products being developed in the scenario process. Second, drawing on its cross-cutting membership (many of those who developed the new process and are participating in it have been TGICA members), TGICA may provide a technical venue to share information and monitor progress, especially as it affects the AR5. And third, drawing on its role of supporting the IAV community, it may support Working Group II to reinforce efforts to organize the IAV community to participate in the process. Drawing on the report of the IPCC Expert Meeting on Scenarios (Netherlands, September 2007), and in coordination with the research community (e.g., World Climate Research Programme and Integrated Assessment Modeling Consortium), some specific activities that TGICA could explore include expert meetings or workshops to:

1. Stimulate interdisciplinary and cross-community discussion of plans for development of an adequate “scenario library” for integrated scenarios, including the capacity to relate RCP and new socio-economic scenario information with related climate model scenarios.
2. Stimulate further development and testing of methodologies such as:
   - “Pattern scaling” of climate scenarios for marrying RCP-based climate model ensembles to new IAM scenarios.
   - Approaches for developing IAV “storylines,” qualitative explanations of the conditions and relationships among the key driving forces and their evolution over time that are needed for coordinating impacts assessments across geographic scales.
3. Encourage evaluation, management, and communication of uncertainty in scenarios across the areas of emissions, climate, and IAV research and assessment.
4. Encourage and facilitate participation of researchers from developing and EIT countries.