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## **OTHER PROGRESS REPORTS**

### **Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)**

(Submitted by the TGICA Interim Co-Chairs, Timothy Carter and Bruce Hewitson)

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## OTHER PROGRESS REPORTS

### Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)

This report outlines major developments related to the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) since the last progress report, delivered for IPCC-34 (Kampala, 18-19 November 2011, Doc. 13) by the TGICA Co-Chairs. During this period, the Task Group met for a full meeting in Palo Alto, USA (TGICA-17) on 6-8 February 2012 and a Webex teleconference on 25 May 2012. Outcomes of the former are reported here; matters arising from the latter will be reported verbally and in our written submission to IPCC-36.

#### **1. TGICA-17: 6-8 February 2012, Palo Alto, USA**

TGICA-17, generously hosted by the Carnegie Institution for Science at Jasper Ridge Biological Preserve, Palo Alto, California, USA on 6-8 February 2012, was attended by 23 TGICA members and *ex officio* members as well as IPCC Secretary Renate Christ and Working Group (WG) II Co-Chair Chris Field. Another three members contributed by teleconference to segments of the meeting. There was also a Webex presentation by Dr Richard Klein (Stockholm Environment Institute) of UNEP's Programme of Research on Vulnerability, Impacts and Adaptation (PROVIA).

This was the first full face-to-face meeting organized by the two new Co-Chairs and Co-Chair elect, and had as its three main objectives: 1) advancing the existing TGICA agenda, 2) discussing potential new initiatives and identifying new actions, and 3) prioritizing and scheduling future activities. These are treated below under three main headings: items approved, items in progress and other upcoming issues. In addition, some changes to the membership have occurred that are also reported.

#### **2. TGICA-17: Items approved and actions completed**

(a) Governance of the IPCC Data Distribution Centre (DDC) by TGICA: This document, revised from a previous version dated 12 March 2007, sets out the mission of the DDC, outlines the focus and scope of DDC activities and defines the principles under which the DDC is operated. It also explains the structure of the DDC and the roles of its managers, and describes the decision-making functions of TGICA and of a standing DDC Work-group (comprising at least three TGICA members, representing expertise across the three IPCC WGs) in providing leadership and oversight for the DDC.

(b) DDC Linking Criteria: In addition to providing a repository for quality controlled data from IPCC sources, the IPCC DDC also provides pointers to other centres and groups for data beyond its current holdings that may be useful for impacts, adaptation, vulnerability (IAV) and mitigation assessments. This document outlines a set of the criteria for assessing the eligibility of such external datasets to be linked to from the IPCC DDC web site. It comprises a three step process: (i) completion of a questionnaire by a party interested in seeing a new dataset added to the DDC; (ii) a structured assessment of the questionnaire according to criteria specified in the document, carried out by a Data Management Working Group comprising the DDC Managers and members of the DDC Work-group, and (iii) review and appraisal by the full TGICA membership. The procedures also provide for regular review of linked datasets and, if required, re-evaluation followed by updating, labelling or removal.

(c) TGICA letter on new scenarios (Annex 1): This letter, endorsed by the TGICA membership, was communicated to the Netherlands government/IPCC co-sponsored Netherlands Meeting on New Socioeconomic Pathways for Climate Change Research, 14-16 May 2012, expressing TGICA's support and potential assistance for the community-led process of new scenarios development (see Item 4b, below).

### **3. TGICA-17: Items in progress**

The Task Group has defined a series of action items for the coming months, contributing to the development of: (a) the DDC, (b) Technical Guidelines and Fact Sheets, and (c) Capacity Building.

(a) DDC items. The DDC managers undertake tasks relating to the updating of web pages and online resources, development of new supporting documentation, solicitation of information and testing of new operational procedures.

*Updating tasks include:*

- Posting the newly approved DDC governance and procedural documents
- Reviewing the DDC online user questionnaire
- Continued updating of DDC pages describing the ongoing community-led process of new scenarios development (RCPs and SSPs) for which IPCC provides a catalytic role
- Designing a new tabbed home page that is consistent with the main IPCC web site.

*New supporting documentation* is being developed on the following topics (all pending review and comment by TGICA):

- A DDC Glossary with a list of the most common terms and acronyms in use on the DDC. This draws on existing IPCC glossaries and those under development for the AR5. New visual tools for presenting terms are also being explored
- A discussion document on data attribution policy, such that datasets can be correctly and uniquely referenced according to standard methods
- A description of the CMIP5 multi-model climate dataset
- Criteria for linking to web portals and other repositories of diverse sources of data and information and/or providing guidance on the use of such portals.

*Information is being solicited* from targeted international sources about new datasets for possible inclusion at or linking to the DDC. These include:

- Regional downscaled climate datasets from the Co-Ordinated Regional Downscaling Experiment (CORDEX)
- Information on key datasets identified by WG Lead Authors that might be prime candidates for linking to in support of the AR5 process.

*Practical testing* of the new DDC Linking Criteria, described above, will be carried out by:

- Reviewing existing links to datasets on the DDC, completing the questionnaire forms and evaluating the eligibility of the data according to the newly defined criteria
- Identifying some new candidate datasets and completing the questionnaire forms.

(b) Technical Guidelines and Fact Sheets. An important role assumed by TGICA since its establishment has been the development of guidance material designed to assist researchers in the accessing, processing, application and interpretation of data and scenarios.

*Four new initiatives* were identified at TGICA-17, including:

- Developing an outline for the updating of the "General Guidelines on the use of Scenario Data for Climate Impact and Adaptation Assessment" (2007) into a shorter document to be completed by the time of the release of the AR5.
- Drafting a scoping document for a Fact Sheet to provide guidance both on the robust conclusions that can be drawn from the CMIP5 model-based projections as well as the potential limitations and pitfalls of applying these data in IAV and mitigation analyses.
- Drafting an initial version of a Fact Sheet on the downscaling of climate projections, offering some best practice principles for undertaking downscaling and applying such information. This would supersede two Technical Guidelines currently found on the DDC, respectively on statistical (2004) and dynamical (2003) methods of downscaling

- Drafting a scoping document for a Fact Sheet on the application of socioeconomic data in IAV analysis. The DDC hosts a range of socioeconomic statistics and projections, but apart from a short mention in the "General Guidelines", there is no formal guidance (to parallel that for the climate) on how such information might be deployed in developing socioeconomic scenarios for application in IAV and mitigation studies.

(c) Capacity Building. TGICA also contributes a supporting role to capacity building activities in the use of data and scenarios for climate change research in developing countries and economies in transition.

*Three initiatives* emerged out of discussions at the meeting:

- Preparation of an outline of a proposed TGICA Expert Meeting on regional information (see Annex 2 for a draft). Its aim would be to relate existing scientific knowledge (such as that produced by the IPCC) to the needs for regional application of such knowledge in developing and transition economy nations thus supporting agency agendas that promote capacity building for delivering this information and knowledge. A date in mid-2014 is currently being explored (following the approval of all three Assessment Reports but ahead of the completion of the Synthesis Report).
- Drafting of a statement highlighting those regions and key variables for which the availability of essential observational data for climate change research is currently limited. The statement will draw on recent discussions between TGICA members and international organizations responsible for the monitoring and provision of global data, and could form the basis of a formal IPCC submission to the GEOSS (Global Earth Observation System of Systems).
- Compilation of a list of existing research networks for future outreach, such as PROVIA and the Integrated Assessment Model Consortium (IAMC).

#### **4. TGICA-17: Other upcoming issues**

A questionnaire soliciting members' suggestions on future priorities for TGICA was distributed ahead of an earlier meeting, and the responses analyzed by a sub-group. TGICA-17 afforded an opportunity to consider in more detail two priority items identified from that analysis: (a) regionalization of the DDC and (b) engagement with the community process of new scenario development.

(a) DDC Regionalization: There was a breakout group discussion of a document prepared by the Co-Chairs proposing that the DDC offer entry-points for facilitating access to (reliable) regional data and scenarios. Such information is already being used extensively in the climate change research being assessed by IPCC.

It is proposed that the global components of the DDC remain unchanged, but that a new set of simple DDC entry pages be designed for designated world regions and/or for user-selected regional specifications (i.e. lat/lon co-ordinates). The content accessible from such pages could include: regionally-specific data extracted from the global data already held at the DDC; regional datasets fulfilling the Linking Criteria described above; regional information from approved IPCC assessments extracted and re-packaged (e.g. as summary figures or tables); and contextual information and guidance for potential users wishing to access regional data.

Other ideas include:

- provision of non-English entry pages for different regions (in addition to English pages), using one or more of the official UN languages relevant to each region
- compilation of an inventory of relevant datasets and information sources, including guidance, that potentially could be linked to
- organization of regional workshops to clarify regional capacities and discuss priority needs with regional scenario developers, data providers and potential users

Such an initiative would appear to be a timely and logical development of the DDC, offering a quality-controlled conduit to regional information on data and scenarios for users worldwide that is currently lacking. Such an initiative might also find favour among governments, international agencies and NGOs, which have been struggling for many years with the issue of data and scenario support for capacity building.

(b) New Scenario Development: The DDC now hosts a set of web pages describing the community-led process of new scenarios development and providing links to more information about the new set of Representative Concentration Pathways (RCPs) that have been used in climate model simulations contributing to the CMIP5 data archive. There are also pointers to more information about the ongoing process to develop socioeconomic scenarios (so-called Shared Socioeconomic Pathways – SSPs).

Since the process of new scenario development is ongoing, and is not being co-ordinated by the IPCC, any use or interpretation of new scenarios for the AR5 is a matter for the three WGs to address. However, TGICA can provide assistance, if requested, and can also host and disseminate any resulting documentation or guidance produced on the new scenarios (and see Item 2c, above).

### **5. TGICA Membership**

The TGICA membership was refreshed in 2010 ahead of TGICA-16. Since then, for a variety of reasons, the following members have stepped down: the previous Co-Chairs Richard Moss (USA) and Jose Marengo (Brazil), and more recently Mercedes Bustamante (Brazil), Tom Kram (Netherlands) and Claudia Tebaldi (USA). In addition, the nomination of an existing TGICA member for the position of developing country Co-Chair-elect is under discussion among the Co-Chairs and WGs.

The TGICA mandate states that the Group should comprise "approximately 20 members" and "include the following areas of research: climatology; climate modeling (both global and regional); physical, social, and economic impacts; adaptation; emissions modeling; and integrated assessment." Currently TGICA has 19 full and 8 *ex officio* members, with each research area covered by at least one member.

After discussion at TGICA-17, it was agreed that the membership of TGICA was currently sufficient to carry out its mandate, but that if a need is identified to draw on expertise not found in the Group, then the option exists (also mandated) to invite outside experts to specific TGICA meetings, rather than formally adding them to the group. Author teams for Technical Guidelines and Fact Sheets can also include non-members, as described in the process documents posted on the DDC.

### **6. Next meeting**

The next full meeting (TGICA-18) has been scheduled tentatively for mid-September 2012 at a location (probably in Europe) still to be finalized.



Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)

May 14, 2012  
The Hague, The Netherlands

To the Conveners and Participants of the Netherlands Meeting on New Socioeconomic Pathways for Climate Change Research,

As you gather to discuss the progress and next steps in developing "Shared Socioeconomic Pathways" for the new scenarios process, we offer the assistance and support of the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA). TGICA was established by the IPCC in 1996 to disseminate information in support of IPCC work. More specifically, it is mandated to facilitate wide availability and application of climate change related data and scenarios to enable research and sharing of information across the three IPCC Working Groups. As guided by its mandate, the Task Group: hosts a web site which disseminates climate and scenario data as well as information and guidance on data use; identifies the information needs of the climate change research community; and builds capacity in the global research community through various outreach efforts.

TGICA members appreciate the importance of the new scenario process in weaving a common thread through the climate change research communities. In particular, the Task Group attaches a high priority to the Workshop goals of furthering progress on the development of Shared Socioeconomic Pathways (SSPs) and discussing how these can be used in conjunction with the Representative Concentration Pathways (RCPs), which have in turn been applied in CMIP5 climate model runs, to create complete scenarios that meet the needs of the wider research community. These SSPs will become a valuable source of information for all climate change researchers, in particular those undertaking climate impacts, adaptation and vulnerability (IAV) and mitigation studies. In fact, scientists have already been querying members of TGICA and the RCP modelling teams on available socioeconomic data for this research.

In accordance with the TGICA mandate, the Task Group stands ready to assist the scientific community in the new scenarios process if requested, to the extent of its resources and in consideration of the needs of the IPCC Working Groups. There are several forms of assistance we can offer that may prove valuable, primarily in communicating with the scientific user community and the climate change research community at large.

Specifically, the TGICA mandate tasks us to "facilitate [the] wide availability of climate change related data and scenarios" through the Data Distribution Centre web site ([www.ipcc-data.org](http://www.ipcc-data.org)). We have already posted a series of informational web pages about the new scenarios process<sup>1</sup>, including information on and linkages to data from the RCP integrated assessment model runs and associated data (archived at IIASA) and the CMIP5 climate model experiments (archived by PCMDI and co-operating data centres). These web pages will be updated regularly with new information and data sets that comply with TGICA's criteria for quality control and scientific relevance.

Thus, in accordance with these already established criteria, the "new scenarios" web pages could be expanded to describe the activities of the Joint Impacts, Adaptation and Vulnerability and Integrated Assessment Modeling (IAV-IAM) Committee on Development and Use of Socio-economic Scenarios; disseminate word about the state of the process of SSP development; link to relevant publications, meeting reports, guidance documents, or data sets used to inform or drive models in connection with SSP development; and link to final data sets and relevant model results as they are

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<sup>1</sup> [http://sedac.ciesin.columbia.edu/ddc/ar5\\_scenario\\_process/index.html](http://sedac.ciesin.columbia.edu/ddc/ar5_scenario_process/index.html)

released by the scientific community. In effect, the DDC can then provide a consolidated resource for linkages to the multiple data sets, hosted at multiple institutions, that are connected by the common theme of research informing the new scenarios process. When made available in conjunction with appropriate guidance information, this can greatly facilitate the appropriate use of the elements of the new scenarios process independently and as a complete set of information for climate change research.

Among the tasks under its mandate, TGICA "identifies information needs in support of IPCC work" and "facilitates research on climate impacts, adaptation and mitigation". Assisting with communication and dissemination of information on the SSPs will help facilitate research in these areas. TGICA also prepares and updates Technical Guidelines and Fact Sheets offering summary information and good practice guidance on topics relating to the application and interpretation of data and scenarios in climate change research. For instance, a Fact Sheet is currently under preparation on the use of CMIP5 information, and a comprehensive guidelines document on the use of sea-level rise scenarios has recently been released. These documents are prepared by TGICA members in cooperation with outside experts following a set of procedures for drafting and review, and constitute Supporting Material under the Principles Governing IPCC Work.

TGICA can also institute user and community surveys to collect data on the needs of researchers in different areas, and specifically on how the new scenarios process meets those needs. Such surveys could inform the format and targeting of releases of additional data or information in support of the RCP and SSP processes. Over the long run, such surveys could also be used as a resource for continuing existing or initiating new community-led scenario efforts.

The final major element of the TGICA mandate is to contribute "to building capacity in the use of data and scenarios for climate-related research in developing and transition-economy regions and countries". In addition to the guidance documents described above, TGICA makes data from the web site available as non-internet media, and convenes or participates in capacity building workshops and other events. For example, TGICA is planning an expert meeting for international agency representatives on facilitating the application of regional information for IAV assessment, proposed for 2014, and is also exploring collaboration with the relevant expert groups and work programmes under the UNFCCC process<sup>2</sup>.

TGICA stands ready to support the research community as they develop these new scenarios in any of the above efforts, or in any other respect that falls within our mandate and is beneficial to the scenarios process, to the research community contributing to the IPCC assessments, and to the IPCC Working Groups.

Yours sincerely,



Timothy Carter



Bruce Hewitson

TGICA co-chairs, on behalf of the TGICA membership

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<sup>2</sup> For example, the Consultative Group of Experts for National Communications from non-Annex I Parties to the UNFCCC (CGE), the Least Developed Country Expert Group (LEG), and the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change.

## Proposal for a TGICA-sponsored Regional Expert Meeting

Bruce Hewitson, Timothy Carter: TGICA Co-chairs

**Title:** "Building capacity to apply regional information for impacts, adaptation and vulnerability (IAV) assessment"

**Date and duration:** A three day meeting in mid-2014 (following the approval of all three Assessment Reports but ahead of the completion of the AR5 Synthesis Report).

**Purpose:** To maximize the uptake and appropriate application of new regional information emerging from the IPCC AR5 in developing (DCs) and transition-economy countries (TECs) by linking experts, regional science institutions, agencies engaged in climate response activities, and relevant funding and development assistance organizations.

**Objectives:** The central objective is to build a shared appreciation among scientific bodies and development agencies of the opportunities and limits presented by new scientific knowledge on climate change for regional application in DCs and TECs. Specifically, the workshop seeks to:

- a) Bring together relevant representatives of:
  - The academic community and scientific organizations engaged in developing, assessing, applying and interpreting regional information of relevance for IAV analysis (e.g. WCRP<sup>1</sup>, PROVIA<sup>2</sup>, IAMC<sup>3</sup>, regional research programmes, etc)
  - Leading agencies engaged with climate change response in DCs and TECs, such as development banks, national aid agencies, regional NGOs concerned with climate risk reduction and development, capacity building organizations (e.g. START<sup>4</sup>, CDKN<sup>5</sup>)
  - National and regional organizations supporting IAV assessments (e.g. SADC<sup>6</sup>, ADB<sup>7</sup>, economic development ministries).
- b) Develop a common understanding of the strengths, weaknesses, gaps and limitations of climate data and information in the context of IAV assessment.
- c) Articulate best practice principles for drawing on climate and related information resources in the context of regional- and national-level assessments.
- d) Clarify priority needs for information provision and transfer from climate knowledge products.
- e) Identify guidance needs for the application of regional information in climate change analysis.
- f) Build capacity for accessing, compiling, interpreting, and applying regional climate information and addressing gaps in knowledge.

**Outputs:** The meeting outputs would include a prioritization of information needs for research, user-informed guidance on best practice for applying climate and socioeconomic information for IAV assessments, a sharing of agendas and objectives between agencies, and facilitation of communication between leading organizations. These outputs can contribute to improved synergy between the activities of different organizations, a more effective and appropriate use of regional information in undertaking IAV assessments, and hence the building of capacity to offer robust advice to decision-makers and to avoid possible maladaptation.

**Relation to TGICA:** The meeting would support key elements of TGICA's mandate, which are to:

- "...facilitate wide availability of climate change related data and scenarios to enable research and sharing of information",
- "... solicit feedback from user communities",
- "... contribute(s) to building capacity in the use of data and scenarios for climate-related research in developing and transition-economy regions and countries".

The meeting would complement a recent TGICA initiative to add regional information content within the Data Distribution Centre (DDC) and ongoing tasks to develop guidance and best practice documents to support the use of climate information in climate change research and analysis. Likewise, the meeting addresses the capacity building component through its focus on knowledge transfer, and by enhancing stakeholder understanding of the limits and strengths of information presented in IPCC assessment reports, in the DDC, and in related regional information products.

1. World Climate Research Programme; 2. Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (UNEP); 3. Integrated Assessment Modeling Consortium; 4. Global change SysTem for Analysis, Research and Training; 5. Climate and Development Knowledge Network; 6. Southern African Development Community; 7. Asian Development Bank