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REPORTS

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

(Submitted by the Acting Secretary of the IPCC)
(Prepared by the Co-Chairs of the TGICA)

REPORTS

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

This report outlines progress related to the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) since the previous report, delivered by the Co-Chairs on behalf of the Task Group at IPCC-XLI (Nairobi, 24-27 February 2015, IPCC-XLI/Doc. 10).

During this period, the Task Group held a teleconference (27 March 2015), met in New York, USA on 28-29 June 2015 (TGICA-22) and subsequently organized a TGICA Expert Meeting and "Clinic" on 30 June – 2 July 2015 at the same venue. The following sections inform on new developments reported at TGICA-22 (section 1), summarize in brief the programme and outcomes of the TGICA Expert Meeting, including outputs from the Clinic (section 2 and Annex A), and outline planned TGICA meetings and preparations for the upcoming IPCC Expert Meeting on TGICA in early 2016 (section 3).

1. TGICA-22: 28-29 June 2015, Lamont Campus, Columbia University, New York, USA

TGICA-22 was held on 28-29 June 2015 at the Lamont Campus of Columbia University, generously hosted and organized by staff at the Center for International Earth Science Information Network (CIESIN), the US node of the IPCC Data Distribution Centre (DDC) funded by the National Aeronautics and Space Administration (NASA) and the US government. The meeting was attended by seven TGICA members and six *ex officio* members with another three members joining by teleconference at relevant points during the meeting.

The following agenda items were **approved and/or implemented**:

- An interactive DDC User Survey was online from March-June 2015 and elicited 40 responses, which was not regarded as sufficient to draw general conclusions. The survey has now been re-opened to gather more data, with additional efforts made to reach a wider network of users.
- TGICA is participating in the Vulnerability, Impacts, Adaptation and Climate Services Advisory Board (VIACS-AB) for the Climate Model Intercomparison Project Phase 6 (CMIP6). The first action has been to circulate an Excel template to Impacts, Adaptation and Vulnerability (IAV) researchers to elicit information on lists of variables requested for saving as outputs to CMIP6 model runs.
- In February 2015, TGICA provided feedback to authors of ScenarioMIP, who are developing proposals for a priority list of forcing scenarios to apply in the CMIP6 climate model runs.

Other items for which there has been **significant progress** since the previous meeting include:

- Candidate composite figures and their underlying data prepared for the Working Group II (WGII) Fifth Assessment Report (AR5) have been identified for linking to, archiving or highlighting on the DDC.
- A zero-order draft of "General guidelines on the use of scenario data for the climate impact and adaptation assessment" by a multi-disciplinary author team is near completion.
- A zero-order draft Fact Sheet on "CMIP5 data provided on the DDC" is being revised ahead of external review.
- A zero-order draft Fact Sheet on "Climate Downscaling" is being revised ahead of external review.
- A short Fact Sheet about "Provisions for technology support under the United Nations Framework Convention on Climate Change (UNFCCC)" is being drafted.

2. IPCC TGICA Expert Meeting and Clinic: "Decision-centered approaches to the use of climate information" 30 June – 2 July 2015, Lamont campus, Columbia University, New York, USA

There were 46 participants at the Expert Meeting, held immediately after TGICA-22, representing multilateral, regional and bilateral agencies, relevant research communities (including TGICA members), regional centres and networks. 21 participants from developing countries (DCs) and countries with economies in transition (EITs) received IPCC Trust Fund travel support. 32 participants stayed for the Clinic on day 3.

The meeting had two key objectives. First, to help guide the appropriate adoption and application of new information emerging from the IPCC AR5 in DCs and EITs, through facilitated dialogue between climate change scientists and advisers of operational decision makers. Second, to gain greater understanding of the challenges, barriers, and needs in the uptake of climate change information by decision makers, and so inform the future developments of TGICA and broader IPCC activities.

A summary of the meeting, including its lessons and main messages, is included as Annex A to this report. A full report of the meeting is in preparation. The organizers are very grateful to Columbia University and the staff of CIESIN for making available the excellent facilities for the meeting, and to the Working Group II Technical Support Unit and the IPCC Secretariat for logistical assistance.

3. Future meetings

A TGICA teleconference is planned for September 2015. The next full meeting (TGICA-23) will take place on 26-28 October 2015 in Cape Town, South Africa. This will be the final meeting for the Task Group as currently constituted. Future work will be contingent on the outcome of an Expert Meeting, to be held ahead of 43rd Session of the IPCC (IPCC-43). This follows paragraph 15 of Decision IPCC/XLI-4 on the Future work of the IPCC with regards to IPCC Structure: which reads:

"15. To revisit the mandate of the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) at the 43rd Session of the IPCC. To this end it requested the Secretariat, in consultation with the TGICA Co-Chairs, to update the TGICA vision paper for the 43rd Session, taking into account views from scientists, IPCC Bureau, submissions from governments and IPCC observer organizations, and recommendations from an IPCC meeting of experts on this issue, organized by the Secretariat."

In light of this Expert Meeting, a discussion document presented to the 41st Session of the IPCC describing a long-term vision for TGICA and the DDC is being updated based on feedback from governments and from Task Group members at TGICA-22 for circulation to the Panel . A Scoping Paper for the Expert Meeting is also in preparation by the IPCC Secretariat with the TGICA co-chairs.

IPCC TGICA Expert Meeting
"Decision-centered approaches to the use of climate information"
30 June – 2 July 2015, Lamont campus, Columbia University, New York, USA

Steering Committee: B. Hewitson, T. Carter, R. Chen, X. Lu, J. Padgham, C. Vaughan, S. Zebiak, F. Zermoglio.

1. Purpose

This Expert Meeting, held in conjunction with TGICA-22, had two key objectives. The first was to help guide the appropriate adoption and application of new information emerging from the IPCC AR5 in developing countries (DCs) and countries with economies in transition (EITs), through facilitated dialogue between climate change scientists and advisers of operational decision makers. The second objective was to gain greater understanding of the challenges, barriers, and needs in the uptake of climate change information by decision makers, and so inform the future developments of TGICA and broader IPCC activities.

2. Participants

The participants in the meeting were by invitation. In addition to TGICA members, the primary audience was people who influence research agendas, and who advise on development policies and practices in response to climate change. There were representatives of, among others, multilateral, regional and bilateral agencies, relevant research communities, regional centers and networks. Of the 46 participants in total, 21 had DC or EIT affiliations and received IPCC Trust Fund travel support. 32 participants stayed for the clinic session on day 3. The organizers are very grateful to Columbia University and the staff of CIESIN for making available the excellent facilities for the meeting, and to the Working Group II Technical Support Unit and the IPCC Secretariat for logistical assistance.

3. Meeting agenda and foci

The meeting was expressly designed to facilitate dialogue and engagement among participants. To this end substantial time was allocated to break out groups, with session topics seeded by a limited number of presentations. The first two days focused on achieving the main objectives of the meeting, with the third day reserved as a "clinic" for those participants electing to stay on. The clinic aimed at exploring participants' individual challenges through discussion, sharing of experiences, and input from experts.

The meeting had the following structure:

Day 1

Session 1: Introduction

Session 2: The evolving needs for climate information

Key note presentations, breakout group discussions, report back from groups

Session 3: Strengthening the provision of climate information and services

Participatory exercise to explore how layering information can alter decisions.

Key note presentations, breakout group discussions, report back from groups

Invited guest lecture: Dr Sabine M. Marx, Director, Center for Research on Environmental Decisions (CRED), Columbia University: "Decision Making under Uncertainty: A Social-Science Approach to Understanding and Improving the Use of Climate Information".

Day 2

Summary of key messages from Day 1

Session 4: Application of climate information

Key note presentations, breakout group discussions, report back from groups

Session 5: Enhancing support for the provision and application of climate information Short presentations of participants perspectives. Panel discussion on strategic directions. Presentation on Working Group I (WGI) perspective. Review of key messages and recommendations followed by open plenary discussion

Day 3

Session 6: Challenges and solutions (clinics)

The day was explicitly focused on supporting participants and responding in group discussion sessions to emerging issues from individuals. The day was loosely structured to maximize flexibility for emergent group discussions and needs. Some initial input of real world experiences was provided to seed the day's activities

4. Key messages

It is clear that the IPCC has served a critical role as an honest broker on climate change, with measurable benefits and a broad reach of impacts. Nonetheless, perhaps reflecting a history rooted in establishing the knowledge basis of anthropogenic climate change, there were a number of clear emergent messages from participants that repeatedly arose in the context of the breakout group discussions. Four categories of message are distilled here, recognizing that some messages cut across categories.

a) Messages about decision makers' perspectives on climate information:

- *There is a troubling disconnect between the world of climate change research and the complicated context of decision making, in which climate risks may seem less urgent compared to present and imminent risks from non-climate stressors.* This highlights a need for the IPCC to better understand the context of "real decision-making" at different scales (for example, national, regional, and local scales; public and private sectors) – not only in terms of the needs for climate knowledge, but in how climate knowledge relates to the context of decision making. It was noted that development agencies could play an important role in bridging this gap.
- *Benefits could be gained from clearly mapping the unique value of the IPCC (including what the IPCC cannot do), and identifying how this can possibly evolve to better meet the recurrent information challenges facing decision makers.* One approach could be to engage with persons involved in real world decision-making situations needing to account for a changing climate, to explore the motivating issues and information needs (as distinct from data needs). An alternative approach involves partnering more closely with the activities of other institutions such as the World Meteorological Organization (WMO), the United Nations International Strategy for Disaster Reduction (UNISDR), the Global Framework for Climate Services (GFCS), and other frameworks such as the Sustainable Development Goals (SDGs). It was recognized that the value of such co-production opportunities may be limited by the goal of maintaining the neutrality/independence of IPCC.
- *There is a continued need for context-relevant guidance on accessing and applying climate change-relevant information. This was identified as a key gap that is in need of greater attention, though noting that it is only one (important) foundation for user decision making, which in itself does not guarantee good decisions. Developing such guidance further includes a role for users in advising on the development of climate change information products that would be most relevant.*

- *There is opportunity for greater intellectual investment in private sector partnerships, and in climate services. An issue illustrating the potential benefits of such engagement, that is much requested but currently lacking, is the articulation of quality standards of information in support of decision making.*

b) Messages relevant to the development of TGICA:

- *The IPCC Data Distribution Centre (DDC) serves an important function, but there is scope and need for greater visibility, and for further development. In particular there is a need for developing regionally relevant resources that reflect the authority of IPCC assessment content, but which are formulated in a way to support more targeted application and adoption of data by communities at regional level. For example, the DDC could provide access to both climate and related information (trends, scenarios) and a range of derived products (impacts, sector-specific indices) and do so with greater awareness of appropriate regional scales.*
- *Provide guidance on (downscaled) climate information and derived products. There was a strongly expressed need for additional guidance that helps users understand and assess the relative value of different information and data products, hence aiding responsible decision making (i.e. avoiding misapplication of information and the possibility of maladaptation).*
- *Maintain capacity in the TGICA at appropriate levels. Participants stressed the need for information holdings and guidance to be updated, and for resourcing to be appropriate for supporting and informing capacity building and knowledge sharing. For example, the latter could include facilitating relationships with communities of practice, "branded" boundary organizations or climate services and portal communities. The TGICA membership should reflect these needs.*

c) Messages to inform future developments of the IPCC:

- *The "authority" (branding) of the IPCC is implicit through the inclusion of data and scientific knowledge in IPCC assessments, but this authority does not carry through so strongly into the communication of user-relevant climate change information. A need was identified to communicate on shorter-term aspects affecting near-term decisions, and to prevent the massive (and growing) volume of data information from impeding the effective and targeted distillation and translation into appropriate knowledge for users.*
- *There is a strong need for smaller (information-based) products that complement the larger Assessment Reports. This would bring together cognate content that is spread across chapters and Working Groups in order to inform on targeted issues related to user contexts or regions. Possibilities could include a wider range of summary products, or new topics with new authors to bring in broader perspectives, and engage with those more experienced with co-production processes. It is recognized that this has implications for resourcing the TSUs and for effective cross-working group collaboration.*
- *A greater effort on knowledge sharing with other relevant organizations (including with other regional science assessments) could greatly enhance the collective resource value available to decision makers. This would include enhancing internal cross-Working Group collaborations, taking on board lessons from the experiences of other scientific organizations (e.g. Future Earth, Co-ordinated Regional Downscaling EXperiment of the WMO World Climate Research Programme, CORDEX), and facilitating more effective linkages with local, national and regional assessments (e.g. coordination of timetabling).*

d) Messages to take forward to the forthcoming IPCC Expert Meeting on Regional Projections:

- *The process for informing WGI about user needs related to risk issues can be improved, thus allowing needs to inform the underlying assessment of research. This could include engaging with sectoral/regional representation of users before climate model simulations are undertaken, and inform on needed derivative information that assists decision makers. Such engagement would also include organizations making use of information assessed by WGI – in climate services, researchers on impacts, adaptation and vulnerability (IAV) and participants in global and regional model inter-comparison projects (MIPs). Sustained engagement throughout the Sixth Assessment Report (AR6) cycle could be achieved by including IAV users on WGI author teams, along with enhanced WGI – WGII collaboration to help optimize the messages for decision makers.*
- *Support for guidance on scenario and model selection, bias correction, downscaling, uncertainty and other related topics. This is a priority need that could include identifying collaborative roles for complementary actors, or engaging with boundary organizations (climate services) to enable translation for users.*

5. Clinic day

The clinic day was grounded in a few short presentations that sought to highlight challenges in incorporating climate information. Following this the participants split into discussion groups to share experiences and discuss barriers, solutions, and options in dealing with the highly specific contexts of individual decision needs.

Much of the discussion reinforced the key messages outlined above, and in particular the need for more formal and authoritative guidance to assist decision makers in their adoption of relevant climate change information. This includes assessing appropriate sources of information by identifying their relative limits and strengths in relation to needs.

6. Summary lessons learned

The meeting outcomes reinforced the understanding that there is a substantial gap between science outputs and the context of the decision needs. This is in terms of:

- Support to help decision makers understand the information that may be taken from the diversity of data products
- Tailoring science outputs into derivative forms best suited to the application context
- Recognizing the specifics of challenges that decision makers face in selecting from a spread of options for managing risk, when operating in a landscape of sub-optimal information (form, access, availability)
- Co-exploration, which is needed to work through the complexity of decision needs in order to apply climate information effectively. Boundary organizations and climate services thus need to evolve in their activity profile beyond the delivery of static products.

Overall, decision makers operate in a complex environment in which climate change is only one of a number of issues competing for attention. There is substantial scope to enhance the multiple forms of output and delivery from the physical climate sciences, which can pinpoint the most relevant climate information and facilitate its efficient adoption for supporting responsible decisions.