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## **PROGRESS REPORTS**

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

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

## PROGRESS REPORTS

### Progress Report of the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)

This report summarises notable developments related to the Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) since the last progress report, delivered on behalf of the Task Group at IPCC-XL (Copenhagen, 27-31 October 2014, IPCC-XL/Doc. 17) by Working Group II Co-Chair Dr Chris Field. During this period, the Task Group met for one full meeting in Yokohama, Japan on 24-26 November 2014. This is described in the next section, followed by reporting of items on the TGICA agenda that have been approved or implemented (section 2) and those that are in progress (section 3). Section 4 introduces a TGICA vision document (Annex 2) setting out some future options for TGICA and for the Data Distribution Centre. Sections 5 and 6 are updates on TGICA membership and meeting planning.

#### 1. **TGICA-21: 24-26 November 2014, Pacifico Yokohama, Yokohama, Japan**

TGICA-21 took place on 24-26 November 2014 at the Pacific Convention Plaza Yokohama, Nishi-ku, Yokohama, Japan, generously hosted by the Government of Japan. This was the first TGICA meeting to be held in Japan, and was attended by 11 TGICA members and *ex officio* members with another five members joining by teleconference at various points in the proceedings.

During the meeting, a special session was held on "**Data and scenarios for climate change research in Japan**", with presentations by Japanese scientists and government representatives. In his opening remarks, Dr Taka Hiraishi, Co-Chair of the IPCC Task Force on National Greenhouse Gas Inventories (TFI, Hayama, Japan) welcomed participants on behalf of the Japanese government and stressed the important role of TGICA activities in facilitating synergies between mitigation and adaptation research. Dr Kiyoshi Takahashi (NIES National Institute for Environmental Studies, Tsukuba) summarised **National adaptation planning**, presenting a short history of Japanese impacts and adaptation research dating back to 1996, outlining the use of scenarios in current programmes, and developments leading up to the National Adaptation Plan, expected to be approved in summer 2015. **National climate scenarios** were described by Dr Izuru Takayabu (MRI Meteorological Research Institute, Japan Meteorological Agency, Tsukuba), who illustrated dynamical downscaling from global AOGCMs to horizontal scales as fine as 5 km, which are needed to resolve phenomena such as the effect of the Japan Sea on mountain snowfall. Dr Junichi Tsutsui (CRIEPI Central Research Institute of Electric Power Industry, Abiko), presented the **'Scenario initiative' activity**, which aims to facilitate inter-disciplinary co-operation on scenarios through a Task Group on Climate Scenario Utilization within SOUSEI, the Program for Risk Information on Climate Change funded by MEXT (Ministry of Education, Culture, Sports, Science and Technology). The session was also attended by the SOUSEI Program Director, Dr Akimasa Sumi (President, NIES, Tsukuba and special adviser to MEXT) as well as officials from MEXT. In his presentation **RECCA overview and post-RECCA**, Dr Fujio Kimura (JAMSTEC Japan Agency for Marine-Earth Science and Technology, Yokohama) summarised the MEXT-funded Research Program on Climate Change Adaptation (RECCA), predecessor of SOUSEI. He described the three main themes of RECCA: Water, Urban-Area, and Agriculture, Forestry and Fisheries, and their 12 component research topics, each focusing on a different Japanese prefecture. Dr Takuya Nomoto (MoE Ministry of the Environment, Tokyo) presented **S-8 overview and Adaptation Initiative**, introducing the MoE-funded Comprehensive Study on Impact Assessment and Adaptation for Climate Change (S-8) and outlining Prime Minister Shinzo Abe's 'Adaptation Initiative' to support the adaptive capacity of developing countries, announced at the New York UN Climate Summit 2014.

## 2. *Items approved and/or implemented*

Each of the following items relates to a development at the Data Distribution Centre (DDC):

- A link to the Working Group I AR5 Annex II data will be made live
- An online form for testing linking criteria will be made live
- Links to eight new datasets previously accepted according to the linking criteria are now published
- A document describing linking criteria for evaluating portals and other non-dataset entities was approved for posting
- An online DDC Glossary is now operational
- A YouTube video demonstrating the use of the DDC has been posted
- A new interactive DDC User Survey has been online since December 2014
- A TGICA Statement on *Data Accessibility and Information Needs with Respect to Climate Impacts, Adaptation, and Vulnerability* was approved and posted.

## 3. *Items in progress*

Action items that were listed in the previous progress report are only repeated in this section where there have been significant developments. They are organised under five headings: (a) development of the DDC, (b) preparation of Technical Guidelines and Fact Sheets, (c) Capacity Building, (d) Feedback on CMIP6, and (e) General TGICA issues.

(a) Development of the Data Distribution Centre is the responsibility of the DDC managers in close collaboration with a DDC work group, and under the overall direction of TGICA. Recent activities include:

- The DDC landing page is being re-designed to be more attractive for users
- Chapter CLAs are being contacted for advice and TGICA members are scanning the reports to identify other datasets additional to CMIP5 that have been assessed in the AR5 (across all three Working Groups), including supplementary material, for potential archiving or linking by the DDC
- Some supplementary data from the AR5 (e.g. scatter plots, extremes tables) are already being extracted and archived
- The WG III AR5 emissions scenario database is being archived, in co-operation with the WG III TSU
- Nine datasets that the DDC might link to have been reviewed and five are pending review using formal linking criteria
- Initial results (from two months of responses) to the new DDC User Survey will be evaluated in early 2015.

(b) Technical Guidelines and Fact Sheets. TGICA also develops Technical Guidelines and (shorter) Fact Sheets for assisting researchers in the accessing, processing, application and interpretation of data and scenarios. Seven documents that are at different stages of preparation were listed in the previous progress report (IPCC-XL/Doc. 17). In addition, scoping of nine possible new documents is being undertaken by TGICA members.

(c) Capacity Building. TGICA 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. Activities updated from the previous progress report include:

- A TGICA Expert Meeting on Regional Capacity Building, relating to "Climate change data and information of importance for supporting adaptation decision making" is being planned in conjunction with a full TGICA meeting. A scoping document for this meeting is attached as Annex 1. Budgetary requirements have been reflected already in the budget for the year 2015, approved by the Panel at its 40<sup>th</sup> Session.
- Ideas for a new TGICA web page introducing capacity building activities in TGICA have been compiled and will be formulated into a proposal.

(d) Feedback on CMIP6. Feedback is being prepared on proposals for the design of CMIP6 (Climate Model Intercomparison Project Phase 6), specifically proposals on the priority list of forcing scenarios to apply in the new climate model runs (ScenarioMIP), will be submitted to the ScenarioMIP author team in early February.

(e) General TGICA activities. Regarding issues that relate to the management and dissemination of TGICA activities in general, the Task Group is preparing ideas for developing and posting new content about TGICA activities on the existing IPCC/TGICA webpage (in co-operation with the Secretariat) as well as a medium to long-term vision for the further development of these pages.

#### **4. TGICA submissions**

As the end of the IPCC assessment cycle approaches, TGICA has prepared a discussion document mapping a long-term vision, including some alternatives, for TGICA and for the DDC (Annex 2). This includes a proposal suggesting how indexing of data content on the DDC originating from the assessment reports can be enhanced in the next IPCC cycle. The document also recognises a deficit in the capacity to serve the TGICA mandate sufficiently in light of the evolving landscape of the IPCC and the broader climate change communities. It recommends that the operations of TGICA be strengthened through creation of a dedicated programme support position. It also proposes that resource allocation for the DDC be increased to account for a growing set of demands for data and scenario archiving and preparation of new documentation and guidance required by an expanding worldwide user community. Working Group Co-Chairs and TSUs as well as representatives of governments supporting the DDC have already provided input to this document.

#### **5. TGICA membership**

The Task Group welcomed Dr Martina Stockhause, *ex officio* member from the Deutsches Klimarechenzentrum (DKRZ), Hamburg, Germany, who participated by telephone in her first full meeting.

The Co-Chairs would like to restate that TGICA is due to refresh its membership by the end of 2015. For continuity purposes, it is desirable that the nomination process to select high quality and motivated candidates for TGICA membership be expedited as speedily as possible.

#### **6. Next meeting**

A Webex meeting is planned for February/March 2015. The next full meeting (TGICA-22) will take place in conjunction with the Expert Meeting on Regional Capacity Building proposed for 30 June – 2 July at Columbia University, New York, USA, for which a scoping document and budget are attached as Annex 1. A further meeting (TGICA-23) is timetabled for the end of 2015.

## Scoping paper for a TGICA Regional Expert Meeting

Bruce Hewitson, Timothy Carter, Xianfu Lu, Bob Chen.

### "Decision-centered approach to the use of climate information "

**Date and duration:** A 2-day meeting<sup>1</sup> from 30 June to 1 July, with a third day (2 July) for a clinic to work through specific real world cases brought by participants

**Location:** Lamont campus, Columbia University, New York<sup>2</sup>, USA

**Local host:** Dr. Robert S. Chen, Director, CIESIN, The Earth Institute

**Partners:** The TGICA recognize the intellectual complementarity of the work undertaken by START (in capacity building) and by the WCRP's Working Group on Regional Climate (WGRC). Members of these two organizations will provide additional intellectual input into the running of the expert meeting.

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#### Purpose

This expert meeting aims to guide and promote the appropriate application of new information emerging from the IPCC AR5 in developing countries (DCs) and countries with economies in transition (EITs) by linking experts with operational decision makers in major regional and international science, funding, and development assistance agencies engaged in climate response activities.

The meeting addresses a common challenge facing both providers and users of climate information, namely the delivery of model-based and observational climate data and its conversion into regionally relevant and actionable climate information. This information is often paired with equivalent data describing non-climate stressors. Each of these steps can entail decisions about the adoption and use of data that may influence the outcomes of studies that apply the information or actions that are based on it. Further exacerbating the choices available is the rapid proliferation of climate services that seek to re-interpret contrasting data sets assessed by the IPCC (and from elsewhere), and where contradicting messages may confound a clear decision relevant context.

#### Focus

The primary focus is on how to use climate information to support adaptation/climate risk management. The meeting will engage in participatory processes to present and explore approaches to using climate information, including understanding the information limits to available products and resources, methods of assessing scale relevant information, and guidance on the integration of climate information alongside information on non-climate stressors.

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<sup>1</sup> The intention is to hold TGICA-22 committee meeting back to back in order to save some costs.

<sup>2</sup> While the beneficiaries of the meeting are developing countries and countries with economies in transition, the busy schedules of the target agencies are best facilitated by hosting the meeting in a location that is a major transport hub with frequent and easy access.

### Target audience

The primary audience is people influencing research agenda, advising on development policies and practices. These include, among others,

- Multilateral, regional and bilateral agencies (e.g. UN agencies, intergovernmental agencies, WB, regional development banks, major national development agencies, bilateral aid agencies);
- Relevant research communities (e.g. CM, IAV, IAM communities, WCRP, Future Earth, PROVIA);
- UNFCCC constituted bodies/expert groups (e.g. CGE, LEG, TEC);
- Relevant regional centers and networks (e.g. APN, ACPC)

### Number of participants

A maximum of 50. Of these up to 30 will be representatives from DCs and EITs. An additional 20 self-funded places will be reserved for participants from major international organizations.

### Objectives

The central objective is to enhance appropriate application of climate information in a time of rapid growth in the offerings of climate information and services, and to foster collaboration among scientific bodies and climate risk management practitioners on the use of new scientific information and knowledge on climate change for regional application in DCs and EITs. By bringing together relevant representatives of 1) the academic community and scientific organizations engaged in developing, assessing, applying and interpreting regional information of relevance for IAV analysis, 2) Leading agencies engaged with climate change response in DCs and EITs, such as development banks, bilateral aid agencies, regional NGOs concerned with climate risk reduction and development, capacity building organizations<sup>3</sup>; and 3) National and regional organizations supporting IAV assessments<sup>4</sup>, the workshop seeks to:

- a) **Support the *integration of research*** by sharing the latest science of relevance across communities through a problem-based organizational approach focused on several cross-cutting themes;
- b) **Provide a space for learning and developing a common understanding** of the use, strengths, weaknesses, gaps and limitations of climate data and information in the context of IAV assessment, and **articulating best practice principles for drawing on climate** and related information resources in the context of regional- and national-level assessments;
- c) **Identify and prioritize the needs** for information, knowledge products and guidance across the target communities; and
- d) **Build capacity** for accessing, selecting, compiling, interpreting, and applying regional climate information and addressing gaps in information and knowledge.

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<sup>3</sup> (e.g. START4, CDKN5)

<sup>4</sup> (e.g. SADC6, ADB7, economic development ministries)

### Content, agenda and format

The TGICA have identified 4 leading topics of importance to provide operational decision makers with the appropriate context:

- a) Framing for the use of climate information; moving from a science first approach towards a decision-first paradigm;
- b) Typology of decision contexts: climate information needs, confidence/uncertainty levels;
- c) Ethics of climate services (to provide details on the limits of information); and
- d) Managing the multiplicity of regional messages, recognizing contradictions

To address these, the meeting will be framed around the following structure over the 2 initial days (the 3<sup>rd</sup> day will be a clinic). This combines presentations, dialogues, working groups and training sessions. The workshop will use several cross-cutting themes to ground the discussions on problem-based analysis to support decision making in specific locations or regions, because the dynamics of both human and environmental systems play out in different ways in different places and decisions must therefore be context-specific. The initial proposed themes are:

- Trans-boundary water resource management;
- Current 'state of the regions'- perhaps to be linked to the regions defined for the DDC regionalization proposal;
- Applying climate information in regional and national adaptation planning; and
- Urban issues in coastal cities.

The structure of the activities in the meeting will be based on:

- a) 4-5 keynote presentations with supporting panel discussion;
- b) Break out groups on exemplar place-based worked examples<sup>5</sup>;
- c) Poster sessions where participants can share their experiences and approaches to using regional climate change information for adaptation and risk management;
- d) Breakout groups that draw on (a), (b) and (c) to develop key summaries of topics and issues that need attention from IPCC assessments, and by the research community; and
- e) Breakout groups to learn from the experience of the participants and explore the specificities and commonalities of information needs by the different participating organizations, and where the key bottlenecks undermine effective decision and risk management actions.

### Outputs

The meeting outputs would include a prioritization of information needs for research, user informed guidance on good 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. Results from the clinic day and worked examples discussed at the meeting will additionally form a basis (as appropriate) for developing further TGICA guidance materials. These outputs can contribute to improved synergy between the activities of different organizations, a

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<sup>5</sup> With the additional view that these could possible provide a foundation for TGICA worked example for supporting TGICA guidance documents.

more effective and appropriate use of regional information in undertaking IAV assessments, and hence the building of capacity to offer robust advice to operational decision makers and to avoid possible maladaptation.

**Relation to TGICA mandate:** This proposal falls centrally in the TGICA mandate, which notes the following relevant elements:

- "...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 will additionally 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.

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**Budget (as approved by IPCC-40)**

30 DC/EIT journeys	120,000.00
Other costs	20,400.00
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Total	140,400.00

Finland has generously agreed to provide financial support for the above and, if needed, to support additional identified key participants not eligible for support through the IPCC Trust Fund, but who the organizers feel would bring valuable contributions.



## The Future of TGICA and the IPCC Data Distribution Centre

Report on Future Options from the  
IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA)

### SUMMARY

*This document presents the current perspectives of the TGICA membership on the future of the Task Group and of the Data Distribution Centre (DDC) as the IPCC enters the next cycle. The views presented draw on the Group's experience and strong engagement across the relevant communities of practice. Three options are presented: (1) Discontinue or severely curtail TGICA and discontinue the DDC; (2) maintain the status quo; or (3) strengthen TGICA and upgrade the DDC. After considering each of these, it is proposed that Option 3 offers the only vision capable of fulfilling the full potential of TGICA's mandate into the future.*

*Based on current and anticipated future demand for climate change related data and information and associated guidance material, it is proposed that the operations of TGICA be strengthened through dedicated programme support. Better use can then be made of the available (volunteer) intellectual resources in the Task Group and liaison improved with the IPCC Working Groups and Secretariat. Increased resource allocation for the DDC will ensure essential continuity in the archiving and curating of data and scenario information used in IPCC assessments, while enabling TGICA to develop a proposed new dataset index, guarantee sufficient capacity for processing a more comprehensive set of data, and facilitate development of new documentation and guidance required by an expanding worldwide user community. In this way, the Task Group will be better placed to serve a growing user community, and the DDC can provide a much needed authoritative reference among the proliferation of online data and scenario products of mixed quality being offered from other sources.*

### 1. Current status

#### 1.1 TGICA

TGICA is an IPCC body with members nominated by national Focal Points, bringing together diverse expertise and experiences drawn from a cross section of research communities representing all three IPCC Working Groups as well as DDC users. TGICA's mandate is to “*facilitate wide availability of climate change related data and scenarios to enable research and sharing of information across the IPCC Working Groups*”. The Task Group co-ordinates the DDC, produces guidance materials distributed through the DDC as peer-reviewed documents of IPCC Supporting Material and contributes to building capacity in the use of data and scenarios for climate change research.

#### 1.2 The DDC

The DDC provides a means of accessing climate, socio-economic and environmental data, both from historical observations and from future scenario projections, in support of IPCC work and

as used in the IPCC assessments. The DDC is designed primarily for climate change researchers, but is also relevant to educators, practitioners, governmental and non-governmental organisations, and the public<sup>1</sup>. The DDC complements the dissemination of data and information from elsewhere in the IPCC, such as from the IPCC Working Group websites, and wider international research community, such as the CMIP5<sup>2</sup> portal at PCMDI<sup>3</sup> socio-economic data at CIESIN<sup>4</sup>, and the RCP<sup>5</sup> as well as scenario databases at IIASA<sup>6</sup>, by providing access to key datasets used in IPCC assessment reports. Uniquely, the DDC provides a persistent (though not fully comprehensive) repository of data and information from all five IPCC assessments.

DDC managers also provide expertise on data management in support of IPCC reports. For example, for the Fifth Assessment, they designed the quality control protocol for climate model data, digitised key tables from the final report and in the process identified a number of minor errors, and provided guidance to the IAM<sup>7</sup> and IAV<sup>8</sup> communities on data stewardship. They also handle data and scenario information contained in Supplementary Material and Annexes that are included in the Assessment Reports, for eventual inclusion in the DDC.

## 2. Challenges and opportunities

TGICA (and the IPCC) are faced with a rapidly evolving landscape of initiatives and organizations handling and disseminating climate change related data and scenario information. This raises a critical need for authoritative and objective support.

### 2.1 Knowledge exchange across IPCC Working Groups

The mandate of TGICA is to facilitate wide availability of climate change related data and scenarios to enable research and sharing of information across the three IPCC Working Groups. To date, this has primarily been accomplished through development of guidance materials for use by researchers working on topics at the interface between different Working Groups, for example, scenario data applications for IAV assessment, climate data downscaling and the nature and attributes of climate model data. The DDC also hosts data and scenario information generated by and of importance to the Working Group reports. There is growing pressure to facilitate enhanced cross-Working Group exchanges of data and scenario information, and the TGICA is uniquely placed to contribute to this and complement the direct interactions between authors from different Working Groups that already occur.

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<sup>1</sup> From Nov 2013-Nov 2014, there were more than 112,000 user sessions, representing over 86,000 users from developed and developing countries. The most active users are in the United States and United Kingdom, and the top 10 countries include India, China and Brazil. The most accessed pages are on: carbon dioxide projections, climate observations, and guidance on global climate models.

<sup>2</sup> Coupled Model Intercomparison Project Phase 5

<sup>3</sup> Program on Climate Model Diagnostics and Intercomparison

<sup>4</sup> Center for International Earth Science Information Network

<sup>5</sup> Representative Concentration Pathway

<sup>6</sup> International Institute for Applied Systems Analysis

<sup>7</sup> Integrated Assessment Modeling

<sup>8</sup> Impacts, adaptation and vulnerability

## 2.2 Increase engagement with users and accessibility of IPCC information

DDC users come in several categories. One group, the climate change research community, is beginning to expect a higher standard of data availability, including data and outputs generated as part of IPCC assessments. Furthermore, not only are high quality data essential for undertaking new research, but the outcomes of this research may themselves find their way into subsequent IPCC assessments. Through the DDC the IPCC already has the infrastructure in place that, with appropriate resourcing, can make data and supporting information from the assessment reports available in a comprehensive manner.

A second user group, more oriented towards regional to local scale applications, and arguably of substantial societal importance, has different data and information needs. For example, the increasing interest from adaptation practitioners (engineers, urban planners, etc.) for derived products at the regional scale (such as intensity-duration-frequency rainfall curves, or heat stress indicators). Current resources do not enable TGICA and the DDC to engage with or contribute to the needs of these communities, leaving a gap in connecting them to IPCC data and scenario information and in feeding back their insights to the IPCC processes.

## 2.3 A new look at documenting data associated with IPCC Assessments

The current process to distribute data and information used in the IPCC assessment through the DDC involves time consuming post-processing by the authors, the TSUs and the DDC. An opportunity exists to greatly improve the efficiency and use of shared data throughout the assessment process by the development of a dataset index to record the source and provide a reference for each dataset used (see summary in Annex A). This would support the work of the author teams and would involve only a modest addition to the responsibilities of chapter authors and TSUs. It would yield a significant and long lasting benefit through sharing of information during the assessment process and provide systematic and complete documentation of all the data resources used. The concept is to create an index which is comprehensive in terms of the data resources covered, but simple enough for each entry to avoid imposing a burden on resources.

## 2.4 Resource limitations constrain ability to achieve objectives

The IPCC assessments and Special Reports generate a considerable and growing amount of information relevant to climate applications and cross-disciplinary analyses. With limited resources, it has been challenging for DDC and TGICA to offer adequate support for capacity building activities. The main limitation is that the volunteer capacity of the TGICA does not have dedicated staffing for support such as facilitating meetings, coordinating the development of new guidance materials, and liaising with the Working Groups, instead relying on the assistance of Working Group TSUs when available. It has been particularly difficult to establish ongoing activities within the impacts, adaptation and vulnerability research and practitioner communities, who are more fragmented than the climate science and energy-emission modelling communities and so need more time-consuming engagement. It is important for TGICA and the DDC to engage on this issue more effectively and on a more continuous basis for the purpose of building capacity, particularly in developing countries.

### 3. Options for the Future Role of TGICA and the DDC

The TGICA members have considered a range of options for the future, and present these for the IPCC to consider, with TGICA's recommendation and justification on our preferred option.

#### 3.1 Option 1 – Discontinue or severely curtail TGICA and discontinue the DDC

One option is to discontinue the DDC, and pass over its functions to the Working Groups. Since the DDC is an integral part of the current TGICA mandate, this would imply either revising the TGICA mandate or discontinuing TGICA. A revised mandate could limit TGICA activities to the production of guidance material and support for capacity building. We have considered whether elements of the DDC, particularly archiving of climate scenario and emissions data, could be carried out by others. For instance, the responsibility and tasks could be taken up by the IPCC Working Groups who could individually store all of their relevant information in an accessible form, supplemented with guidance notes on the use of their data sets. With a revised mandate, the role of TGICA could be more oriented towards guidance for the Working Groups on additions to their web pages. However, such a transfer would carry substantial resource implications for personnel and infrastructure at the TSUs and possibly weaken the coherence of the activities. Moreover, the transitory nature of the Working Group leadership and TSUs can pose a continuity challenge for providing secure, long-term preservation of data, expertise on data management and user support.

Additionally, sites developed by the research community outside of the IPCC structure serve an important role in supporting the scientific work that is assessed by the IPCC. The RCP database, developed for the Integrated Assessment Modeling Consortium and hosted by IIASA, is a good example. Since these data were fundamental inputs to the IPCC AR5, the DDC still assumed a critical role in hosting a curated, quality controlled version to provide secure long term preservation of this resource. The fate of such resources would thus also need to be considered following discontinuation of the DDC.

#### 3.2 Option 2 – Status quo

The second option is to maintain the status quo with no expansion of activities. Continual assessment of priorities to put existing resources to best use will be needed as not all needs could be served. For example, while at least the creation of a dataset index (see Annex A) might be conceivable with existing resources, without additional support the number of new technical guidelines and fact sheets, and any expansion of data hosted by DDC, would necessarily need to be limited. Likewise, the role of TGICA in enabling research and sharing of data and scenarios across the IPCC Working Groups and support for capacity building would continue to be small. Even the maintenance of current capabilities presents a continuing challenge, resting largely on the voluntary contributions and dedication of Task Group members who are often already heavily committed to other IPCC duties as well as their own institutional responsibilities. The IPCC Trust Fund currently provides travel funding to facilitate two full face-to-face meetings per year. Teleconference meetings are resourced by the responsible Working Group TSU (currently Working Group II).

### 3.3 Option 3 – Deploy increased resources for strengthening TGICA and upgrading the DDC

TGICA has a unique mandate within IPCC: enabling cross-Working Group data and scenario exchange and interaction, co-ordinating the DDC (which is itself a unique resource), and contributing to capacity building. The data and scenario archive, documentation, technical guidelines and other IPCC supporting material provided by TGICA represent an authoritative source of information for the research community. To fully exploit the TGICA potential would require increased funding for TGICA and DDC beyond current levels, and full-time programme support beyond reliance on existing IPCC WG TSUs.

*Full-time TGICA programme support.* We envision a new position of one full-time professional for TGICA and DDC programme support that would serve the role of coordination of activities within TGICA, across the DDC centres, and between TGICA, the DDC, IPCC Working Groups and Secretariat. This position would take over some functions currently supplied by the Working Group TSUs, such as meeting coordination, but also serve an expanded role in two main areas.

First, this position would coordinate production of technical guidelines, fact sheets, and new material for the DDC by setting timelines, arranging virtual meetings, communicating with contributing authors, and coordinating document review and publication. Second, this position would assist TGICA in capacity building activities, including the organization of an annual or bi-annual workshop to serve developing region scientists, establishment of a contact point for feedback on TGICA guidance material and other initiatives, and maintenance of an existing list of networks for future outreach.

Establishing such a support position would greatly enhance the productivity of TGICA, and make the best use of the scientific and technical expertise of TGICA members and DDC managers. There are several options for location of such a position. The first option could be for a person to be located with one of the TGICA Co-Chairs, possibly funded by the nominating member country. However, this arrangement presumes that the Co-Chair remains in post for the full cycle, and may also pose difficulties of continuity between cycles. A second option would be for one of the countries supporting the DDC to host the position, with additional travel and subsistence funds for short-period secondments to work at the institution(s) of either or both of the Co-Chairs. A third option would be for the Secretariat to host the position with additional funds for short-period secondments.

*Increased resourcing of the DDC.* In addition, we propose increased funding for the DDC, to complement the current generous long-term support from the UK, Germany and USA. We would estimate that an approximate 50-100% increase of personnel time allocated to the DDC, along with an expanded budget for infrastructural support (e.g. computers, data storage facilities) could yield real dividends. It would enable new datasets to be archived for which resources are currently insufficient, including data from chapters on observed impacts of climate change and impact projections from various global models. It would also facilitate an enhanced focus on linking to data and information for different world regions and on generic guidance for users in applying these. A third priority would be to improve accessibility, download efficiency and distribution of data to users, especially in developing countries and EITs, where the potential for application of DDC data has yet to be fully realised. Finally, it would offer an

additional impetus for the establishment of a dataset index (see Annex A) that could embrace a wider range of holdings than at present, including datasets from IAV research.

*General strengthening of TGICA.* Under all three options that assume a continued role for TGICA, its effectiveness could benefit from improved co-ordination of the TGICA nomination and selection process with that of author selection for assessment reports, drawing from authors with data and scenario expertise as well as authors tasked with specific cross-Working Group activities. Liaison between the TGICA Co-Chairs and Working Group Co-Chairs could also be strengthened with a view to harmonising TGICA activities with the data and scenario needs of IPCC work during the assessment cycle.

#### **4. Recommendation**

TGICA is recommending that IPCC strongly consider Option 3. A strengthened TGICA and upgraded DDC, with dedicated support and more efficient use of scientific and technical expertise, would bring greater value to the IPCC and to the climate change research community, offer continuity of archiving of data and information used in the IPCC assessments, support and guidance for worldwide knowledge transfer, and serve to buttress the cyclical process of IPCC Working Group and topical assessments.

#### **Annex A: IPCC Assessment Dataset Index**

The presentation of IPCC results relies heavily on references to data resources. Many visitors to the IPCC Data Distribution Centre web site are disappointed to find that data products cited by IPCC representatives are neither available nor discoverable through the IPCC DDC. The DDC has recently focused on making data which are held elsewhere discoverable, since resource limitations and intellectual property rights issues limit what can be held locally. A substantial range of resources referred to in the Fifth Assessment Report will be captured by the ongoing work by TGICA and the DDC to index the data used and provide appropriate links to the primary sources. This runs in parallel to ongoing efforts to collect core climate projections to ensure that this data are well documented and archived.

We propose the establishment of a cross-Working Group dataset index, which will exploit the system being used in the DDC for *a posteriori* capture of information about data and move to a more efficient procedure based on *a priori* capture of such information. The index would gather information from the authors as they prepare the report. The information would be no more than that authors would ordinarily be expected to record for their own use: where the data came from, an appropriate citation and possibly some keywords. The precise formulation of the questions to be answered would have to be agreed across TSUs, but should be of the order of 3 or 4 questions. The objective would be to reach an agreement on a level of information which is consistent with good practice and which can be recorded without disrupting the review process. The added value of the index would come not from any additional assessment but from being able to share information in a searchable form across Working Groups during report preparation and externally after publication.

The index would lead to efficiency savings by providing a systematic means of sharing information on data resources. It is important to decide on an appropriate level of detail, and this decision needs to be taken early in the review process (e.g. when the report outline is approved). From the DDC perspective, the implementation of an index would make it possible to develop a comprehensive index within the existing resource envelope.

There is an opportunity to improve substantially the way in which data resources are documented within the IPCC assessment reports. By exploiting a framework developed by TGICA and the DDC in co-operation with the Working Groups, this improvement can be achieved with modest resources.