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UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

SUBSIDIARY BODY FOR SCIENTIFIC AND TECHNOLOGICAL ADVICE
Twenty-seventh session
Bali, 3–11 December 2007

Item 3 of the provisional agenda
Nairobi work programme on impacts, vulnerability and adaptation to climate change

Information and views on socio-economic information

Submissions from relevant organizations

1. The Subsidiary Body for Scientific and Technological Advice, at its twenty-fifth session, invited relevant organizations to submit to the secretariat, by 21 September 2007, information and views on matters relating to the availability of information on the socio-economic aspects of climate change and improving the integration of socio-economic information into impact and vulnerability assessments, including information on the development of socio-economic scenarios and for understanding adaptive capacity, including:

(a) Existing approaches and available data;

(b) Needs, gaps, barriers and constraints;

(c) Ways and means to improve availability and access to relevant information, including information on costs and benefits, as well as its better integration into impact and vulnerability assessments (FCCC/SBSTA/2006/11, para. 51).

2. The secretariat has received four such submissions. In accordance with the procedure for miscellaneous documents, the two submissions received from an United Nations and an intergovernmental organization are attached and reproduced[*] in the language in which they were received and without formal editing. In line with established practice, the two submissions from non-governmental organizations have been posted on the UNFCCC website at <http://unfccc.int/3689.php>.

[*] These submissions have been electronically imported in order to make it available on electronic systems, including the World Wide Web. The secretariat has made every effort to ensure the correct reproduction of the text as submitted.

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PAPER NO. 1: SECRETARIAT OF THE UNITED NATIONS INTERNATIONAL STRATEGY FOR DISASTER REDUCTION

Submission to UNFCCC Nairobi Work Programme on Socio-Economic Aspects of Climate Change

Submitted on behalf of ISDR system

by ISDR secretariat and ProVention Consortium

This submission is made on behalf of the International Strategy for Disaster Reduction system by the ISDR secretariat and ProVention Consortium in response to the Nairobi Work Programme's call for socio-economic information. As requested the submission addresses:

(a) Existing approaches and available data

(b) Needs, gaps, barriers and constraints

(c) Ways and means to improve availability and access to relevant information, including information on costs and benefits, as well as its better integration into impact and vulnerability assessments.

(a) Existing approaches and available data

Significant progress has been made by the international community in recent years in improving the quality and accuracy of global disaster data collection, in developing indicators and indexes of disaster risk and in developing tools and methods for assessing disaster risk at the different spatial levels. The following products include relevant socio-economic information.

Risk Assessment Reports

Natural Disaster Hotspots, A Global Risk Analysis. World Bank. 2005.

Natural Disaster Hotspots presents a global view of major natural disaster risk hotspots areas at relatively high risk of loss from one or more natural hazards. It summarizes the results of an interdisciplinary analysis of the location and characteristics of hotspots for six natural hazards - earthquakes, volcanoes, landslides, floods, drought, and cyclones. Data on these hazards are combined with state-of-the-art data on the sub-national distribution of population and economic output and past disaster losses to identify areas at relatively high risk from one or more hazards.
http://www.proventionconsortium.org/themes/default/pdfs/Hotspots.pdf

Vulnerability and Risk Assessment. Coburn, A.W., Spence, R.J.S. and Pomonis, A. 1994. UNDP and Disaster Management Training Programme (DMTP). 2nd edition. Cambridge, United Kingdom: Cambridge Architectural Research Limited.
www.undmtp.org/english/vulnerability_riskassessment/vulnerability.pdf

Reducing Disaster Risk, A Challenge for Development. UNDP. 2004

Disasters exert an enormous toll on development and pose a significant threat to prospects for achieving the Millennium Development Goals, in particular the target of halving extreme poverty by 2015. Today, 85 percent of the people exposed to earthquakes, tropical cyclones, floods and droughts live in countries having either medium or low human development. This Report is premised on the belief that in many countries the process of development itself has a huge impact — both positive and negative — on disaster risk. It shows how countries that face similar patterns of natural hazards — from floods to droughts — often experience widely differing impacts when disasters occur. While humanitarian action to mitigate the impact of disasters will always be vitally important, the global community is facing a critical challenge: How to better anticipate — and then manage and reduce — disaster risk by integrating the potential threat into its planning and policies. This Report introduces a pioneering Disaster Risk Index (DRI) that measures the relative vulnerability of countries to three key natural hazards — earthquake, tropical cyclone and flood. http://www.undp.org/cpr/whats_new/rdr_english.pdf

Handbook for estimating the socioeconomic and environmental effects of disasters (Volumes 1, 2, 3 and 4), Economic Commission for Latin America and the Caribbean (ECLAC); World Bank ECLAC, 2003

This new version of the ECLAC Handbook describes the methods required to assess the social, economic and environmental effects of disasters, breaking them down into direct damages and indirect losses and into overall and macroeconomic effects. The Handbook focuses on the conceptual and methodological aspects of measuring or estimating the damage caused by disasters to capital stocks and losses in the production flows of goods and services, as well as any temporary effects on the main macroeconomic variables. This new edition also contemplates both damage to and effects on living conditions, economic performance and the environment.
http://siteresources.worldbank.org/INTDISMGMT/Resources/intro.pdf

Indicators of Disaster Risk and Risk Management. Inter-American Development Bank. 2005

IDB-sponsored system of disaster risk and risk management indicators presented at the World Conference on Disaster Reduction in Kobe, Japan. The indices estimate disaster risk loss, distribution, vulnerability and management for 12 countries in Latin America and the Caribbean.
http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=465922

Vision of Risk, A Review of International Indicators of Disaster Risk and its Management. ISDR/UNDP. 2004

The report for the ISDR Inter-Agency Task Force on Disaster Reduction Working Group 3 on Risk, Vulnerability and Disaster Impact Assessment reviews the performance and future possibilities for disaster risk indexing drawing on three international indexing initiatives (i) Disaster Risk Indexing project (DRI) of the UNDP in partnership with UNEP-GRID; (ii) the Hotspots indexing project implemented by Columbia University and the World Bank, under the umbrella of the ProVention Consortium, and (iii) the Americas programme of IDEA in partnership with the InterAmerican Development Bank (IDB). These initiatives provide the first comprehensive global and regional assessments of disaster risk. http://www.undp.org/cpr/disred/documents/publications/visionsofrisk.pdf

Community Risk Assessment

A Community Risk Assessment (CRA) toolkit has recently been posted on the ProVention website. The Toolkit contains methodological resources from many different organisations and case studies. Guidance

notes provide a detailed analysis and brief synthesis of case studies and methodologies. The CRA Toolkit includes a search tool, a glossary, and a selection of key links to community based disaster risk management and participation materials. Intended users of the Toolkit are international NGOs and their partner organisations, local government staff, risk researchers and community based organisations active in developmental and/or humanitarian work. http://www.proventionconsortium.org/?pageid=39

Enarson E., et al. 2003. Working with Women at Risk: Practical Guidelines for Assessing Local Disaster Risk. Miami, Florida: International Hurricane Center, Florida International University.

This international action research project document includes a methodology for assessing community vulnerabilities and capacities from the perspectives of different groups of women trained as community researchers. Included in the step-by-step project guidelines are "guiding research questions" for exploring vulnerabilities and capacities with grassroots women in risky environments, and producing and using community profiles based on this local research. The project was developed and field tested in the Dominican Republic, St. Lucia, Dominica, and El Salvador. Available in Spanish and English through the Gender and Disaster Network. http://gdnonline.org/resources/Working w Women English .pdf

On-line Resources Containing Relevant Socio-Economic Information

Preview (UNEP-GRID)

The PREVIEW project aims to identify risk and human vulnerability to natural hazards in relation with socio-economic and physical factors. This tool allows the visualization of data on disasters. Users may perform zooms, pan to a particular area, add different layers of general data including cities, national parks, etc. Different backgrounds can be chosen to highlight different components reflecting vulnerability, such as population density, Human Development Index (HDI) or the Gross Domestic Product (GDP). Layers of disasters can be added such as droughts, fires, floods, and cyclones. http://www.grid.unep.ch/activities/earlywarning/preview/

NATural Hazards Assessment Network. Munich Re

NATHAN presents the most up-to-date geo-scientific expertise and provides services such as interactive maps of natural hazards, extracts from the MR NatCatSERVICE® database and country profiles that include socioeconomic and hazard data. http://mrnathan.munichre.com/

Global Disaster Alert and Coordination System

The Global Disaster Alert and Coordination System provides near real-time alerts about natural disasters around the world and tools to facilitate response coordination, including media monitoring, map catalogues and Virtual On-Site Operations Coordination Centre. http://www.gdacs.org/

Reliefweb

ReliefWeb is the world’s leading on-line gateway to information on humanitarian emergencies and disasters. An independent vehicle of information, designed specifically to assist the international humanitarian community in effective delivery of emergency assistance, it provides timely, reliable and relevant information as events unfold, while emphasizing the coverage of "forgotten emergencies". http://www.reliefweb.int/rw/dbc.nsf/doc100?OpenForm

African Geo Information Researcher Network

AGIRN is a knowledge portal for Africa's geo-information researchers, practitioners and decision-makers. It features relevant socio-economic data and information in research papers, project findings and policy guidelines to enrich policy debate and to support decision-making through the use of appropriate web-based technologies. http://www.agirn.org/

SAHIMS Southern Africa Humanitarian & Disaster Management GIS Library

SAHIMS GIS Data server offers easily accessible standardised data provided by various United Nations, non-governmental organisations and government agencies. Datasets in this catalogue are downloadable without any charge. It can be viewed and manipulated by using most popular GIS software. Metadata is attached to help the user have a better understanding of data sources, applications and copyright. http://sahims.net/gis/Gis%20Input/GIS_library_Regional.asp

GEO Data Portal

The GEO Data Portal is the source for data sets used by the United Nations Environmental Programme (UNEP) and its partners for integrated environment assessments. Its online database holds national, subregional, regional and global statistics or as geospatial data sets (maps), covering themes like freshwater, population, forests, emissions, climate, disasters, health and gross domestic product . Information can be displayed as maps, graphs and data tables or downloaded in different formats. http://geodata.grid.unep.ch/

Global Risk Identification Program

The Global Risk Identification Program (GRIP) seeks to improve the evidence base for disaster risk management decision-making in high-risk areas. Project activities include: (i) demonstrating that information on disaster risks and losses can be applied to improve risk management decisions and development outcomes, (ii) capacity development, (iii) enhancing global disaster loss data, (iv) providing risk analyses for risk management decision-support in high-risk countries and (v) global risk updates. www.gri-p.net

HAZUS-MH

HAZUS-MH is the United States Federal Emergency Management Agency's powerful risk assessment software programme for estimating potential losses from floods, hurricane winds and earthquakes. www.fema.gov/plan/prevent/hazus/

ProVention: Improving risk identification and analysis

This website documents the key resources available in the field of risk analysis and application that have been developed by the ProVention Consortium and partners. www.proventionconsortium.org/?pageid=17

ProVention has also produced a series of guidance notes for development organizations on how to integrate disaster risk reduction into existing development policies and procedures. These “Tools for Mainstreaming Disaster Risk Reduction” are available at http://www.proventionconsortium.org/?pageid=37&publicationid=132#132.

National Agencies and Global Initiatives Offering Risk Information

Division of Early Warning and Assessment/Global Resource Information Database Europe (DEWA/GRID Europe) is one of UNEP's major centres for data and information management. www.grid.unep.ch/index.php

Emergency Events Database is an international disaster database which is maintained by Centre for Research on the Epidemiology of Disasters (CRED). www.em-dat.net/

Integrated Global Observing Strategy (IGOS) seeks to provide a comprehensive framework to harmonize the common interests of the major space-based and in-situ systems for global observation of the Earth. www.fao.org/gtos/igos/index.asp

LA RED is a network for social studies on disaster prevention in Latin America; it began developing the DesInventar disaster inventory programme in 1994. DesInventar maintains approximately 16 national level natural and technological disaster databases in Latin America. www.desinventar.org

United Nations Statistics Division offers a searchable database of economic, demographic, social, environment and energy statistics. http://unstats.un.org/unsd/default.htm

The United States Geological Survey (USGS) website provides among others scientific information on loss of life and property through natural hazards. www.usgs.gov/

The World Data Center System provides a searchable database on solar, geophysical and other related environmental data. www.ngdc.noaa.gov/wdc/

World Meteorological Organization (WMO) and the United Nations Programme on Space Applications developed a virtual laboratory for satellite training and data utilization to maximize the exploitation of satellite data. - www.wmo.int/web/sat/vl.htm

(b) Needs, gaps, barriers and constraints

The range of resources outlined above indicates that there has been progress on a number of fronts to strengthen the pool of available risk assessment tools and data and to begin to use this information to guide investment in risk reduction in a very broad sense. Projects like the Natural Disasters Hotspot Report have been used by the World Bank, the IFRC, ISDR, and a number of other organisations to prioritise risk reduction investments in different countries, as in the past there have been few studies allowing the consistent comparison of aggregate disaster risks in different locations around the world. The Global Risk Identification Program in particular should provide a platform for supporting the further development of risk data sets at national and sub-national level.

However there has been less progress in terms of incorporating disaster risk concerns into the economic analysis of development projects or to use tools of economic analysis to examine possible ways of strengthening their hazard resilience, even in high-risk areas. There have also been few detailed economic analyses of risk reduction projects, particularly in a developing country context. In consequence, the collective evidence on the net benefits of risk reduction is limited and highly context specific.

Related development organisation manuals on economic analysis similarly provide little guidance on analysis of disaster risk. The paucity of evidence on the benefits of disaster risk reduction has proved a major stumbling block in attracting the interest and commitment of policy-makers to disaster risk reduction. Economic criteria are not the only ones by which projects are judged. Indeed, only multilateral lending agencies routinely undertake some form of economic analysis as part of their project appraisal process. And ultimately, even for these organisations, although minimum internal rate of returns often

have to be satisfied, high economic returns may be less important than, say, the contribution of a project to poverty reduction.

However, in the face of tight budget constraints and many competing demands for public resources, there is widespread pressure to demonstrate that aid resources are well spent. Without ready access to data on the potential economic returns to investments in risk reduction, many are unwilling to even consider such investments. They also often fail to appreciate the potential importance of ensuring that other development projects in hazard-prone countries are adequately protected against natural hazards.

- There is a need to further improve loss estimation data to provide a more comprehensive and accurate accounting of disaster-related costs (e.g., economic losses, relief costs etc.).

- Risk estimation could be further improved to enhance the availability of information and analysis on disaster risk (e.g. hazard characterisation and data, vulnerability assessments, risk indexes).

- Local participatory risk assessment information needs to be integrated in risk assessments at the sub-national and national levels.

- The current practice of community risk assessment could be improved further through linking pre- and post-disaster assessments, promoting more holistic approaches, linking assessments with action planning and application, etc.

(c) Ways and means to improve availability and access to relevant information, including information on costs and benefits, as well as its better integration into impact and vulnerability assessments

Building a base of evidence on disaster risk and associated losses allows decision makers and the public to understand the country's exposure to various hazards and its social, economic, environmental and physical vulnerabilities. Such data, gathered and disseminated in a timely manner, allows people to take action to reduce risk.

The ISDR system is launching a study entitled “Making the Case: the Economics of Disaster Risk Reduction” to make a clear economic case for investing in the reduction of disaster risks, both for current conditions and future changed climate, targeted at policy makers and decision makers in public finance and national development. The study’s focus is on the costs and benefits of disaster risk reduction, including as a tool for adaptation. But it will not address the costs and benefits of adaptation *per se*; rather it will contribute assessment and understanding of the existing literature on disaster reduction, viewed through an economics lens. The study will address questions such as:

- What are the economic costs of disasters differentiated by factors such as country size, sector, development status, gender, etc?

- What is the state of knowledge on the costs and benefits of specific or generic measures to reduce disaster risks, including measures that will improve adaptation to climate, and how are these dependent on context?

- What, if any, advice can be provided on the incorporation of disaster risk reduction in relevant economic policies and practices, including macro-economic planning, monetary policy (to accommodate disaster shocks), risk management, poverty reduction strategies, etc? How can the essential stochastic space-time nature of hazard events and disasters be dealt with, given that risk reduction measures must be implemented (and their costs incurred) now and everywhere, but the savings occur only in specific, unpredictable times and places, and in some cases decades into the future?

- What are the gaps and shortcomings in knowledge and data that require further action or study, and what are the priorities for such efforts?

It is expected that the study's finding will significantly contribute to assessing the costs and benefits of specific adaptation measures and reveal important socio-economic information affecting countries' vulnerability to natural hazards.

Improving socio-economic vulnerability information and its access

The following tasks are needed in order to identify capacities and gaps in existing processes for gathering, analysing and disseminating data and its better integration into impact and vulnerability assessments. For some of these tasks, initial efforts are already underway, but real success will require continued commitment and support, including the establishment of better linkages between the climate change and disaster risk reduction communities.

Task	**Current progress and support needed**
• Develop national standards and procedures for the systematic collection, sharing and assessment of hazard and vulnerability data. Synchronize the standards with neighboring countries or regions.	The Global Risk Identification Program is encouraging and supporting the development of National Risk Atlases and National Disaster Loss Observatories. In line with the Hyogo Framework for Action, countries are also being encouraged to establish National Platforms. Further work is needed to support the strengthening of these institutions and their services to other governmental and civil society partners in each country and to highlight the critical role of risk assessment and analysis for informing effective disaster risk management and climate change adaptation.
• Establish a process to review and update risk data regularly, incorporating information on any new or emerging vulnerabilities and hazards. Ensure that updated information is widely available.	
• Support the wide adoption of strategies to engage all sectors in local hazard and vulnerability analyses and to integrate the results of the risk assessments into local risk management plans.	Efforts like the Community Risk Assessment Toolkit are helping to popularise tools for facilitating community engagement in local risk assessment. Experience with these methodologies shows the value of the critical insights that community members and civil society organisations can provide into social aspects of vulnerability and coping capacities to complement more technical hazard information

Task	Current progress and support needed
	coming from scientific institutions. However work is needed to further disseminate these tools, to better integrate local risk assessments with existing scientific data, and to use both types of information to inform local decision making.
• Strengthen the tools and resources available to guide resource allocation and implementation of effective risk reduction measures at all levels, international to local. This also includes strengthening commitment to communicate about risk issues and risk management solutions with the public at all levels and to put in place effective evaluation and feedbackprogrammes.	ProVention is currently working with IIASA and other partners to establish a Cost Benefit Analysis Toolkit to collect tools and resources for economic appraisal of risk reduction and adaptation measures. This project is situated within a broader commitment to develop better tools for monitoring and evaluating risk reduction programmes. Further support is also needed for efforts by ISDR and other partners to develop indicators for the Hyogo Framework for Action. Such indicators should track progress at international, national, and local levels and include progress toward common goals between disaster risk reduction and climate change adaptation.

PAPER NO. 2: INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

Potential contributions of the IPCC to the Nairobi Work Programme in the area of socio-economic information[1]

Submitted by the Secretary of the IPCC

Prepared by Martin Juckes, on behalf of TGICA and the IPCC Data Distribution Centre, with contributions from Richard Moss, Tim Carter, Bob Chen, Renate Christ, Xiaoshi Xing, Jean Palutikof
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1. Introduction

The IPCC contributes to the work of the UNFCCC and any specific work programme established under any of its subsidiary bodies, such as the *Nairobi Workprogramme on Impacts, Vulnerability and Adaptation to Climate Change* (NWP) mainly through the information contained in its assessment reports, special reports and technical papers. For the NWP information, guidance documents and services prepared and provided by the IPCC Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA) and the IPCC Data Distribution Centre (DDC) established under the TGICA are of specific relevance and will therefore presented in more detail in this submission.

Further useful information is provided in the Appendices to this document. This includes the approved outlines of the Working Group I and II contributions to the Fourth Assessment; within these, much information useful to the Nairobi Work Programme can be found.

2. Potential contributions of the IPCC TGICA

2.1 Background

The Intergovernmental Panel on Climate Change (IPCC)[2] Task Group on Data and Scenario Support for Impact and Climate Analysis (TGICA[3]; originally known as Task Group on Scenarios for Climate Impact Assessment - or TGCIA) was established following a recommendation made at the IPCC Workshop on Regional Climate Change Projections for Impact Assessment (London, 24-26 September 1996). The mandate of the TGICA[4] is to facilitate wide availability of climate change-related data and scenarios to enable research and the sharing of information across the three working groups of the Intergovernmental Panel on Climate Change (IPCC). The TGICA disseminates information in support of IPCC work, as well as IPCC "approved", "adopted," "accepted," and "supporting" material.

The TGICA established the IPCC Data Distribution Centre (DDC)[5] in 1998 to facilitate the timely distribution of a consistent set of up-to-date data and scenarios of changes in climate and related environmental and socio-economic factors for use in climate change impact, adaptation and vulnerability

[1] A comprehensive submission by the IPCC and a submission from Working Group II (Impacts, Adaptation and Vulnerability) on their contributions to the Nairobi work programme are available on the UNFCCC NWP website at <http://unfccc.int/3633.php>.
[2] http://www.ipcc.ch/
[3] http://ipcc-wg1.ucar.edu/wg1/wg1_tgica.html
[4] http://www.ipcc-data.org/docs/TGICA_Mandate_031207.htm
[5] http://www.ipcc-data.org

(IAV) studies. The intention was that the results of such studies could then feed into the IPCC assessment process. The DDC is run subject to a governance document[6] written by TGICA.

The DDC was originally a shared operation between the Climatic Research Unit (CRU) in the United Kingdom and the Deutsches Klimarechenzentrum (DKRZ) in Germany. In 2003 a third centre, the Center for International Earth Science Information Network (CIESIN) in the USA, joined the DDC collaboration. From February 1st, 2007, the British Atmospheric Data Centre (BADC) has replaced CRU as the United Kingdom partner.

The data provided on the DDC are accompanied by full documentation as well as separate guidelines on their potential application. Together with the ongoing work of the TGICA (including development of the DDC, IPCC-endorsed Workshops and other cross-Working Group IPCC discussions), these would appear to be highly relevant activities for supporting the aims of the Nairobi Work Programme.

2.2 Socio-economic information

Improving knowledge of the socio-economic aspects of climate change and promoting the integration of socio-economic information into impact and vulnerability assessments.

The DDC includes data holdings (at CIESIN[7]) relevant to the NWP work area on socio-economic information. The socio-economic portion of the DDC includes two different types of socioeconomic and environmental data: *1)* "baseline" data intended to provide a consistent starting point and reference period for assessing change over time; and *2)* "scenario" data that represent plausible pathways for future socioeconomic development. The socioeconomic scenario data are critical inputs into models that try to assess human impacts on the environment (e.g., through greenhouse gas emissions and land use change) and are also vital for characterizing the importance of estimated future impacts of climate change on human systems in the context of future socioeconomic conditions.

Socio-economic data. Comprehensive archive of socio-economic data used in IPCC SRES scenarios and of potential application in IAV analyses

The baseline data are taken from the 1998 IPCC report, The Regional Impacts of Climate Change: An Assessment of Vulnerability, and provide a snapshot of national-level conditions during the 1990s related to population, development, natural resources, and environment. Data are provided in tabular and spreadsheet form for most countries of the world.

TGICA and the DDC are currently working to update and expand the baseline socioeconomic data.

The socioeconomic scenario data are based on two different IPCC reports: *1)* the *1992 Supplementary Report to the IPCC Assessment*; and *2)* the *Special Report on Emission Scenarios* (SRES) published in 2000. The so-called "IS92" scenarios served as important reference scenarios for several IPCC assessments and for many years of research on climate impacts. The DDC provides access to all of the SRES scenario data from six different modeling groups, including the SRES "marker" scenarios and several supplementary datasets on fluor gases and gridded emissions. The distributed version of these data contains corrections that were not reflected in the published SRES volume. These data continue to be widely used and cited in the scientific literature regarding future climate change.

[6] http://www.ipcc-data.org/docs/TGICA_DDC_Governance_031907.htm
[7] http://sedac.ciesin.columbia.edu/ddc/index.html

References

IPCC-TGICA, 2007: General Guidelines on the Use of Scenario Data for Climate Impact and Adaptation Assessment. Version 2. Prepared by T.R. Carter on behalf of the Intergovernmental Panel on Climate Change, Task Group on Data and Scenario Support for Impact and Climate Assessment, 66 pp. [www.ipcc-data.org]

L. O. Mearns, F. Giorgi, P. Whetton, D. Pabon, M. Hulme and M. Lal, 2003. Guidelines for Use of Climate Scenarios Developed from Regional Climate Model Experiments. [www.ipcc-data.org]

Wilby, R.L., Charles, S.P., Zorita, E., Timbal, B., Whetton, P. and Mearns, L.O., 2004. Guidelines for use of climate scenarios developed from statistical downscaling methods. [www.ipcc-data.org]

Appendix A: TGICA membership

Co-Chairs

Jose Marengo, Brazil
Richard Moss, USA

Members

Knut Alfsen, Norway
Nigel Arnell, UK
Elaine Barrow, Canada*
Timothy Carter, Finland
Seita Emori, Japan
Xuejie Gao, China
Ayman Farid Abou-Hadid, Egypt
Bruce Hewitson, South Africa
Tom Kram, Netherlands
Emilio La Rovere, Brazil
Rodel Lasco, Philippines
Ilena Mares, Romania
Linda Mearns, USA
John Mitchell, UK
Anthony Okon Nyong, Nigeria
Hugh Pitcher, USA
Bernard Seguin, France
Serguei Semenov, Russian Federation

*Brad Bass, Canada, is currently substituting

Ex-Officio members

Robert Chen (DDC, CIESIN)
Martin Juckes (DDC, BADC)
Michael Lautenschlager (DDC, MPI)
Martin Manning (IPCC, WGI TSU)
Leo Meyer (IPCC, WGIII TSU)
Jean Palutikof (IPCC, WGII TSU)

Support

Kristen Averyt (IPCC, WGI TSU)
Claire Hanson (IPCC, WGII TSU)
Paul Van Der Linden (IPCC, WGII TSU)

Appendix B: Supplementary tables

Table 1: Institutions contributing climate projections to the IPCC 4th Assessment Report

Institution	**Country**
Beijing Climate Center	China
Bjerknes Centre for Climate Research	Norway
Canadian Center for Climate Modelling and Analysis	Canada
Centre National de Recherches Meteorologiques	France
Commonwealth Scientific and Industrial Research Organisation	Australia
Max-Planck-Institut for Meteorology	Germany
Meteorological Institute, University of Bonn	Germany
Meteorological Research Institute of KMA	Korea
Model and Data Group at MPI-M	Germany
Institute of Atmospheric Physics	China
Geophysical Fluid Dynamics Laboratory	USA
Goddard Institute for Space Studies	USA
Institute for Numerical Mathematics	Russia
Institut Pierre Simon Laplace	France
National Institute for Environmental Studies	Japan
Meteorological Research Institute	Japan
National Centre for Atmospheric Research	USA
UK Met. Office	UK
National Institute of Geophysics and Volcanology	Italy

Table 2: Forcing scenarios

COMMIT	Anthropogenic forcing held constant and AD2000 levels.
PICNTL	No anthropogenic forcing
20C3M	Forcings, natural and anthropogenic, representing the 20th century
A2	SRES scenario A2
A1B	SRES scenario A1B
B1	SRES scenario B1
1PCTO2X	Increasing anthropogenic forcing 1% annually from AD2000 until it doubles, thereafter held constant.
1PCTO4X	Increasing anthropogenic forcing 1% annually from AD2000 until it quadruples, thereafter held constant.

Table 3: The chapters of the Working Group I contribution to the IPCC Fourth Assessment

1. Historical Overview of Climate Changes Science
2. Changes in Atmospheric Constituents and Radiative Forcing
3. Observations: Atmospheric Surface and Climate Change
4. Observations: Changes in Snow, Ice and Frozen Ground
5. Observations: Ocean Climate Change and Sea Level
6. Palaeoclimate
7. Coupling Between Changes in the Climate System and Biogeochemistry
8. Climate Models and their Evaluation
9. Understanding and Attributing Climate Change
10. Global Climate Projections
11. Regional Climate Projections

Table 4: The chapters of the Working Group II contribution to the IPCC Fourth Assessment

Section A.	ASSESSMENT OF OBSERVED CHANGES
1.	Assessment of observed changes and responses in natural and managed systems
Section B.	ASSESSMENT OF FUTURE IMPACTS AND ADAPTATION: SYSTEMS AND SECTORS
2.	New assessment methodologies and the characterisation of future conditions
3.	Freshwater resources and their management
4.	Ecosystems, their properties, goods and services
5.	Food, fibre and forest products
6.	Coastal systems and low-lying areas
7.	Industry, settlement and society
8.	Human health
Section C.	ASSESSMENT OF FUTURE IMPACTS AND ADAPTATION: REGIONS
9:	Africa
10:	Asia
11:	Australia and New Zealand
12:	Europe
13:	Latin America
14:	North America
15:	Polar regions (Arctic and Antarctic)
16:	Small islands
Section D.	ASSESSMENT OF RESPONSES TO IMPACTS
17.	Assessment of adaptation practices, options, constraints and capacity
18.	Inter-relationships between adaptation and mitigation
19.	Assessing key vulnerabilities and the risk from climate change
20.	Perspectives on climate change and sustainability

Table 5: Scenario data held by the IPCC DDC (CIESIN)

The following variables are tabulated as projections from the present to 2100, for a range of scenarios and using a range of models. More details are available from the CIESIN DDC web-site[8].

Primary category	**Secondary category**
Population	
GNP/GDP (mex)	
GNP/GDP (ppp, 1990 prices)	
Final Energy	Non-commercial, Solids, Liquids, Gas, Electricity, Others, Total
Primary Energy	Coal, Oil, Gas, Nuclear, Biomass, Other Renewables, Total
Cumulative Resources Use	Coal, Oil, Gas
Cumulative CO2 Emissions	
Carbon Sequestraction	
Land Use	Cropland, Grasslands, Energy Biomass, Forest,

[8] http://sres.ciesin.org/final_data.html

	Others, Total
Anthropogenic Emissions (standardized)	Fossil Fuel CO_2, Other CO_2, Total CO_2, CH_4 total, N_2O total, SO_x total, CFC/HFC/HCFC, PFC, SF_6, CO, NMVOC, NOx

Table 6: Baseline socio-economic data held by the IPCC DDC (CIESIN).

Primary category	**Secondary category**
Population and Human Development	Total Pop. 1995; Current Pop. Density (persons/km^2) 1995; Projected Pop. Density (persons/km^2) 2025; Total Urban Pop. 1995; Urban Pop. in Coastal Cities 1980
Economic Conditions	GDP per Capita in Constant PPP ('85IN$) 1992; GDP from Agriculture (%) 1993; GDP from Industry (%) 1993; GDP from Services (%) 1993; GDP Annual Growth Rate (%) 1993
Land Cover / Use	Total Land Area 1993; Arable and Permanent Cropland 1993; Permanent Pasture 1993; Forest and Woodland 1993; Other Land 1993
Water	Water Resources per Capita (m^3) 1995; Domestic Annual Withdraws (%) 1995; Industry Annual Withdraws (%) 1995; Agriculture Annual Withdraws (%) 1995
Agriculture / Food	Irrigated Land 1993; Agricultural Labor Force 1993; Total Labor Force 1993; Cattle Stocks 1994; Sheep Stocks 1994; Goat Stocks 1994; Pig Stocks 1994; Equines (horses /mules/asses) 1994; Buffalo Stocks 1994; Camel Stocks 1994
Energy	Total Commercial Energy Consumption (PJ) 1993; Traditional Fuel Consumption (TJ) 1991; Commercial Hydroelectric Consumption (PJ) 1993
Biodiversity	Known Mammal Species 1990's; Endemic Mammal Species 1990's; Known Bird Species 1990's; Endemic Bird Species 1990's; Known Plant Species 1990's; Endemic Plant Species 1990's

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