

Appendix A

IPCC Principles and Procedures

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PRINCIPLES GOVERNING IPCC WORK

Approved at the Fourteenth Session (Vienna, 1-3 October 1998) on 1 October 1998, amended at the 21st Session (Vienna, 3 and 6-7 November 2003) and at the 25th Session (Mauritius, 26-28 April 2006)

INTRODUCTION

1. The Intergovernmental Panel on Climate Change (hereinafter referred to as the IPCC or, synonymously, the Panel) shall concentrate its activities on the tasks allotted to it by the relevant WMO Executive Council and UNEP Governing Council resolutions and decisions as well as on actions in support of the UN Framework Convention on Climate Change process.

ROLE

2. The role of the IPCC is to assess on a comprehensive, objective, open and transparent basis the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation. IPCC reports should be neutral with respect to policy, although they may need to deal objectively with scientific, technical and socio-economic factors relevant to the application of particular policies.

3. Review is an essential part of the IPCC process. Since the IPCC is an intergovernmental body, review of IPCC documents should involve both peer review by experts and review by governments.

ORGANIZATION

4. Major decisions of the IPCC will be taken by the Panel in plenary meetings.

5. The IPCC Bureau, the IPCC Working Group Bureaux and the Bureaux of any Task Forces of the IPCC shall reflect balanced geographic representation with due consideration for scientific and technical requirements.

6. IPCC Working Groups and any Task Forces constituted by the IPCC shall have clearly defined and approved mandates and work plans as established by the Panel, and shall be open-ended.

PARTICIPATION

7. Participation in the work of the IPCC is open to all UNEP and WMO Member countries.

8. Invitations to participate in the sessions of the Panel and its Working Groups, Task Forces and IPCC workshops shall be extended to Governments and other bodies by the Chairman of the IPCC.

9. Experts from WMO/UNEP Member countries or international, intergovernmental or non-governmental organisations may be invited in their own right to contribute to the work of the IPCC Working Groups and Task Forces. Governments should be informed in advance of invitations extended to experts from their countries and they may nominate additional experts.

PROCEDURES

10. In taking decisions, and approving, adopting and accepting reports, the Panel, its Working Groups and any Task Forces shall use all best endeavours to reach consensus. If consensus is judged by the relevant body not possible: (a) for decisions on procedural issues, these shall be decided according to the General Regulations of the WMO; (b) for approval, adoption and acceptance of reports, differing views shall be explained and, upon request, recorded. Differing views on matters of a scientific, technical or socio-economic nature shall, as appropriate in the context, be represented in the scientific, technical or socio-economic document concerned. Differences of views on matters of policy or procedure shall, as appropriate in the context, be recorded in the Report of the Session.
11. Conclusions drawn by IPCC Working Groups and any Task Forces are not official IPCC views until they have been accepted by the Panel in a plenary meeting.
12. Invitations to participate in the sessions of the Panel and its Working Groups, Task Forces and IPCC workshops should be extended at least six weeks in advance of the opening of the session.
13. Major reports, including Assessment Reports, Special Reports and Methodology Reports, basic documentation and other available reports for consideration at the sessions of the Panel and its Working Groups shall normally be made available by the IPCC Secretariat at least four weeks in advance of the session and, to the extent possible, in all official UN languages.
14. Interpretation into all official UN languages shall be provided for all sessions of the IPCC meeting in plenary, of its Bureau and its Working Groups.
15. The scheduling of the sessions of the Panel and its Working Groups and Task Forces shall be co-ordinated, to the extent possible, with other related international meetings.
16. These Principles shall be reviewed at least every five years and amended as appropriate.
17. Procedures for the preparation, review, acceptance, approval, adoption and publication of IPCC reports are given in Appendix A.
18. Financial procedures for the IPCC are given in Appendix B.
19. Rules and Procedures for the Election of the IPCC Bureau and Any Task Force Bureau are given in Appendix C.

**PROCEDURES FOR THE PREPARATION, REVIEW, ACCEPTANCE, ADOPTION,
APPROVAL AND PUBLICATION OF IPCC REPORTS**

Adopted at the Fifteenth Session (San Jose, 15-18 April 1999) amended at the Twentieth Session (Paris, 19-21 February 2003) and Twenty-first Session (Vienna, 3 and 6-7 November 2003)

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1. INTRODUCTION

This provisionally revised Appendix to the Principles Governing IPCC Work contains the procedures for the preparation, review, acceptance, adoption, approval and publication of IPCC reports and other materials relevant to methodologies. This Appendix complements the Procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of IPCC Reports, which was adopted at the Fifteenth Session of the IPCC (San Jose, 15-18 April 1999).

2. DEFINITIONS

The definitions of terms used in this document are as follows:

“acceptance” of IPCC Reports at a Session of the Working Group or Panel signifies that the material has not been subject to line by line discussion and agreement, but nevertheless presents a comprehensive, objective and balanced view of the subject matter.

“adoption” of IPCC Reports is a process of endorsement section by section (and not line by line) used for the longer report of the Synthesis Report as described in section 4.3 and for Overview Chapters of Methodology Reports

“approval” of IPCC Summaries for Policymakers signifies that the material has been subjected to detailed, line by line discussion and agreement.

“Assessment Reports” are published materials composed of the full scientific and technical assessment of climate change, generally in three volumes, one for each of the Working Groups of the IPCC. Each of the volumes may be composed of two or more sections including: (a) a Summary for Policymakers (b) an optional technical summary and (c) individual chapters and their executive summaries.

“Members of the IPCC” are countries who are Members of WMO and/or UNEP.

“Methodology Reports” are published materials, which provide practical guidelines for the preparation of greenhouse gas inventories. Such reports may be composed of two or more sections including: (a) an Overview Chapter, which broadly describes the background, structure and major features of the report, (b) individual chapters and (c) technical Annexes. **“Reports”** refer to the main IPCC materials (including Assessments, Synthesis, Methodology and Special Reports and their Summaries for Policy Makers and Overview Chapters).

“Session of a Working Group” refers to a series of meetings at the plenary level of the governmental representatives to a Working Group of the IPCC.

“Session of the Bureau” refers to a series of meetings of the elected members of the IPCC Bureau who may be accompanied by a representative of their government.

“Task Force Bureau” refers to the elected members of the Bureau of the Task Force on National Greenhouse Gas Inventories. It is chaired by two Co-chairs, referred to in the following as Task Force Bureau Co-chairs .

“Session of the Panel” refers to a series of meetings at the plenary level of the governmental representatives to the IPCC.

“Special Report” is an assessment of a specific issue and generally follows the same structure as a volume of an Assessment Report.

“Summary for Policymakers” is a component of a Report, such as an Assessment, Special or Synthesis Report, which provides a policy-relevant but policy-neutral summary of that Report.

“Supporting Material” consists of published material, workshop proceedings and material from expert meetings which are either commissioned or supported by the IPCC. Supporting material may include software or databases to facilitate the use of the IPCC Methodology Reports.

“Synthesis Reports” synthesise and integrate materials contained within the Assessment Reports and Special Reports and are written in a non-technical style suitable for policymakers and address a broad-range of policy-relevant but policy-neutral questions. They are composed of two sections as follows: (a) a Summary for Policymakers and (b) a longer report.

“Technical Papers” are based on the material already in the Assessment Reports and Special Reports and are prepared on topics for which an objective international scientific/technical perspective is deemed essential.

3. IPCC MATERIAL

There are three main classes of IPCC materials, each of which is defined in Section 2.

- A. IPCC Reports (which include Assessments, Synthesis and Special Reports and their Summaries for Policymakers and Methodology Reports)
- B. Technical Papers
- C. Supporting Materials

The different classes of material are subject as appropriate to different levels of formal endorsement. These levels are described in terms of acceptance, adoption and approval as defined in Section 2.

The different levels of endorsement for the different classes of IPCC material are as follows:

- A. In general, IPCC Reports are accepted by the appropriate Working Group. Reports prepared by the Task Force on National Greenhouse Gas Inventories are accepted by the Panel. Summaries for Policymakers are approved by the appropriate Working Groups. (Section 4.2) and subsequently accepted by the Panel (Section 4.3). Overview chapters of Methodology Reports are adopted, section by section, by the appropriate Working Group or in case of reports prepared by the Task Force on National Greenhouse Gas Inventories by the Panel. In the case of the Synthesis Report the Panel adopts the underlying Report, section by section, and approves the Summary for Policymakers. The definition of the terms “acceptance”, “adoption” and “approval” will be included in the IPCC published Reports (Section 4.4).
- B. Technical Papers are not accepted, approved or adopted by the Working Groups or the Panel but are finalised in consultation with the Bureau (Section 5)
- C. Supporting Materials are not accepted, approved or adopted (Section 6).

4. ASSESSMENT REPORTS, SYNTHESIS REPORTS, SPECIAL REPORTS AND METHODOLOGY REPORTS

4.1 Introduction to Review Process

The review process generally takes place in three stages: expert review of IPCC Reports, government/expert review of IPCC Reports, government review of the Summaries for Policymakers, Overview Chapters and/or the Synthesis Report. Working Group/Task Force Bureau Co-Chairs should aim to avoid (or at least minimise) the overlap of government review periods for different IPCC Reports and with Sessions of the Conference of Parties of the United Nations Framework Convention of Climate Change and its subsidiary bodies.

Expert review should normally be eight weeks, but not less than six weeks, except to the extent decided by the Panel. Government and government/expert reviews should not be less than eight weeks, except to the extent decided by the Panel.

All written expert, and government review comments will be made available to reviewers on request during the review process and will be retained in an open archive in a location determined by the IPCC Secretariat on completion of the Report for a period of at least five years.

4.2 Reports Accepted by Working Groups and Reports prepared by the Task Force on National Greenhouse Gas Inventories

Reports presented for acceptance at Sessions of the Working Groups, or in case of reports prepared by the Task Force on National Greenhouse Gas Inventories reports presented for acceptance by the Panel, are the full scientific, technical and socio-economic Assessment Reports of the Working Groups, Special Reports and

Methodology Reports, that is, the IPCC Guidelines for National Greenhouse Gas Inventories or the IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations.

The subject matter of these Reports shall conform to the terms of reference of the relevant Working Groups, or the Task Force on National Greenhouse Gas Inventories and to the work plan approved by the Panel.

Reports to be accepted by the Working Groups, and reports prepared by the Task Force on National Greenhouse Gas Inventories will undergo expert and government/expert reviews. The purpose of these reviews is to ensure that the Reports present a comprehensive, objective, and balanced view of the areas they cover. While the large volume and technical detail of this material places practical limitations upon the extent to which changes to these Reports will normally be made at Sessions of Working Groups or the Panel, "acceptance" signifies the view of the Working Group or the Panel that this purpose has been achieved. The content of the authored chapters is the responsibility of the Lead Authors, subject to Working Group or Panel acceptance. Changes (other than grammatical or minor editorial changes) made after acceptance by the Working Group or the Panel shall be those necessary to ensure consistency with the Summary for Policymakers or the Overview Chapter. These changes shall be identified by the Lead Authors in writing and made available to the Panel at the time it is asked to accept the Summary for Policymakers, in case of reports prepared by the Task Force on National Greenhouse Gas Inventories by the end of the session of the Panel which adopts/accepts the report.

Reports accepted by Working Groups, or prepared by the Task Force on National Greenhouse Gas Inventories should be formally and prominently described on the front and other introductory covers as:

"A report accepted by Working Group X of the IPCC [-OR – A report prepared by the Task Force on National Greenhouse Gas Inventories of the IPCC and accepted by the Panel] but not approved in detail."

It is essential that Working Group and Task Force on National Greenhouse Gas Inventories work programmes allow enough time in their schedules, according to procedures, for a full review by experts and governments and for the acceptance of the report. The Working Group/Task Force Bureau Co-Chairs are responsible for implementing the work programme and ensuring that proper review of the material occurs in a timely manner.

To ensure proper preparation and review, the following steps should be undertaken:

1. Compilation of lists of Coordinating Lead Authors, Lead Authors, Contributing Authors, Expert Reviewers, Review Editors and Government Focal Points.
2. Selection of Lead Authors.
3. Preparation of draft Report.
4. Review.
 - a. First review (by experts).
 - b. Second review (by governments and experts).
5. Preparation of final draft Report.
6. Acceptance of Report at a Session of the Working Group(s) or the Panel respectively.

4.2.1 Compilation of Lists of Coordinating Lead Authors, Lead Authors, Contributing Authors, Expert Reviewers, Review Editors and Government Focal Points

At the request of Working Group/Task Force Bureau Co-Chairs through their respective Working Group /Task Force Bureau, and the IPCC Secretariat, governments, and participating organisations and the Working Group/Task Force Bureaux should identify appropriate experts for each area in the Report who can act as potential Coordinating Lead Authors, Lead Authors, Contributing Authors, expert reviewers or Review Editors. To facilitate the identification of experts and later review by governments, governments should also designate their respective Focal Points. IPCC Bureau Members and Members of the Task Force Bureau should contribute where necessary to identifying appropriate Coordinating Lead Authors, Lead Authors, Contributing Authors, expert reviewers, and Review Editors in cooperation with the Government Focal Points within their region to

ensure an appropriate representation of experts from developing and developed countries and countries with economies in transition. These should be assembled into lists available to all IPCC Members and maintained by the IPCC Secretariat. The tasks and responsibilities of Coordinating Lead Authors, Lead Authors, Contributing Authors, expert reviewers, Review Editors and government Focal Points are outlined in Annex 1.

4.2.2 Selection of Lead Authors

Coordinating Lead Authors and Lead Authors are selected by the relevant Working Group/Task Force Bureau, under general guidance and review provided by the Session of the Working Group or, in case of reports prepared by the Task Force on National Greenhouse Gas Inventories, the Panel, from those experts cited in the lists provided by governments and participating organisations, and other experts as appropriate, known through their publications and works. The composition of the group of Coordinating Lead Authors and Lead Authors for a section or chapter of a Report shall reflect the need to aim for a range of views, expertise and geographical representation (ensuring appropriate representation of experts from developing and developed countries and countries with economies in transition). There should be at least one and normally two or more from developing countries. The Coordinating Lead Authors and Lead Authors selected by the Working Group/Task Force Bureau may enlist other experts as Contributing Authors to assist with the work.

At the earliest opportunity, the IPCC Secretariat should inform all governments and participating organisations who the Coordinating Lead Authors and Lead Authors are for different chapters and indicate the general content area that the person will contribute to the chapter.

4.2.3 Preparation of Draft Report

Preparation of the first draft of a Report should be undertaken by Coordinating Lead Authors and Lead Authors. Experts who wish to contribute material for consideration in the first draft should submit it directly to the Lead Authors. Contributions should be supported as far as possible with references from the peer-reviewed and internationally available literature, and with copies of any unpublished material cited. Clear indications of how to access the latter should be included in the contributions. For material available in electronic format only, a hard copy should be archived and the location where such material may be accessed should be cited.

Lead Authors will work on the basis of these contributions, the peer-reviewed and internationally-available literature, including manuscripts that can be made available for IPCC review and selected non-peer review literature according to Annex 2 and IPCC Supporting Material (see section 6). Material which is not published but which is available to experts and reviewers may be included provided that its inclusion is fully justified in the context of the IPCC assessment process (see Annex 2).

In preparing the first draft, and at subsequent stages of revision after review, Lead Authors should clearly identify disparate views for which there is significant scientific or technical support, together with the relevant arguments. Technical summaries provided will be prepared under the leadership of the Working Group/Task Force Bureaux.

4.2.4 Review

Three principles governing the review should be borne in mind. First, the best possible scientific and technical advice should be included so that the IPCC Reports represent the latest scientific, technical and socio-economic findings and are as comprehensive as possible.

Secondly, a wide circulation process, ensuring representation of independent experts (i.e. experts not involved in the preparation of that particular chapter) from developing and developed countries and countries with economies in transition should aim to involve as many experts as possible in the IPCC process. Thirdly, the review process should be objective, open and transparent.

To help ensure that Reports provide a balanced and complete assessment of current information, each Working Group/Task Force Bureau should normally select two Review Editors per chapter (including the executive summaries) and per technical summary of each Report.

Review Editors should normally consist of a member of the Working Group/Task Force Bureau, and an independent expert based on the lists provided by governments and participating organisations. Review Editors should not be involved in the preparation or review of material for which they are an editor. In selecting Review Editors, the Bureaux should select from developed and developing countries and from countries with economies in transition, and should aim for a balanced representation of scientific, technical, and socio-economic views.

4.2.4.1 First Review (by Experts)

First draft Reports should be circulated by Working Group/Task Force Bureau Co-Chairs for review by experts selected by the Working Group/Task Force Bureaux and, in addition, those on the lists provided by governments and participating organisations, noting the need to aim for a range of views, expertise, and geographical representation. The review circulation should include:

- Experts who have significant expertise and/or publications in particular areas covered by the Report.
- Experts nominated by governments as Coordinating Lead Authors, Lead Authors, contributing authors or expert reviewers as included in lists maintained by the IPCC Secretariat.
- Expert reviewers nominated by appropriate organisations.

The first draft Reports should be sent to Government Focal Points, for information, along with a list of those to whom the Report has been sent for review in that country.

The Working Group/Task Force Bureau Co-Chairs should make available to reviewers on request during the review process specific material referenced in the document being reviewed, which is not available in the international published literature.

Expert reviewers should provide the comments to the appropriate Lead Authors through the relevant Working Group/Task Force Bureau Co-Chairs with a copy, if required, to their Government Focal Point.

Coordinating Lead Authors, in consultation with the Review Editors and in coordination with the respective Working Group/Task Force Bureau Co-Chairs and the IPCC Secretariat, are encouraged to supplement the draft revision process by organising a wider meeting with principal Contributing Authors and expert reviewers, if time and funding permit, in order to pay special attention to particular points of assessment or areas of major differences.

4.2.4.2 Second Review (by Governments and Experts)

A revised draft should be distributed by the appropriate Working Group/Task Force Bureau Co-chairs or through the IPCC Secretariat to governments through the designated Government Focal Points, and to all the coordinating lead authors, lead authors and contributing authors and expert reviewers.

Governments should send one integrated set of comments for each Report to the appropriate Working Group/Task Force Bureau Co-chairs through their Government Focal Points.

Non-government reviewers should send their further comments to the appropriate Working Group/Task Force Bureau Co-Chairs with a copy to their appropriate Government Focal Point.

4.2.5 Preparation of Final Draft Report

Preparation of a final draft Report taking into account government and expert comments for submission to a Session of a Working Group or, in case of a report prepared by the Task Force on National Greenhouse Gas Inventories, of the Panel for acceptance should be undertaken by Coordinating Lead Authors and Lead Authors in consultation with the Review Editors. If necessary, and timing and funding permitting, a wider meeting with principal Contributing Authors and expert and government reviewers is encouraged in order to pay special attention to particular points of assessment or areas of major differences. It is important that Reports describe different (possibly controversial) scientific, technical, and socio-economic views on a subject, particularly if they are relevant to the policy debate. The final draft should credit all Coordinating Lead Authors, Lead Authors, Contributing Authors, reviewers and Review Editors by name and affiliation (at the end of the Report).

4.3 Approval and Acceptance of Summaries for Policymakers and Adoption of Overview Chapters of Methodology Reports Related to national Greenhouse Gas Inventories

Summary sections of Reports approved by the Working Groups and accepted by the Panel will principally be the Summaries for Policymakers, prepared by the respective Working Groups of their full scientific, technical and socio-economic assessments, and Summaries for Policymakers of Special Reports prepared by the Working Groups. The Summaries for Policy Makers should be subject to simultaneous review by both experts and governments and to a final line by line approval by a Session of the Working Group. Responsibility for preparing first drafts and revised drafts of Summaries for Policymakers, lies with the respective Working Group Co-Chairs. The Summaries for Policymakers should be prepared concurrently with the preparation of the main Reports.

Approval of the Summary for Policymakers at the Session of the Working Group, signifies that it is consistent with the factual material contained in the full scientific, technical and socioeconomic assessment or Special Report accepted by the Working Group. Coordinating lead authors may be asked to provide technical assistance in ensuring that consistency has been achieved. These Summaries for Policymakers should be formally and prominently described as:

"A Report of [Working Group X of] the Intergovernmental Panel on Climate Change."

For a Summary for Policymakers approved by a Working Group to be endorsed as an IPCC Report, it must be accepted at a Session of the Panel. Because the Working Group approval process is open to all governments, Working Group approval of a Summary for Policymakers means that the Panel cannot change it. However, it is necessary for the Panel to review the Report at a Session, note any substantial disagreements, (in accordance with Principle 10 of the Principles Governing IPCC Work) and formally accept it.

Overview Chapters of Methodology Reports related to National Greenhouse Gas Inventories will be adopted section by section by the Panel. The Overview Chapters should be subject to simultaneous review by both experts and governments. Responsibility for preparing first drafts and revised drafts lies with the respective Task Force Bureau Co-Chairs. The Overview Chapters should be prepared concurrently with the preparation of the main Reports.

4.4 Reports Approved and/or Adopted by the Panel

Reports approved and/or adopted by the Panel will be the Synthesis Report of the Assessment Reports and other Reports as decided by the Panel whereby Section 4.3 applies *mutatis mutandis*.

4.4.1 The Synthesis Report

The Synthesis Report will synthesise and integrate materials contained within the Assessment Reports and Special Reports and should be written in a non-technical style suitable for policymakers and address a broad

range of policy-relevant but policy-neutral questions approved by the Panel. The Synthesis Report is composed of two sections as follows: (a) a Summary for Policymakers and (b) a longer report. The IPCC Chair will lead a writing team whose composition is agreed by the Bureau, noting the need to aim for a range of views, expertise and geographical representation. An approval and adoption procedure will allow Sessions of the Panel to approve the SPM line by line and to ensure that the SPM and the longer report of the Synthesis Report are consistent, and the Synthesis Report is consistent with the underlying Assessment Reports and Special Reports from which the information has been synthesised and integrated. This approach will take 5-7 working days of a Session of the Panel.

Step 1: The longer report (30-50 pages) and the SPM (5-10 pages) of the Synthesis Report are prepared by the writing team.

Step 2: The longer report and the SPM of the Synthesis Report undergo simultaneous expert/government review.

Step 3: The longer report and the SPM of the Synthesis Report are then revised by Lead Authors, with the assistance of the Review Editors.

Step 4: The revised drafts of the longer report and the SPM of the Synthesis Report are submitted to Governments and participating organisations eight weeks before the Session of the Panel.

Step 5: The longer report and the SPM of the Synthesis Report are both tabled for discussion in the Session of the Panel:

- The Session of the Panel will first provisionally approve the SPM line by line.
- The Session of the Panel will review and adopt the longer report of the Synthesis Report, section by section, i.e. roughly one page or less at a time. The review and adoption process for the longer report of the Synthesis Report should be accomplished in the following manner:
 - When changes in the longer report of the Synthesis Report are required either to conform it to the SPM or to ensure consistency with the underlying Assessment Reports, the Panel and authors will note where changes are required in the longer report of the Synthesis Report to ensure consistency in tone and content. The authors of the longer report of the Synthesis Report will then make changes in the longer report of the Synthesis Report. Those Bureau members who are not authors will act as Review Editors to ensure that these documents are consistent and follow the directions of the Session of the Panel
 - The longer report of the Synthesis Report is then brought back to the Session of the Panel for the review and adoption of the revised sections, section by section. If inconsistencies are still identified by the Panel, the longer report of the Synthesis Report is further refined by the Authors with the Assistance of the Review Editors for review and adoption by the Panel. This process is conducted section by section, not line by line.
- The final text of the longer report of the Synthesis Report will be adopted and the SPM approved by the Session of the Panel.

The Report consisting of the longer report and the SPM of the Synthesis Report is an IPCC Report and should be formally and prominently described as:

"A Report of the Intergovernmental Panel on Climate Change."

5. TECHNICAL PAPERS

IPCC Technical Papers are prepared on topics for which an objective, international scientific/technical perspective is deemed essential. They:

- a. are based on the material already in the IPCC Assessment Reports, Special Reports or Methodology Reports;
- b. are initiated: (i) in response to a formal request from the Conference of the Parties to the UN Framework Convention on Climate Change or its subsidiary bodies and agreed by the IPCC Bureau; or (ii) as decided by the Panel;
- c. are prepared by a team of Lead Authors, including a Coordinating Lead Author, selected by the Working Group/Task Force Bureaux in accordance with the provisions of Sections 4.2.1 and 4.2.2 for the selection of Lead Authors and Coordinating Lead Authors.
- d. are submitted in draft form for simultaneous expert and government review with circulation to expert reviewers and Government Focal Points in accordance with Section 4.2.4.1 at least four weeks before the comments are due;
- e. are revised by the Lead Authors based upon the comments received in the step above;
- f. are submitted for final government review at least four weeks before the comments are due;
- g. are finalised by the Lead Authors, in consultation with the IPCC Bureau which functions in the role of an Editorial Board, based on the comments received; and,
- h. if necessary, as determined by the IPCC Bureau, would include in a footnote differing views, based on comments made during final government review, not otherwise adequately reflected in the paper.

The following Guidelines should be used in interpreting requirement (a) above: The scientific, technical and socio-economic information in Technical Papers must be derived from:

- (a) The text of IPCC Assessment Reports and Special Reports and the portions of material in cited studies that were relied upon in these Reports.
- (b) Relevant models with their assumptions, and scenarios based on socio-economic assumptions, as they were used to provide information in those IPCC Reports, as well as emission profiles for sensitivity studies, if the basis of their construction and use is fully explained in the Technical Paper.

The Technical Papers must reflect the balance and objectivity of those Reports and support and/or explain the conclusions contained in those Reports.

Information in the Technical Papers should be referenced as far as possible to the subsection of the relevant IPCC Reports and related material.

Such Technical Papers are then made available to the Conference of the Parties or its subsidiary bodies, in response to its request, and thereafter publicly. If initiated by the Panel, Technical Papers are made available publicly. In either case, IPCC Technical Papers prominently should state in the beginning:

"This is a Technical Paper of the Intergovernmental Panel on Climate Change prepared in response to a [request from [the Conference of the Parties to]/[a subsidiary body of] the United Nations Framework Convention on Climate Change] / [decision of the Panel]. The material herein has undergone expert and government review but has not been considered by the Panel for formal acceptance or approval."

6. IPCC SUPPORTING MATERIAL

Supporting material consists of (i) published reports and proceedings from workshops and expert meetings within the scope of the IPCC work programme that have IPCC recognition, and (ii) material, including databases and software, commissioned by Working Groups, or by the Bureau of the Task Force on National Greenhouse Gas Inventories in support of the assessment or methodology development, process which IPCC decides should

have wide dissemination. Procedures for the recognition of workshops and expert meetings are given in Sections 6.1 and 6.2. Arrangements for publication of supporting material should be agreed as part of the process of IPCC recognition or commissioned by Working Groups/ the Task Force Bureau to prepare specific supporting material. All supporting material should be formally and prominently described on the front and other introductory covers as:

"Supporting material prepared for consideration by the Intergovernmental Panel on Climate Change. This supporting material has not been subject to formal IPCC review processes."

6.1 Workshops and Expert Meetings

IPCC workshops and expert meetings are those that have been agreed upon in advance by an IPCC Working Group, or by the Panel as useful or necessary for the completion of the work plan of a Working Group, the Task Force on National Greenhouse Gas Inventories or a task of the IPCC. Only such activities may be designated as "IPCC" workshops or expert meetings. Their funding should include full and complete provision for participation of experts from developing countries and countries with economies in transition.

The proceedings of IPCC workshops and expert meetings should normally be published summarising the range of views presented at the meeting. Such proceedings should:

- include a full list of participants;
- indicate when and by whom they were prepared;
- indicate whether and by whom they were reviewed prior to publication;
- acknowledge all sources of funding and other support;
- indicate prominently at the beginning of the document that the activity was held pursuant to a decision of the relevant Working Group or the Panel but that such decision does not imply Working Group or Panel endorsement or approval of the proceedings or any recommendations or conclusions contained therein.

6.2 Co-sponsored Workshops and Expert Meetings

IPCC co-sponsorship may be extended to other workshops or expert meetings if the IPCC Chair, as well as the Co-Chairs of the relevant Working Group/Task Force Bureau determine in advance that the activity will be useful to the work of the IPCC. IPCC co-sponsorship of such an activity does not convey any obligation by the IPCC to provide financial or other support. In considering whether to extend IPCC co-sponsorship, the following factors should be taken into account:

- whether full funding for the activity will be available from sources other than the IPCC;
- whether the activity will be open to government experts as well as experts from nongovernmental organisations participating in the work of the IPCC;
- whether provision will be made for participation of experts from developing countries and countries with economies in transition;
- whether the proceedings will be published and made available to the IPCC in a time frame relevant to its work;
- whether the proceedings will:
 - include a full list of participants;
 - indicate when and by whom they were prepared;
 - indicate whether and by whom they were reviewed prior to publication;
 - specify all sources of funding and other support;
 - prominently display the following disclaimer at the beginning of the document:

"IPCC co-sponsorship does not imply IPCC endorsement or approval of these proceedings or any recommendations or conclusions contained herein. Neither the papers presented at the workshop/expert meeting nor the report of its proceedings have been subjected to IPCC review."

ANNEX 1

TASKS AND RESPONSIBILITIES FOR LEAD AUTHORS, COORDINATING LEAD AUTHORS, CONTRIBUTING AUTHORS, EXPERT REVIEWERS AND REVIEW EDITORS OF IPCC REPORTS AND GOVERNMENT FOCAL POINTS

1. LEAD AUTHORS

Function:

To be responsible for the production of designated sections addressing items of the work programme on the basis of the best scientific, technical and socio-economic information available.

Comment:

Lead Authors will typically work as small groups which have responsibility for ensuring that the various components of their sections are brought together on time, are of uniformly high quality and conform to any overall standards of style set for the document as a whole.

The task of Lead Authors is a demanding one and in recognition of this the names of Lead Authors will appear prominently in the final Report. During the final stages of Report preparation, when the workload is often particularly heavy and when Lead Authors are heavily dependent upon each other to read and edit material, and to agree to changes promptly, it is essential that the work should be accorded the highest priority.

The essence of the Lead Authors' task is synthesis of material drawn from available literature as defined in Section 4.2.3. Lead Authors, in conjunction with Review Editors, are also required to take account of expert and government review comments when revising text. Lead Authors may not necessarily write original text themselves, but they must have the proven ability to develop text that is scientifically, technically and socio-economically sound and that faithfully represents, to the extent that this is possible, contributions by a wide variety of experts. The ability to work to deadlines is also a necessary practical requirement. Lead Authors are required to record in the Report views which cannot be reconciled with a consensus view but which are nonetheless scientifically or technically valid.

Lead Authors may convene meetings with Contributing Authors, as appropriate, in the preparations of their sections or to discuss expert or government review comments and to suggest any workshops or expert meetings in their relevant areas to the Working Group/Task Force Bureau Co-Chairs. The names of all Lead Authors will be acknowledged in the Reports.

2. COORDINATING LEAD AUTHORS

Function:

To take overall responsibility for coordinating major sections of a Report

Comment:

Coordinating Lead Authors will be Lead Authors with the added responsibility of ensuring that major sections of the Report are completed to a high standard, are collated and delivered to the Working Group/Task Force Bureau Co-Chairs in a timely manner and conform to any overall standards of style set for the document.

Coordinating Lead Authors will play a leading role in ensuring that any crosscutting scientific or technical issues which may involve several sections of a Report are addressed in a complete and coherent manner and reflect the latest information available.

The skills and resources required of Coordinating Lead Authors are those required of Lead Authors with the additional organisational skills needed to coordinate a section of a Report.

The names of all Coordinating Lead Authors will be acknowledged in the Reports.

3. CONTRIBUTING AUTHORS

Function:

To prepare technical information in the form of text, graphs or data for assimilation by the Lead Authors into the draft section.

Comment:

Input from a wide range of contributors is a key element in the success of IPCC assessments, and the names of all contributors will be acknowledged in the Reports. Contributions are sometimes solicited by Lead Authors but unprompted contributions are encouraged.

Contributions should be supported as far as possible with references from the peer reviewed and internationally available literature, and with copies of any unpublished material cited; clear indications of how to access the latter should be included in the contributions. For material available in electronic format only, the location where such material may be accessed should be cited.

Contributed material may be edited, merged and if necessary, amended, in the course of developing the overall draft text.

4. EXPERT REVIEWERS

Function:

To comment on the accuracy and completeness of the scientific/technical/socio-economic content and the overall scientific/technical/socio-economic balance of the drafts.

Comment:

Expert reviewers will comment on the text according to their own knowledge and experience. They may be nominated by Governments, national and international organisations, Working Group/Task Force Bureaux, Lead Authors and Contributing Authors.

5. REVIEW EDITORS

Function:

Review Editors will assist the Working Group/Task Force Bureaux in identifying reviewers for the expert review process, ensure that all substantive expert and government review comments are afforded appropriate consideration, advise lead authors on how to handle contentious/controversial issues and ensure genuine controversies are reflected adequately in the text of the Report.

Comment:

There will be one or two Review Editors per chapter (including their executive summaries) and per technical summary. In order to carry out these tasks, Review Editors will need to have a broad understanding of the wider scientific and technical issues being addressed. The workload will be particularly heavy during the final stages of the Report preparation. This includes attending those meetings where writing teams are considering the results of the two review rounds. Review Editors are not actively engaged in drafting Reports and cannot serve as reviewers of those chapters of which they are Authors. Review Editors can be members of a Working Group/Task Force Bureau or outside experts agreed by the Working Group/Task Force Bureau.

Although responsibility for the final text remains with the Lead Authors, Review Editors will need to ensure that where significant differences of opinion on scientific issues remain, such differences are

described in an annex to the Report. Review Editors must submit a written report to the Working Group Sessions or the Panel and where appropriate, will be requested to attend Sessions of the Working Group and of the IPCC to communicate their findings from the review process and to assist in finalising the Summary for Policymakers, Overview Chapters of Methodology Reports and Synthesis Reports. The names of all Review Editors will be acknowledged in the Reports.

6. GOVERNMENT FOCAL POINTS

Function:

To prepare and update the list of national experts as required to help implement the IPCC work programme, and to arrange the provision of integrated comments on the accuracy and completeness of the scientific and/or technical content and the overall scientific and/or technical balance of the drafts.

Comment:

Government review will typically be carried out within and between a number of Departments and Ministries.

For administrative convenience, each government and participating organisation should designate one Focal Point for all IPCC activities, provide full information on this Focal Point to the IPCC Secretariat and notify the Secretariat of any changes in this information. The Focal Point should liaise with the IPCC Secretariat regarding the logistics of the review process(es). Of particular importance is the full exchange of information.

ANNEX 2

PROCEDURE FOR USING NON-PUBLISHED/NON-PEER-REVIEWED SOURCES IN IPCC REPORTS

Because it is increasingly apparent that materials relevant to IPCC Reports, in particular, information about the experience and practice of the private sector in mitigation and adaptation activities, are found in sources that have not been published or peer-reviewed (e.g., industry journals, internal organisational publications, non-peer reviewed reports or working papers of research institutions, proceedings of workshops etc) the following additional procedures are provided. These have been designed to make all references used in IPCC Reports easily accessible and to ensure that the IPCC process remains open and transparent.

1. Responsibilities of Coordinating, Lead and Contributing Authors

Authors who wish to include information from a non-published/non-peer-reviewed source are requested to:

- a. Critically assess any source that they wish to include. This option may be used for instance to obtain case study materials from private sector sources for assessment of adaptation and mitigation options. Each chapter team should review the quality and validity of each source before incorporating results from the source into an IPCC Report.
- b. Send the following materials to the Working Group/Task Force Bureau Co-Chairs who are coordinating the Report:
 - One copy of each unpublished source to be used in the IPCC Report
 - The following information for each source:
 - Title
 - Author(s)
 - Name of journal or other publication in which it appears, if applicable
 - Information on the availability of underlying data to the public
 - English-language executive summary or abstract, if the source is written in a non English language
 - Names and contact information for 1-2 people who can be contacted for more information about the source.

2. Responsibilities of the Review Editors

The Review Editors will ensure that these sources are selected and used in a consistent manner across the Report.

3. Responsibilities of the Working Group/Task Force Bureau Co-Chairs

The Working Group/Task Force Bureau Co-Chairs coordinating the Report will (a) collect and index the sources received from authors, as well as the accompanying information received about each source and (b) send copies of unpublished sources to reviewers who request them during the review process.

4. Responsibilities of the IPCC Secretariat

The IPCC Secretariat will (a) store the complete sets of indexed, non-published sources for each IPCC Report not prepared by a working group/the Task Force on National Greenhouse Gas Inventories (b) send copies of non-published sources to reviewers who request them.

5. Treatment in IPCC Reports

Non-peer-reviewed sources will be listed in the reference sections of IPCC Reports. These will be integrated with references for the peer-reviewed sources. These will be integrated with references to the peer reviewed sources stating how the material can be accessed, but will be followed by a statement that they are not published.

Guidance Notes for Lead Authors of the IPCC Fourth Assessment Report on Addressing Uncertainties

The following notes are intended to assist Lead Authors (LAs) of the Fourth Assessment Report (AR4) to deal with uncertainties consistently. They address approaches to developing expert judgments, evaluating uncertainties, and communicating uncertainty and confidence in findings that arise in the context of the assessment process. Where alternative approaches are used in the relevant literature, those should be used but where possible related to the approaches given here. Further background material and more detailed coverage of these issues are available in the guidance paper on uncertainties developed for the Third Assessment Report [1] and the report of an IPCC Workshop on Uncertainty and Risk [2].

The working group reports will assess material from different disciplines and will cover a diversity of approaches to uncertainty, reflecting differences in the underlying literature. In particular, the nature of information, indicators and analyses used in the natural sciences is quite different from that used in the social sciences. WG I focuses on the former, WG III on the latter, and WG II covers both. The purpose of this guidance note is to define common approaches and language that can be used broadly across all three working groups. Each working group may need to supplement these notes with more specific guidance on particular issues consistent with the common approach given here.

Plan to treat issues of uncertainty and confidence

1. Consider approaches to uncertainty in your chapter at an early stage. Prioritize issues for analysis. Identify key policy relevant findings as they emerge and give greater attention to assessing uncertainties and confidence in those. Avoid trivializing statements just to increase their confidence.
2. Determine the areas in your chapter where a range of views may need to be described, and those where LAs may need to form a collective view on uncertainty or confidence. Agree on a carefully moderated (chaired) and balanced process for doing this.

Review the information available

3. Consider all plausible sources of uncertainty using a systematic typology of uncertainty such as the simple one shown in Table 1. Many studies have shown that structural uncertainty, as defined in Table 1, tends to be underestimated by experts [3]. Consider previous estimates of ranges, distributions, or other measures of uncertainty and the extent to which they cover all plausible sources of uncertainty.

Table 1. A simple typology of uncertainties

Type	Indicative examples of sources	Typical approaches or considerations
Unpredictability	Projections of human behaviour not easily amenable to prediction (e.g. evolution of political systems). Chaotic components of complex systems.	Use of scenarios spanning a plausible range, clearly stating assumptions, limits considered, and subjective judgments. Ranges from ensembles of model runs.
Structural uncertainty	Inadequate models, incomplete or competing conceptual frameworks, lack of agreement on model structure, ambiguous system boundaries or definitions, significant processes or relationships wrongly specified or not considered.	Specify assumptions and system definitions clearly, compare models with observations for a range of conditions, assess maturity of the underlying science and degree to which understanding is based on fundamental concepts tested in other areas.
Value uncertainty	Missing, inaccurate or non-representative data, inappropriate spatial or temporal resolution, poorly known or changing model parameters.	Analysis of statistical properties of sets of values (observations, model ensemble results, etc); bootstrap and hierarchical statistical tests; comparison of models with observations.

4. Assess issues of risk where supported by published work. Where probabilistic approaches are available, consider ranges of outcomes and their associated likelihoods with attention to outcomes of potential high consequence. An alternative approach is to provide information for decisions that would be robust in the sense of avoiding adverse outcomes for a wide range of future possibilities [4]. (Note that the term “risk” has several different usages. If used it should be defined in context.)

Make expert judgments

5. Be prepared to make expert judgments and explain those by providing a traceable account of the steps used to arrive at estimates of uncertainty or confidence for key findings – e.g. an agreed hierarchy of information, standards of evidence applied, approaches to combining or reconciling multiple lines of evidence, and explanation of critical factors.
6. Be aware of a tendency for a group to converge on an expressed view and become overconfident in it [3]. Views and estimates can also become anchored on previous versions or values to a greater extent than is justified. Recognize when individual views are adjusting as a result of group interactions and allow adequate time for such changes in viewpoint to be reviewed.

Use the appropriate level of precision to describe findings

7. Assess the current level of understanding on key issues and precede statements on confidence or uncertainty with a general summary of the corresponding state of knowledge. Table 2 below provides a consistent language for this.
8. Develop clear statements for key findings that are quantitative and give explicit time frames as far as possible. Define carefully the corresponding variables or outcomes, their context, and any conditional assumptions. Where scenarios are used, explain the range of assumptions and how they affect the outcome. Then consider the most appropriate way to describe the relevant uncertainties or level of confidence by going as far down the hierarchy given below as you feel appropriate (from expressions of less to more confidence and less to more probabilistic approaches) [5]:
 - A. *Direction of change is ambiguous or the issue assessed is not amenable to prediction:* Describe the governing factors, key indicators, and relationships. If a trend could be either positive or negative, explain the pre-conditions or evidence for each.
 - B. *An expected trend or direction can be identified (increase, decrease, no significant change):* Explain the basis for this and the extent to which opposite changes would not be expected. Include changes that have a reasonable likelihood even where they are not certain. If you describe a collective level of confidence in words, use the language options in Table 2 or 3.
 - C. *An order of magnitude can be given for the degree of change (i.e. sign and magnitude to within a factor of 10):* Explain the basis for estimates given and indicate assumptions made. The order of magnitude should not change for reasonable ranges in such assumptions. If you describe a collective level of confidence in words, use the language options in Table 2 or 3.
 - D. *A range can be given for the change in a variable as upper and lower bounds, or as the 5th and 95th percentiles, based on objective analysis or expert judgment:* Explain the basis for the range given, noting factors that determine the outer bounds. If you cannot be confident in the range, use a less precise approach. If you describe a collective level of confidence or likelihood of an outcome in words, use the language options in Tables 3 or 4.
 - E. *A likelihood or probability of occurrence can be determined for an event or for representative outcomes, e.g. based on multiple observations, model ensemble runs, or expert judgment:* State any assumptions made and estimate the role of structural uncertainties. Describe likelihoods using the calibrated language given in Table 4 or present them quantitatively.

- F. *A probability distribution can be determined for changes in a continuous variable either objectively or through use of a formal quantitative survey of expert views:* Present the PDF graphically and/or provide the 5th and 95th percentiles of the distribution. Explain the methodology used to produce the PDF, any assumptions made, and estimate the role of structural uncertainties.

Communicate carefully, using calibrated language

9. Be aware that the way in which a statement is framed will have an effect on how it is interpreted [6]. (A 10% chance of dying is interpreted more negatively than a 90% chance of surviving.) Use neutral language, avoid value laden statements, consider redundant statements to ensure balance (e.g. chances of dying and of surviving), and express different but comparable risks in a consistent way.
10. To avoid the uncertainty perceived by the reader being different from that intended, use language that minimizes possible misinterpretation and ambiguity. Note that terms such as “virtually certain”, “probable”, or “likely”, can engage the reader effectively, but may be interpreted very differently by different people unless some calibration scale is provided [7].
11. Three forms of language are given in Tables 2, 3 and 4 to describe different aspects of confidence and uncertainty and to provide consistency across the AR4.
12. Table 2 considers both the amount of evidence available in support of findings and the degree of consensus among experts on its interpretation. The terms defined here are intended to be used in a relative sense to summarize judgments of the scientific understanding relevant to an issue, or to express uncertainty in a finding where there is no basis for making more quantitative statements. A finer scale for describing either the amount of evidence (columns) or degree of consensus (rows) may be introduced where appropriate, however, if a mid-range category is used authors should avoid over-using that as a ‘safe’ option that communicates little information to the reader. Where the level of confidence is ‘*high agreement much evidence*’, or where otherwise appropriate, describe uncertainties using Table 3 or 4.

Table 2. Qualitatively defined levels of understanding

Level of agreement or consensus ↑	<i>High agreement limited evidence</i>	...	<i>High agreement much evidence</i>

	<i>Low agreement limited evidence</i>	...	<i>Low agreement much evidence</i>
	Amount of evidence (theory, observations, models) →		

13. A *level of confidence*, as defined in Table 3, can be used to characterize uncertainty that is based on expert judgment as to the correctness of a model, an analysis or a statement. The last two terms in this scale should be reserved for areas of major concern that need to be considered from a risk or opportunity perspective, and the reason for their use should be carefully explained.

Table 3. Quantitatively calibrated levels of confidence.

Terminology	Degree of confidence in being correct
<i>Very High confidence</i>	At least 9 out of 10 chance of being correct
<i>High confidence</i>	About 8 out of 10 chance
<i>Medium confidence</i>	About 5 out of 10 chance
<i>Low confidence</i>	About 2 out of 10 chance
<i>Very low confidence</i>	Less than 1 out of 10 chance

14. *Likelihood*, as defined in Table 4, refers to a probabilistic assessment of some well defined outcome having occurred or occurring in the future. The categories defined in this table should be considered as having ‘fuzzy’ boundaries. Use other probability ranges where more appropriate but do not then use the terminology in table 4. Likelihood may be based on quantitative analysis or an elicitation of expert views. The central range of this scale should not be used to express a lack of knowledge – see paragraph 12 and Table 2 for that situation. There is evidence that readers may adjust their interpretation of this likelihood language according to the magnitude of perceived potential consequences [8].

Table 4. Likelihood Scale.

Terminology	Likelihood of the occurrence/ outcome
<i>Virtually certain</i>	> 99% probability of occurrence
<i>Very likely</i>	> 90% probability
<i>Likely</i>	> 66% probability
<i>About as likely as not</i>	33 to 66% probability
<i>Unlikely</i>	< 33% probability
<i>Very unlikely</i>	< 10% probability
<i>Exceptionally unlikely</i>	< 1% probability

15. Consider the use of tabular, diagrammatic or graphical approaches to show the primary sources of uncertainties in key findings, the range of outcomes, and the factors and relationships determining levels of confidence.

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