

A Summary of the Assessment Process of the Intergovernmental Panel on Climate Change

*An invited presentation to the New
Zealand Emissions Trading Scheme
Review Committee*

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The Process of Climate Change Science Assessment as Carried Out by the
Intergovernmental Panel on Climate Change.

An invited presentation to the New Zealand Emissions Trading Scheme Review
Committee.

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About the Authors:

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Dr David Wratt has been a member of the IPCC Working Group I Bureau for the fourth and fifth IPCC assessment rounds. He has also been a Coordinating Lead Author, and Review Editor for IPCC reports, and a New Zealand government delegate to IPCC Panel Sessions since 1995.

1. Overview

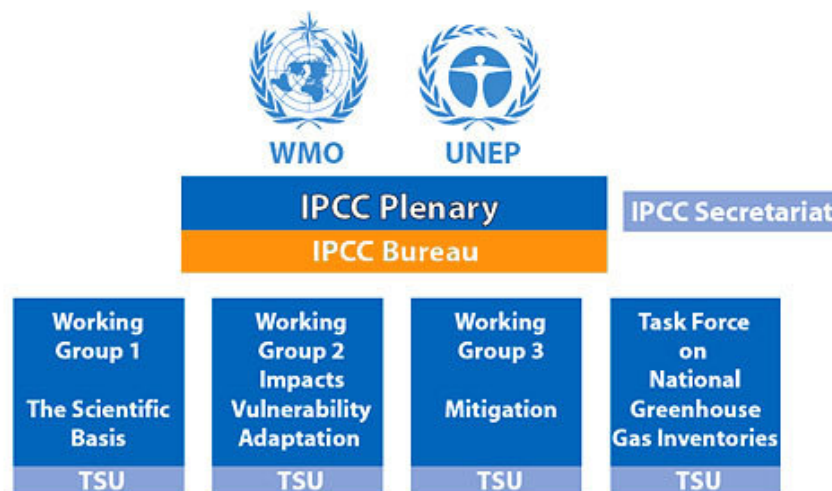
This paper supports an invited presentation to the New Zealand Emissions Trading Scheme Review Committee on the IPCC process by the Climate Change Research Institute of Victoria University. Separate submissions to the committee, addressing the committee's terms of reference, will be made by the Institute and by the New Zealand Climate Change Centre.

The IPCC was established and is managed by governments in order to provide assessments of scientific and technical information relevant to climate change policy. Section 2 below summarises the organisation and management of the IPCC.

The IPCC produces a comprehensive assessment report every 5 to 7 years. It also produces special reports on specific topics and methodological reports on greenhouse gas emission inventories. Section 3 summarises procedures used to prepare IPCC reports.

Report preparation and the technical work of the IPCC is managed through three Working Groups (WGs) covering: physical climate science; impacts, adaptation and vulnerability; and mitigation options (see Fig 1).

Figure 1. Structure of the IPCC.



Since its inception in 1988 the IPCC has conducted four assessment rounds and produced some 22 major reports (see Section 5). The most recent assessment report was completed in 2007 and includes contributions from each WG together with a Synthesis Report bringing together their key findings.

The IPCC operates with a very high degree of transparency and openness. Its products, procedures, reports of panel sessions, and complete records of the report preparation process, are publicly available from web sites.¹

Section 4 of this paper summarises some of New Zealand's recent involvement in the work of the IPCC.

¹ See <http://www.ipcc.ch/>

2. IPCC Organisational Structure

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988 under the auspices of the World Meteorological Organization and United Nations Environment Program *“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”*.²

The IPCC is managed by a Panel of government delegates meeting in plenary sessions at least once a year. Typically 100 – 130 governments are represented at IPCC Panel sessions.

All major decisions are taken by the Panel in plenary sessions. Decisions by the Panel are governed by the principle that *“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”*.²

Note that the aim for consensus in conducting the affairs of the Panel does not apply to authors preparing the content of assessment and special reports – see Section 3.

Key roles of government delegates on the Panel include:

- ⊕ Electing the IPCC Chair and a 30-member Bureau (see Fig 1) responsible for managing a science assessment round and other IPCC activities, for a term of 6 or 7 years;
- ⊕ Agreeing on the mandate, timetable and scope for any scientific and technical assessments, special reports, or other products;
- ⊕ Approving or adopting IPCC reports (but the Panel is not directly involved in preparing or reviewing drafts – see Section 3).
- ⊕ Approving an annual Trust Fund budget that covers the operation of a small Secretariat in Geneva, limited amounts of travel for developing country participants, publication costs, and meeting costs.

The three WGs responsible for the preparation of assessment and special reports are led by developed and developing country co-chairs supported by WG Bureaux. These are all elected by governments as part of the IPCC Bureau. The developed country co-chair has a small Technical Support Unit (TSU) to manage the report preparation process. Working Groups and TSUs are not permanent organisations and are typically disbanded at the end of an assessment round.

Funding for IPCC activities is through voluntary contributions by governments to the IPCC Trust Fund and by in-kind contributions to the work of the IPCC. In-kind support by governments is larger than direct funding and includes support of

² See the Principles Governing IPCC Work at: <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf>

TSUs, authors, expert meeting costs, and research activities that underpin the assessment process.

The IPCC does not fund the time spent by authors or reviewers in preparing reports, thus its work is heavily dependent on the cooperation of the international scientific community together with national research agencies, universities, and their funders.

The IPCC does not carry out, or manage research or collection of data, however, it does play a limited role in distributing data collected by other agencies. Furthermore, where no other agency has been available, the IPCC has played a coordinating or facilitating role within the research community. For example, this applied to the early development of socio-economic and greenhouse gas emission scenarios, whereas the relevant research community now operates its own coordination mechanisms.

3. The IPCC Assessment Process

This section covers the procedures used for preparing assessment reports which are the main products of the IPCC. These procedures have been determined by governments and are carefully documented³. From our personal experience we can say that these procedures are scrupulously adhered to.

While the work of the IPCC is intended to be directly relevant to policymakers, the structure, language, and conceptual frameworks used in IPCC reports are all drawn from the relevant scientific and technical literature.

For example, in order to be consistent with scientific literature, the term *climate change* in IPCC usage refers to any change in climate over time, whether due to natural variability or as a result of human activity. This is different from usage in the UN Framework Convention on Climate Change where *climate change* refers to a change of climate that is attributed directly or indirectly to human activity.

An important characteristic of a science assessment, as produced by the IPCC, is that it must be based on pre-existing and well documented studies. In particular, IPCC procedures make clear that the primary source of material for an assessment is the relevant peer reviewed scientific literature.

Consistent with this, a fundamental principle for preparing the content of IPCC reports is that: *“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”*.²

The key steps for preparation of an assessment report, in chronological sequence, are:

- ⊕ agreement by the Panel to carry out the report
- ⊕ scoping of the report’s content by scientists coordinated by the IPCC Bureau and WG Co-Chairs
- ⊕ agreement by the Panel to the outline of the report
- ⊕ nomination of experts by governments to write the report, and selection of author teams by the WG Bureaux
- ⊕ two rounds of drafting and open international review followed by distribution of a final draft to governments
- ⊕ approval of the final wording of the Summary for Policymakers by the IPCC Panel consistent with the underlying chapters, and acceptance of the report as a whole by the Panel.

³ See <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles-appendix-a.pdf>

The following sub-sections provide details on those steps with some examples drawn from the WG I report for the Fourth Assessment (AR4).

3.1 Preliminaries

Prior to election of the Chair and Bureau, the Panel decides whether to undertake a comprehensive assessment, and sets a timetable for its completion. This determines the term of office of the Bureau. The decision to undertake the AR4 was taken in 2002. Similarly the Fifth Assessment round began with the election of the new bureau in 2008 and is to be completed in 2013 (WG I) and 2014 (WG II and WG III).

Given this mandate, the IPCC Bureau organises one or more scoping meetings to consider the structure and coverage, but not the content, of the WG reports. For the AR4, two scoping meetings were held during 2003 with participants drawn broadly from the international scientific and technical communities including leaders of the World Climate Research Program and International Geosphere Biosphere Program, and some government representatives as typical end-users.

Drawing from these scoping meetings and other discussions within the science community each WG Bureau develops a structure for its report including key topics, chapter headings and the scope of each chapter. The WG report outlines are then approved by the Panel allowing government delegates to flag aspects that they regard as particularly important.

3.2 Authors and Review Editors

The author team for an IPCC report consists of Coordinating Lead Authors (CLAs), Lead Authors (LAs) and Contributing Authors (CAs) whose roles are defined in IPCC procedures³ as follows:

LAs – are responsible for assessing the available literature and preparing a synthesis of that for designated sections of the report. IPCC procedures make it clear that the authors' assessment should identify key conclusions as well as any areas of disagreement within the scientific literature. Specifically *“LAs should clearly identify disparate views for which there is significant scientific or technical support, together with the relevant arguments.”*³ LAs, in conjunction with Review Editors (see below), are also required to take account of expert and government review comments when revising text.

CLAs – are LAs who are also responsible for the overall coordination of a chapter. Much of the organisational effort of producing a report falls to CLAs.

CAs – are invited by LAs to submit specific technical information such as possible text sections, graphs or data. E.g. a CA may be asked to submit a graph based on one of their publications but including more recent data. While input from a wide range of CAs is sought, it should be recognised that LAs “hold the pen” on their chapters.

In addition to the author teams, two or more Review Editors (REs) are assigned to each chapter. REs do not prepare material for the report; their role is to act independently of the authors and ensure that all comments on drafts received during the review process (see below) are treated appropriately. Specifically the

defined role of REs is to *“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”*.³

3.3 Selection of Lead Authors and Review Editors

Following Panel agreement on the WG report outlines, the IPCC invites governments to nominate authors and review editors for each chapter. Approximately 760 nominations were received from governments for these roles in the WG I report.

Each WG Bureau is responsible for selection of CLAs, LAs and REs for its report. For this purpose the WG I Bureau used the CV information supplied by governments in their nominations as well as information compiled by the TSU on each individual’s past publications, contributions to IPCC reports, etc.

In seeking the best qualified authors, the WG I Bureau paid particular attention to evidence of recent scholarly publications in peer reviewed literature that were directly relevant to the chapter topics. Evidence for broad views or objectivity, such as authorship of recent review articles, was considered important. In addition, the team for each chapter was determined so as to represent a range of views where that existed in the literature. Finally, as far as possible author teams are selected so as to maintain geographic and institutional balance.

Given the number and high standard of nominees the WG I Bureau was able to introduce secondary criteria that favoured: nominees who had not been authors on previous IPCC reports, gender balance, and younger scientists. For example, 75% of WG I authors had not been authors in previous reports.

The final WG I author team comprised 152 LAs, including two CLAs for each of the 11 chapters. Author teams work largely via internet, complemented by lead author meetings organised by the WG TSU and through participation in relevant international scientific meetings.

Selection of REs operated in a similar way but in this case experience in prior IPCC reports was not a discriminating factor. Two or three REs were assigned to each chapter.

3.4 Drafts and Reviews

An IPCC principle is that *“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.”*²

Each assessment report undergoes two rounds of draft preparation followed by a formal expert review. Drafts received from the authors are compiled by the TSU which undertakes a number of quality control steps such as ensuring that all references are provided, the quality of graphics is adequate, etc. Draft reports are then made available publicly via the WG website and reviewers submit their comments to the TSU via the website.

The review of the first draft is an 'Expert Review', however, there is no definition of an 'expert' in this context and anyone wishing to submit comments can do so. All comments are treated equally.

The review of the second draft is an 'Expert and Government review'. This is again open to any individual wishing to submit comments but in addition governments are invited to conduct national level reviews and then submit collective comments based on these. Some governments, e.g. the USA, use this opportunity to ensure that drafts have been scrutinised widely.

In the case of the WG I report for the AR4, the first 'expert review' involved over 500 reviewers; the second 'expert and government' review involved over 300 individual reviewers and 25 government reviews. Note that the IPCC does not have information on the number of individual experts involved in the reviews coordinated by governments.

In these two formal reviews over 31,000 separate comments were received by WG I. The relevant authors provided a written response for each of these comments and the REs provided signed statements confirming that they were satisfied that all substantive comments had been dealt with appropriately. All drafts, reviewer comments, and author responses are available from public archives (see below).

As noted above, IPCC procedures make it clear that the primary source of material to be assessed in a report is the peer-reviewed and internationally available literature, however, authors may cite unpublished material where relevant, in which case copies are lodged with the TSU and provided on request to reviewers.

Similarly copies of any preliminary versions of papers destined for the peer-reviewed literature, that are submitted to the authors and used by them, are also made available to reviewers. For the WG I report an online archive of about 1000 such pre-publication copies of papers was made available to reviewers.

The final deadline requirement for papers cited in the WG I report was that they be finally accepted for publication by July 24, 2006, i.e. 3 months prior to distribution of the final draft to governments.

3.5 Preparation of summaries

The main findings from the assessment report flow from the chapters to summary sections of the report. Important findings are summarised in a Executive Summary for each chapter and a Technical Summary of the report as a whole. Findings that are particularly important, well supported, and policy relevant are included in a draft Summary for Policymakers.

Language used to express the main findings of the report, including associated uncertainties or level of scientific confidence, is discussed and agreed among the authors. For example, the wording of the summary statement on observed climate change, that:

“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow

and ice, and rising global average sea level.”
was discussed at length by the full author team in the fourth WG I Lead Author meeting before agreement was reached on the word ‘unequivocal’.

While the authors engage in constructive discussion of the available literature, this does not extend to engaging in new research as part of the assessment, or creating a consensus that does not already exist in the literature.

As an example, on the issue of future sea level rise, some in the science community expressed a strong view that the WG I assessment should extrapolate evidence of recent rapid changes on the margins of ice sheets to infer high levels of sea level rise by the end of the century. However, this would have required an active research component to the assessment, and that was excluded under our procedures.⁴

3.6 Approval and adoption of the final report

Following revisions to the second draft based on the expert and government review, the final draft report is compiled and distributed to governments along with a draft Summary for Policymakers (SPM). For the WG I report this final distribution was on 27 October 2006.

Finalising the SPM then takes place in a line by line approval process at a plenary session of the Panel working in conjunction with a representative subgroup of the report authors. For the WG I report this session took place in Paris from 29 January to 1 February 2007.

The purpose of involving government delegates in the final wording of the SPM is to ensure that the language is clear and useful in a policy context while remaining entirely consistent with the underlying chapters of the final draft report. In order to achieve these dual requirements:

- ⊕ No substantive changes are allowed to the chapters or Technical Summary of the final draft after it has been distributed to governments – this being at least 8 weeks prior to the plenary approval session. The only exception to this would be for unambiguous errors of fact and if agreed by the chapter authors;
- ⊕ Authors representing all chapters of the report are present throughout the plenary SPM approval session and are tasked with ensuring that any changes to the SPM remain consistent with the underlying chapters. In effect, the authors have a power of veto over any changes requested by government delegates if they would conflict with the underlying report.
- ⊕ Where changes in SPM language are agreed during the plenary approval session, the authors may choose to make matching changes in language at the chapter level in order to provide clarity or traceability for SPM

⁴ See Solomon, S.; Alley, R.; Gregory, J.; Lemke, P.; Manning, M. (2008). A Closer Look at the IPCC Report. *Science* 319: 409-410, for discussion of this point.

statements. Such changes must not alter any substantive findings as presented in the final draft. A complete list of such changes in the underlying report is presented to the Panel as part of the final approval process.

The interaction between government delegates and authors in the finalisation of the SPM requires strict adherence to process. As an example, in discussion of the key attribution statement in the WG I SPM:

“Most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations.”

China suggested using a different form of wording for the scientific confidence level ‘very likely’. The WG Co-chairs ruled this out on the basis that the confidence level referred to was that of the authors, that it used pre-defined terminology, and had been subject to expert review. This position was strongly supported by other government delegations and the Swiss delegation observed that the session was approving a Summary **for** Policymakers not a Summary **by** Policymakers.

Some commentators have suggested that government delegates weakened statements in the draft SPM prepared by the authors. A published statement by all of the CLAs firmly rebutted this as follows:

“At all stages, including at the final plenary in Paris, the authors had control over the text; all CLAs were present in Paris.”⁵

Web based publication of the SPM takes place within 1 or 2 days of plenary approval. However, this is not in final layout format. Copy editing of the full report starts well before the plenary approval session but final layout steps and checking by authors take place afterwards. As a result, publication of the full report has generally been about two to three months after the plenary approval.

3.7 The Public Record

IPCC process requires that all review comments are placed in a public archive. It has been the practice to go beyond this and in addition place the draft versions of the reports and the author responses to review comments in the same public archive. For the AR4 it has been possible to provide on-line access to these archives via the world wide web.

Because WGs and TSUs are not permanent organisations, WG I used the Environmental Science and Public Policy Archives at Harvard University as the permanent repository of drafts and review comments.⁶

Some groups have made misleading comments about the IPCC process. The government mandate for the IPCC does not extend to entering into public debate and the organisation instead relies on its very high level of transparency

⁵ Letter to *New Scientist* published March 2007

⁶ See <http://hcl.harvard.edu/collections/ipcc/>

in its processes as shown by its commitment to archiving a detailed audit trail of the report preparation process.

3.8 Conclusion

The authors of this paper have between them over 30 years of experience in nearly all roles and levels of the IPCC. In our view, the processes developed for assessment of this complex area of science have provided an important advance in the interaction between scientists and policymakers. Evidence for widespread support of this view exists in the endorsement of the IPCC and its reports by National Science Academies in many countries, and the interest being shown in using similar processes for other areas in which public policy interacts with science.

A key structural feature of the IPCC process is the sequence of the interactions between governments and scientists. This first provides a clear mandate to the science community from governments, then allows the science community to develop a report with a high degree of autonomy, and finally allows governments to work closely with lead authors to ensure they understand the main results of the assessment and that these are expressed in language that is useful in a policy context.

4. New Zealand's contribution to the recent work of the IPCC

The following gives a short summary of typical contributions by New Zealand to recent work of the IPCC.

New Zealand scientists were among the authors for the AR4, including

- one CLA for each of the WG II and WG III reports;
- 2, 6 and 1 LAs for the WG I, II and III reports respectively
- 14 CAs for the three WG reports.

New Zealand scientists also acted as REs for the WG I and WG II reports and the Synthesis Report.

Dr David Wratt was a member of the WG I Bureau for the Fourth Assessment round and has been re-elected to that position for the Fifth Assessment.

The New Zealand government has been represented at most Panel sessions and report scoping meetings by one or more senior climate scientists, the IPCC Focal Point for New Zealand (provided by Ministry for the Environment), and other officials as appropriate.

New Zealand has a representative on the Bureau for the IPCC Task Force on Greenhouse Gas Inventories, and an expert on the Board of the database for greenhouse gas emissions factors.

New Zealand has made regular contributions to the IPCC Trust Fund over many years. Since 2000/01 New Zealand contributions amount to SFR 162,880. The total contribution by all governments and international organisations over the same time period was about SFR 41,469,000.

New Zealand hosted Lead Author meetings for both WG I and WG III in support of the preparation of the AR4.

New Zealand, through the Ministry for the Environment, has partially supported several side events and workshops in small Pacific Island nations, where the findings of the AR4 and the implications for small island nations have been discussed.

5. List of Assessment Reports and Special Reports Produced by the IPCC (1990 – 2007)

The assessment and special reports listed below were all prepared following the procedures outlined in this paper. The IPCC has also produced a number of methodological reports, technical papers, expert meeting reports, and other published forms of supplementary material not listed here – see the IPCC web site for details¹.

- Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: The Core Writing Team, Rajendra K. Pachauri and Andy Reisinger. Intergovernmental Panel on Climate Change. 104 pp. 2007.
- Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: S. Solomon, D. Qin, M. Manning, Z. Chen, M. Marquis, KB. Averyt, M. Tignor and H.L. Miller. Cambridge University Press. 996 pp. 2007.
- Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC.* Eds: M.O. Parry, O. Canziani, J. Palutikof, P. van der Linden and C. Hanson. Cambridge University Press. 976 pp. 2007.
- Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: Bert Metz, Ogunlade Davidson, Peter Bosch, Rutu Dave and Leo Meyer. Cambridge University Press. 851 pp. 2007.
- Carbon Dioxide Capture and Storage.* Eds: Bert Metz, Ogunlade Davidson, Heleen de Coninck, Manuela Loos and Leo Meyer. Cambridge University Press. pp 431. 2005.
- Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons.* Eds: Bert Metz, Lambert Kuijpers, Susan Solomon, Stephen O. Andersen, Ogunlade Davidson, José Pons, David de Jager, Tahl Kestin, Martin Manning and Leo Meyer. Cambridge University Press. 478 pp. 2005.
- Climate Change 2001: Synthesis Report. A Contribution of Working Groups I, II, and III to the Third Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: Robert T. Watson and the Core Writing Team. Intergovernmental Panel on Climate Change. Cambridge University Press. 398 pp. 2001.
- Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: J. T. Houghton, Y. Ding, D.J. Griggs, M. Noguer, P. J. van der Linden and D. Xiaosu. Cambridge University Press. 944 pp. 2001.
- Climate Change 2001: Impacts, Adaptation & Vulnerability. Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: James J. McCarthy, Osvaldo F. Canziani, Neil A. Leary, David J. Dokken and Kasey S. White. Cambridge University Press. 1000 pp. 2001.

- Climate Change 2001: Mitigation. Contribution of Working Group III to the Third Assessment Report of the Intergovernmental Panel on Climate Change.* Eds: Bert Metz, Ogunlade Davidson, Rob Swart and Jiahua Pan. Cambridge University Press. 700 pp. 2001.
- Methodological and Technological Issues in Technology Transfer.* Eds: Bert Metz, Ogunlade Davidson, Jan-Willem Martens, Sascha Van Rooijen and Laura Van Wie Mcgrory. Cambridge University Press. 432 pp. 2000.
- Emissions Scenarios.* Eds: Nebojsa Nakicenovic and Rob Swart. Cambridge University Press. 570 pp. 2000.
- Land Use, Land-use Change, and Forestry.* Eds: R.T. Watson, Ian R. Noble, Bert Bolin, N.H. Ravindranath, David J. Verardo and David J. Dokken. Cambridge University Press. 375 pp. 2000.
- Aviation and the Global Atmosphere.* Eds: J.E.Penner, D.H.Lister, D.J.Griggs, D.J.Dokken and M.McFarland. (Prepared in collaboration with the Scientific Assessment Panel to the Montreal Protocol on Substances that Deplete the Ozone Layer). Cambridge University Press. 373 pp. 1999.
- The Regional Impacts of Climate Change: An Assessment of Vulnerability.* Eds: R.T.Watson, M.C.Zinyowera and R.H.Moss. Cambridge University Press. 517 pp. 1997.
- Climate Change 1995: The Science of Climate Change. Contribution of Working Group I to the Second Assessment of the Intergovernmental Panel on Climate Change.* Eds: J.T. Houghton, L.G. Meira Filho, B.A. Callander, N. Harris, A. Kattenberg, and K. Maskell. Cambridge University Press. 572 pp. 1996.
- Climate Change 1995: Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses. Contribution of Working Group II to the Second Assessment of the Intergovernmental Panel on Climate Change.* Eds: R.T.Watson, M.C.Zinyowera and R.H.Moss. Cambridge University Press. 878 pp. 1996.
- Climate Change 1995: Economic and Social Dimensions of Climate Change. Contribution of Working Group III to the Second Assessment of the Intergovernmental Panel on Climate Change.* Eds: J.P.Bruce, H.Lee and E.F.Haites. Cambridge University Press. 448 pp. 1996.
- Climate Change 1994: Radiative forcing of climate change and an evaluation of the IPCC IS92 emission scenarios.* Eds: J.T. Houghton, L.G. Meira Filho, J. Bruce, Lee Hoesung, B.A. Callander, E. Haites, N. Harris, and K. Maskell. Cambridge University Press, Cambridge, 339 pp. 1994.
- Climate Change 1992: The supplementary report to the IPCC scientific assessment.* Eds: J.T. Houghton, B.A. Callander and S.K. Varney. Cambridge University Press. 200 pp. 1992.
- Climate Change: The IPCC scientific assessment.* Eds: J.T. Houghton, G.J. Jenkins, and J.J. Ephraums. Cambridge University Press. 365 pp. 1990.

Impacts Assessment of Climate Change – Report of Working Group II. Eds: W.J.McG
Tegart, G.W.Sheldon, D.C.Griffiths. Australian Government Publishing Service.
1990.

The IPCC Response Strategies – Report of Working Group III. Island Press. pp 270. 1990.