

Cambridge University Press

978-0-521-70597-4 - Climate Change 2007: Impacts, Adaptation and Vulnerability

Edited by Martin Parry, Osvaldo Canziani, Jean Palutikof, Paul van der Linden and Clair Hanson

Frontmatter

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Climate Change 2007

Impacts, Adaptation and Vulnerability

The Intergovernmental Panel on Climate Change (IPCC) was set up jointly by the World Meteorological Organization and the United Nations Environment Programme to provide an authoritative international statement of scientific understanding of climate change. The IPCC's periodic assessments of the causes, impacts and possible response strategies to climate change are the most comprehensive and up-to-date reports available on the subject, and form the standard reference for all concerned with climate change in academia, government and industry worldwide. Through three working groups, many hundreds of international experts assess climate change in this Fourth Assessment Report. The Report consists of three main volumes under the umbrella title *Climate Change 2007*, all available from Cambridge University Press:

Climate Change 2007 – The Physical Science Basis

Contribution of Working Group I to the Fourth Assessment Report of the IPCC
(ISBN 978 0521 88009-1 Hardback; 978 0521 70596-7 Paperback)

Climate Change 2007 – Impacts, Adaptation and Vulnerability

Contribution of Working Group II to the Fourth Assessment Report of the IPCC
(978 0521 88010-7 Hardback; 978 0521 70597-4 Paperback)

Climate Change 2007 – Mitigation of Climate Change

Contribution of Working Group III to the Fourth Assessment Report of the IPCC
(978 0521 88011-4 Hardback; 978 0521 70598-1 Paperback)

Climate Change 2007 – Impacts, Adaptation and Vulnerability provides the most comprehensive and up-to-date scientific assessment of the impacts of climate change, the vulnerability of natural and human environments, and the potential for response through adaptation. The report:

- evaluates evidence that recent observed changes in climate have already affected a variety of physical and biological systems and concludes that these effects can be attributed to global warming;
- makes a detailed assessment of the impacts of future climate change and sea-level rise on ecosystems, water resources, agriculture and food security, human health, coastal and low-lying regions and industry and settlements;
- provides a complete new assessment of the impacts of climate change on major regions of the world (Africa, Asia, Australia/New Zealand, Europe, Latin America, North America, polar regions and small islands);
- considers responses through adaptation;
- explores the synergies and trade-offs between adaptation and mitigation;
- evaluates the key vulnerabilities to climate change, and assesses aggregate damage levels and the role of multiple stresses.

This latest assessment by the IPCC will form the standard scientific reference for all those concerned with the consequences of climate change, including students and researchers in ecology, biology, hydrology, environmental science, economics, social science, natural resource management, public health, food security and natural hazards, and policymakers and managers in governments, industry and other organisations responsible for resources likely to be affected by climate change.

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From reviews of the Third Assessment Report – Climate Change 2001:

‘This volume makes another significant step forward in the understanding of the likely impacts of climate change on a global scale.’

International Journal of Climatology

‘The detail is truly amazing . . . invaluable works of reference . . . no reference or science library should be without a set [of the IPCC volumes]. . . unreservedly recommended to all readers.’

Journal of Meteorology

‘This well-edited set of three volumes will surely be the standard reference for nearly all arguments related with global warming and climate change in the next years. It should not be missing in the libraries of atmospheric and climate research institutes and those administrative and political institutions which have to deal with global change and sustainable development.’

Meteorologische Zeitschrift

‘The IPCC has conducted what is arguably the largest, most comprehensive and transparent study ever undertaken by mankind . . . The result is a work of substance and authority, which only the foolish would deride.’

Wind Engineering

‘ . . . the weight of evidence presented, the authority that IPCC commands and the breadth of view can hardly fail to impress and earn respect. Each of the volumes is essentially a remarkable work of reference, containing a plethora of information and copious bibliographies. There can be few natural scientists who will not want to have at least one of these volumes to hand on their bookshelves, at least until further research renders the details outdated by the time of the next survey.’

The Holocene

‘The subject is explored in great depth and should prove valuable to policy makers, researchers, analysts, and students.’

American Meteorological Society

From reviews of the Second Assessment Report – Climate Change 1995:

‘ . . . essential reading for anyone interested in global environmental change, either past, present or future. . . . These volumes have a deservedly high reputation’

Geological Magazine

‘ . . . a tremendous achievement of coordinating the contributions of well over a thousand individuals to produce an authoritative, state-of-the-art review which will be of great value to decision-makers and the scientific community at large . . . an indispensable reference.’

International Journal of Climatology

‘ . . . a wealth of clear, well-organized information that is all in one place . . . there is much to applaud.’

Environment International

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Climate Change 2007

Impacts, Adaptation and Vulnerability

Edited by

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Paul van der Linden Deputy Head, Technical Support Unit IPCC Working Group II	Clair Hanson Deputy Head, Technical Support Unit IPCC Working Group II	

Contribution of Working Group II
to the Fourth Assessment Report of the
Intergovernmental Panel on Climate Change

Published for the Intergovernmental Panel on Climate Change



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Editorial Board: M.L. Parry and O.F. Canziani (Co-Chairs), E. de Alba Alcaraz, A. Allali, L. Kajfež-Bogataj, G. Love, J. Stone, J.P. van Ypersele, J.P. Palutikof (Head of Technical Support Unit)

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This volume:	Summary for Policymakers, Technical Summary, Chapters, Appendices, Index
Together with:	Supporting material, Chapter supplementary material, Regional and subject database of references, Figures in Powerpoint from SPM and TS

Foreword

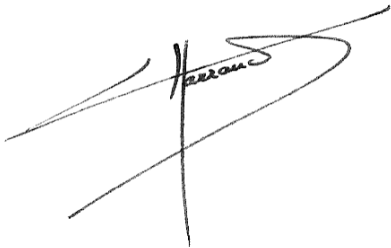
The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and the United Nations Environment Programme in 1988 with the mandate to provide the world community with the most up-to-date and comprehensive scientific, technical and socio-economic information about climate change. The IPCC multivolume assessments have since then played a major role in motivating governments to adopt and implement policies in responding to climate change, including the United Nations Framework Convention on Climate Change and the Kyoto Protocol. The “Climate Change 2007” IPCC Fourth Assessment Report could not be timelier for the world’s policy makers to help them respond to the challenge of climate change.

“Climate Change 2007: Impacts, Adaptation and Vulnerability”, is the second volume of the IPCC Fourth Assessment Report. After confirming in the first volume on “The Physical Science Basis” that climate change is occurring now, mostly as a result of human activities, this volume illustrates the impacts of global warming already under way and the potential for adaptation to reduce the vulnerability to, and risks of climate change.

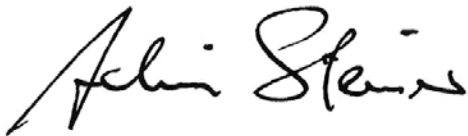
Drawing on over 29,000 data series, the current report provides a much broader set of evidence of observed impacts coming from the large number of field studies developed over recent years. The analysis of current and projected impacts is then carried out sector by sector in dedicated chapters. The report pays great attention to regional impacts and adaptation strategies, identifying the most vulnerable areas. A final section provides an overview of the inter-relationship between adaptation and mitigation in the context of sustainable development.

The “Impacts, Adaptation and Vulnerability” report was made possible by the commitment and voluntary labour of a large number of leading scientists. We would like to express our gratitude to all Coordinating Lead Authors, Lead Authors, Contributing Authors, Review Editors and Reviewers. We would also like to thank the staff of the Working Group II Technical Support Unit and the IPCC Secretariat for their dedication in organising the production of another successful IPCC report. Furthermore, we would like to express our thanks to Dr Rajendra K. Pachauri, Chairman of the IPCC, for his patient and constant guidance to the process, and to Drs Osvaldo Canziani and Martin Parry, Co-Chairs of Working Group II, for their skillful leadership.

We also wish to acknowledge and thank those governments and institutions that contributed to the IPCC Trust Fund and supported the participation of their resident scientists in the IPCC process. We would like to mention in particular the Government of the United Kingdom, which funded the Technical Support Unit; the European Commission and the Belgian Government, which hosted the plenary session for the approval of the report; and the Governments of Australia, Austria, Mexico and South Africa, which hosted the drafting sessions to prepare the report.



M. Jarraud
Secretary General
World Meteorological Organisation



A. Steiner
Executive Director
United Nations Environment Director

Preface

This volumes comprises the Working Group II contribution to the IPCC Fourth Assessment (AR4) and contains a Summary for Policymakers, a Technical Summary, the chapters of the Assessment and various annexes. The scope, content and procedures followed are described in the Introduction which follows.

Acknowledgements

This Report is the product of the work of many scientists who acted as Authors, Reviewers or Editors (details are given in the Introduction, Section E). We would like to express our sincere thanks to them for their contribution, and to their institutions for supporting their participation.

We thank the members of the Working Group II Bureau (Edmundo de Alba Alcarez, Abdelkader Allali, Lucka Kajfež-Bogataj, Geoff Love, John Stone and Jean-Pascal van Ypersele), for carrying out their duties with diligence and commitment.

Costs of the Technical Support Unit (TSU) and of Dr Parry were covered by the UK Department for the Environment, Food and Rural Affairs (Defra). The TSU was based in the Met Office Hadley Centre in the UK. We thank David Warrilow (Defra), Dave Griggs and John Mitchell (Met Office) for their support through these agencies.

Four meetings of Authors were held during the preparation of the Report, and the governments of Austria, Australia, Mexico and South Africa, through their Focal Points, kindly agreed to act as hosts. The Approval Session of the Working Group II contribution to the Fourth Assessment was held in Brussels at the generous invitations of the Government of Belgium, through Martine Vanderstraeten, and the European Community, through Lars Mueller. We thank all these governments, institutions and individuals for their hospitality and hard work on behalf of the Working Group II process.

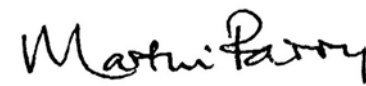
We thank the IPCC Secretary, Renate Christ, and the Secretariat staff Jian Liu, Rudie Bourgeois, Annie Courtin, Joelle Fernandez and Carola Saibante for their efficient and courteous attention to Working Group II needs; and Marc Peeters, WMO Conference Officer, for his work on the organisation of the Brussels Approval Meeting.

Thanks go to ProClim (Forum for Climate and Global Change) and Marilyn Anderson for producing the index to this Report.

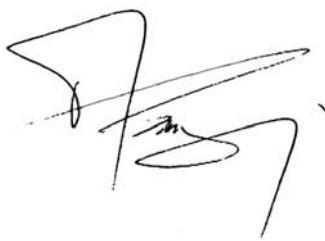
Last, but by no means least, we acknowledge the exceptional commitment of the members of the Technical Support Unit throughout the preparation of the Report: Jean Palutikof, Paul van der Linden, Clair Hanson, Norah Pritchard, Chris Sear, Carla Encinas and Kim Mack.



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