

UNDERSTANDING CLIMATE CHANGE

22 years of IPCC assessment



ipcc

INTERGOVERNMENTAL PANEL ON
climate change



WMO



UNEP

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WHAT IS UNIQUE ABOUT IPCC?

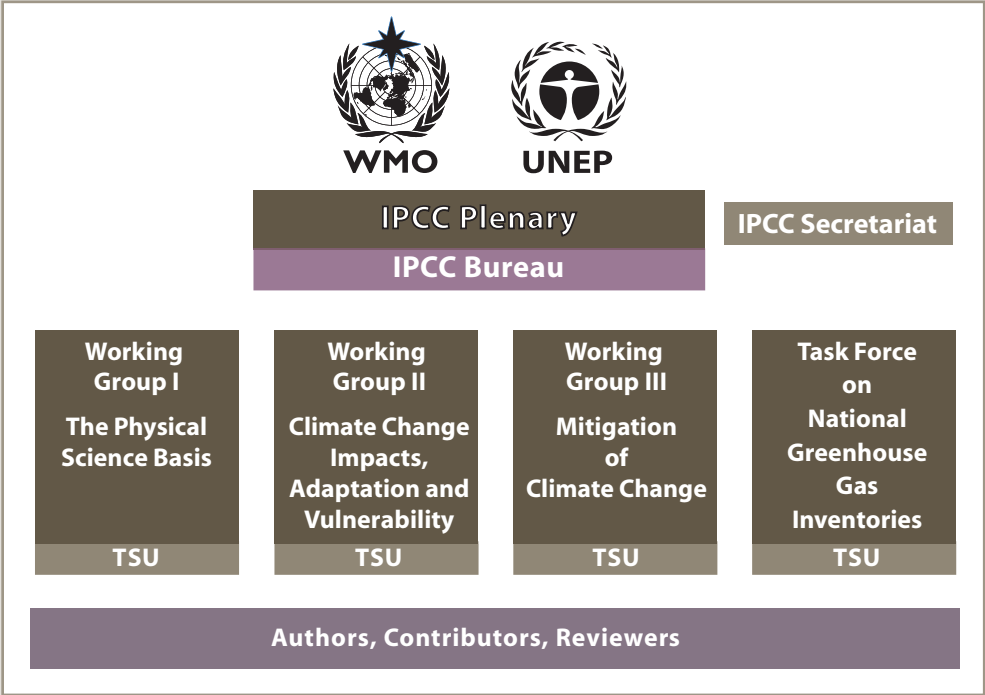
The Intergovernmental Panel on Climate Change (IPCC) provides at regular intervals assessment reports on the state of knowledge on climate change.

One of the most important principles of the IPCC is to be policy relevant, but not policy prescriptive in its reports. Other important principles include scientific integrity, objectivity, openness and transparency. But the success of the IPCC also depends on the enthusiasm and cooperation of thousands of experts from all regions of the world who have contributed over the years to the preparation of IPCC Reports as authors and reviewers.

Who’s who in the IPCC?

The IPCC is an intergovernmental body, sponsored by UNEP and WMO, that is open to all member countries of the United Nations and the WMO. Each government has an IPCC focal point who coordinates IPCC-related activities in the country. Major decisions about the IPCC structure and work, such as reports and their scope, are taken by the Panel, which meets in Plenary Sessions at the level of government representatives approximately once a year. One of the responsibilities of the Panel is to elect the IPCC Chair, the Working Group and Task Force Co-Chairs and other members of the **IPCC Bureau**.

Currently the IPCC has **three Working Groups** (see graphic below) and a **Task Force on National Greenhouse Gas Inventories**. They have clearly defined mandates and work plans agreed by the Panel. Each of them is led



by Co-Chairs and supported by a Technical Support Unit (TSU). The TSUs for the Fifth Assessment Report (AR5) are hosted by Switzerland, **Working Group I**; USA, **Working Group II**; Germany, **Working Group III**; and for the **Task Force on the National Greenhouse Gas Inventories** by Japan.

The **IPCC Secretariat** plans, oversees and manages all IPCC activities. It organizes meetings, supports developing country participation, manages the IPCC Trust Fund and IPCC publications, and it oversees and coordinates information and outreach activities. The Secretariat is supported by UNEP and WMO and hosted by the WMO in Geneva.

The IPCC represents a unique partnership between the scientific community and the world's governments. **Thousands of scientists and experts from all over the world contribute to the preparation of IPCC reports as authors, contributors, review editors and expert reviewers**; none of them paid by the IPCC.

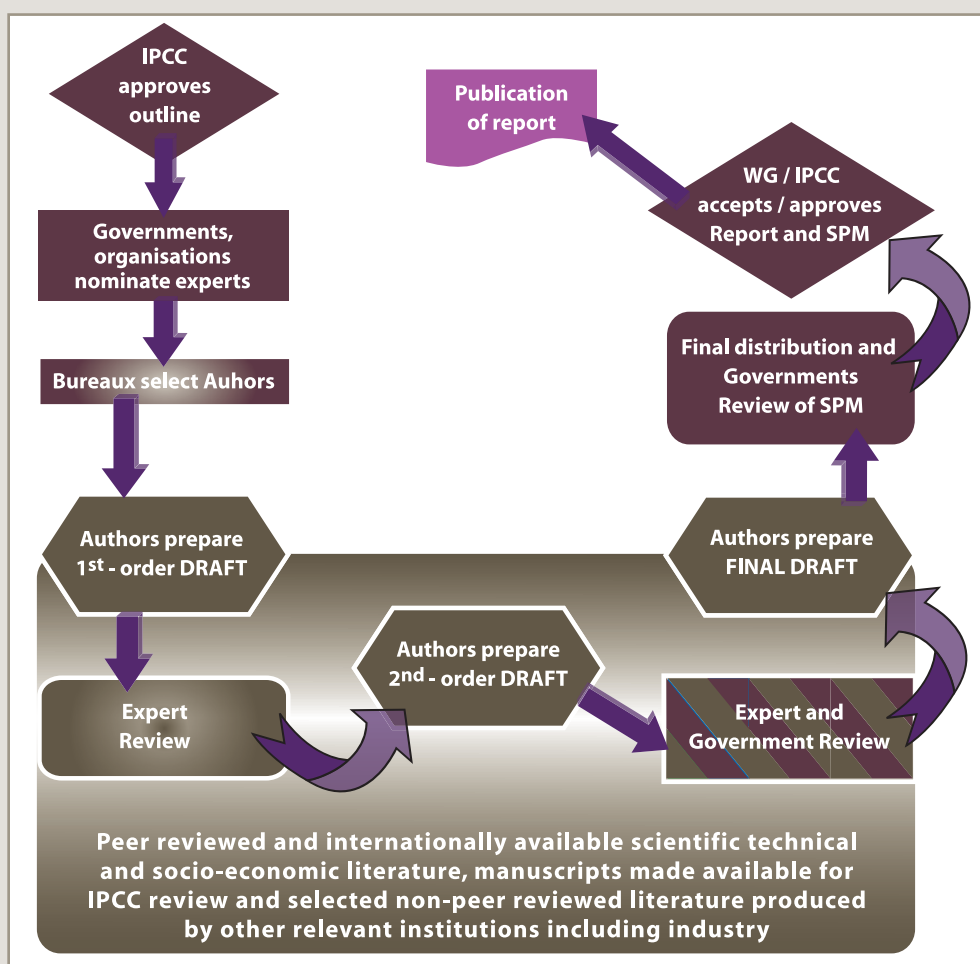
Authors for each IPCC Report are selected by the respective Working Group Bureau from nominations received from governments and participating organizations or identified because of their special expertise reflected in their publications and works. The composition of lead author teams for chapters of IPCC reports shall reflect a range of views, expertise and geographical representation.

Coordinating Lead Authors take overall responsibility for coordinating a major section of a report. **Lead Authors** are responsible for the production of designated sections of reports. The essence of the Lead Authors' task is to synthesize the best scientific, technical and socio-economic information available in peer-reviewed and internationally available literature and in selected non-peer reviewed literature. They are also required, in conjunction with **Review Editors**, to take account of expert and government review comments in revising the text. Lead Authors may enlist Contributing Authors who will prepare technical information on specific topics to be assimilated in the chapter.

How the IPCC reports are prepared

The writing and review of IPCC Reports follows strict procedures which are reviewed and revised at regular intervals.

The IPCC usually starts a new assessment with a scoping process which leads to the general outline of a report, highlighting also new features and cross cutting matters. Policymakers and other users of IPCC reports are consulted in order to identify the key policy-relevant issues.



After the outline is approved by the Panel, an author team is assembled for each chapter. IPCC reports are based to the extent feasible on published and peer-reviewed scientific literature. However, on some aspects such as practical experience in adaptation, peer reviewed literature is scarce. In this case information from other sources such as reports from governments and international organizations is used, and authors have to thoroughly check the quality and validity of such information.

Review and acceptance

Review is an essential part of the IPCC process to ensure an objective, unbiased, transparent and comprehensive assessment of current scientific technical information. In a two-stage review process, both expert reviewers and governments are called upon to comment on scientific and technical matters. A wide circulation process ensures contributions from independent experts in all regions of the world and all relevant disciplines. Differing views are reflected in the reports.

After taking into account the expert and government comments, the final drafts of the reports are presented to the Panel for acceptance of their content. Review Editors assist the author teams in this process and ensure that all comments are afforded appropriate consideration.

Summaries for Policymakers

Summaries for Policymakers (SPM) are prepared concurrently with the main reports and undergo a simultaneous expert and government review. In these documents, each point undergoes not only the careful scrutiny of the scientists, but the reports are also approved line-by-line by all participating governments. Typically more than 120 countries are present at approval Sessions.

THE ESTABLISHMENT OF THE IPCC

In the 1980s the risk of human-induced climate change was increasingly debated by scientists and policymakers and the need for independent, scientific and technical advice to inform decision-making on this important and complex issue became apparent. This is why in 1988 UNEP and WMO established the Intergovernmental Panel on Climate Change (IPCC) to prepare, based on available scientific information, a report on all aspects of climate change and its impacts, with a view to formulating realistic response strategies.

In November 1988, the IPCC established three Working Groups at its first Plenary Session, to prepare assessment reports on the:

- Available scientific information on climate change,
- Environmental and socio-economic impacts of climate change, and
- Formulation of response strategies.

At this Plenary Session, the IPCC elected Mr. Bert Bolin of Sweden as the first Chairman of the IPCC.

The UN General Assembly mandate for the IPCC's work in 1988

At the same time the **43rd Session of the United Nations General Assembly (UNGA)** in its resolution on "Protection of the global climate for present and future generations of mankind" (1988) endorsed the action by UNEP and WMO to establish the IPCC and requested as soon as possible

"a comprehensive review and recommendations with respect to:

- (a) The state of knowledge of the science of climate and climatic change;
- (b) Programmes and studies on the social and economic impact of climate change, including global warming;
- (c) Possible response strategies to delay, limit or mitigate the impact of adverse climate change;
- (d) The identification and possible strengthening of relevant existing international legal instruments having a bearing on climate;
- (e) Elements for inclusion in a possible future international convention on climate".

THE HISTORY OF THE IPCC THROUGH ITS REPORTS

1990 – First Assessment Report (FAR) and negotiations for a framework convention on climate change

Responding to the request from the UNGA, the IPCC finalized its first comprehensive assessment report on 30 August 1990 in Sundsvall, Sweden. The United Nations General Assembly noted the report findings at its 45th Session in 1990 and as a consequence decided to initiate negotiations for an effective framework convention on climate change to be completed prior to the UN Conference on Environment and Development in June 1992.

To meet the information needs of the negotiating process for the Climate Convention, the IPCC prepared in 1992 Supplementary Reports and in 1994 a Special Report that comprised updated information on radiative forcing of climate change, an evaluation of the IPCC IS92 emission scenarios, the “IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptation” and the “IPCC Phase I Guidelines for National Greenhouse Gas Inventories”.

After entry into force of the UN Framework Convention on Climate Change (UNFCCC) in 1994 the IPCC remained the most important source of scientific, technical and socio-economic information. The relationship between the UNFCCC and the IPCC became a model for interaction between science and decision-makers.

1995 – Second Assessment Report (SAR)

In 1991, the IPCC decided to prepare a second comprehensive assessment report. At that time the membership of the IPCC was also expanded to all member countries of WMO and UNEP, and measures to enhance the participation of developing countries were put in place. It was agreed that each Working Group should be led to two Co-Chairs, one from a developed and one from a developing country.

Working Group I highlighted considerable progress in the understanding of climate change since 1990, while **Working Group II** broadened the scope of its assessment to include information on the technical and economic

feasibility of a range of potential adaptation and mitigation strategies. **Working Group III** addressed, as a new feature, the social and economic dimensions of climate change over both the short and long term.

The IPCC SAR provided substantive input to the further development of the UNFCCC in particular the negotiations for the Kyoto Protocol which was adopted in 1997. At the **Second Conference of the Parties (COP-2) in 1996**, Ministers and other heads of delegations present at COP-2 recognized the SAR as “currently the most comprehensive and authoritative assessment of the science of climate change, its impacts and response options now available.”

2001 – Third Assessment Report (TAR)

The IPCC’s Third Assessment Report (TAR) was initiated in 1997 and completed in 2001.

Working Group I presented improved understanding of climate processes, forcing agents and feedback and addressed the question of human influence on today’s climate. Projections of future climate were based on new scenarios and a wider range of models. **Working Group II** provided updated information on impacts, vulnerabilities and adaptation, and implications for sustainable development. **Working Group III** assessed mitigation options, their costs and co-benefits as well as barriers, opportunities and policy instruments. It also placed climate change mitigation in the context of sustainable development.

At the **Eighth Conference of the Parties (COP-8) in 2002**, the Ministers and other heads of delegation present at COP-8 recognized “with concern, the findings of the IPCC Third Assessment Report, which confirms that significant cuts in global greenhouse gas emissions will be necessary to meet the ultimate objective of the Convention”

2007 – Fourth Assessment Report (AR4)

In the Fourth Assessment Report (AR4) **Working Group I** provided new knowledge on human and natural drivers of climate, a detailed assessment of past climate changes and its causes and stronger evidence on attribution of climate change including an assessment for every continent. **Working Group II** assessed observational evidence of impacts of climate changes, identified some of the most vulnerable places and people and mapped projected impacts against future warming trends, taking into consideration aspects such as development pathways and multiple stresses. **Working Group III** further evaluated emissions trends, mitigation options

and pathways towards stabilization of greenhouse gas concentrations in the atmosphere, along with associated costs in the near and longer term. Compared to previous assessments the report paid greater attention to the integration of climate change with sustainable development policies, the relationship between mitigation and adaptation, Article 2 of the UNFCCC and a consistent evaluation of uncertainty and risk.

The **Thirteenth Conference of the Parties (COP-13)** in 2007 adopted the Bali Action Plan (BAP). In the decision text:

"The Conference of the Parties, ...

Responding to the findings of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change that warming of the climate system is unequivocal, and that delay in reducing emissions significantly constrains opportunities to achieve lower stabilization levels and increases the risk of more severe climate change impacts,

Recognizing that deep cuts in global emissions will be required to achieve the ultimate objective of the Convention and emphasizing the urgency to address climate change as indicated in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, and

Decides to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session ..."

2013-14 – Fifth Assessment Report (AR5)

Work is underway on the Fifth Assessment Report (AR5), following scoping and other preparatory activities carried out over the past two years. Work has now started with the Working Groups' Lead Author meetings, as well as various expert meetings and workshops on cross-cutting matters.

Compared to previous reports, the AR5 will put greater emphasis on assessing the socio-economic aspects of climate change and implications for sustainable development, risk management and the framing of a response through both adaptation and mitigation. It will aim to provide more detailed information on regions, including on climate phenomena such as monsoons and El Niño. To enhance overall integration some aspects including water and the Earth system, carbon cycle; ice sheets and sea-level rise; and Article 2 of the UNFCCC will be addressed in a cross cutting manner. Attention will also be given to consistent evaluation of uncertainties and risks; costing and economic analysis; and new scenarios.

IPCC Special Reports, Technical Papers and Methodology Reports

In addition to its regular comprehensive Assessment Reports, the IPCC prepares Special Reports and Technical Papers on topics that warrant in-depth scientific technical assessment and advice, as well as Methodology Reports. Many of these reports are prepared in response to requests from the UNFCCC or from other international organizations and conventions. Since 1991 the IPCC has supported the UNFCCC by preparing Methodology Reports for National Greenhouse Gas Inventories.

Special Reports:

- 1997 — Regional Impacts of Climate Change: An Assessment of Vulnerability
- 1999 — Aviation and the Global Atmosphere
- 2000 — Methodological and Technological Issues in Technology Transfer
- 2000 — Special Report on Emissions Scenarios (SRES)
- 2000 — Land Use, Land-Use Change and Forestry
- 2005 — Safeguarding the Ozone Layer and the Global Climate System: Issues Related to Hydrofluorocarbons and Perfluorocarbons
- 2005 — Carbon Dioxide Capture and Storage

Currently two Special Reports are under preparation for release in 2011:

- Renewable Energy Sources and Climate Change Mitigation
- Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation

Technical Papers:

- 1996 — Technologies, Policies and Measures for Mitigating Climate Change
- 1997 — An Introduction to Simple Climate Models used in the IPCC Second Assessment Report
- 1997 — Stabilization of Atmospheric Greenhouse Gases: Physical, Biological and Socio-Economic Implications
- 1997 — Implications of Proposed CO₂ Emissions Limitations
- 2002 — Climate Change and Biodiversity
- 2008 — Climate Change and Water

Methodology Reports:

- 1994 — IPCC Guidelines for National Greenhouse Gas Inventories
- 1996 — Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories
- 2000 — Good Practice Guidance and Uncertainty Management in Greenhouse Gas Inventories (GPG)
- 2003 — Good Practice Guidance for Land Use, Land-Use Change and Forestry

- 2003 — Definitions and Methodological Options to Inventory Emissions from Direct Human-Induced Degradation of Forests and Devegetation of Other Vegetation Types
- 2006 — 2006 IPCC Guidelines on National Greenhouse Gas Inventories

22 years of assessment – 22 years of progression

Over the past 22 years the involvement of governments and experts has steadily increased. While 97 Authors contributed to the First Assessment Report (FAR) adopted by the Panel in 1990, on 23 June 2010 the IPCC announced that **831 Authors and Review Editors** had been selected for the Fifth Assessment Report (AR5). The complete expert contribution to the AR5 will increase substantially when Contributing Authors and reviewers are added to the list. Over 3,500 experts coming from more than 130 countries contributed to the Fourth Assessment Report (AR4) in 2007 (+450 Lead Authors, +800 Contributing Authors, and +2,500 expert reviewers provided over 90,000 review comments). Furthermore, over time the involvement of scientists and experts in IPCC Reports from all regions of the world has broadened to provide appropriate geographical and gender balance as well as scientific expertise. Also, the body of scientific, technical and socio-economic literature on which the assessments are based has dramatically increased.

The IPCC has now started the preparation of the Fifth Assessment Report (AR5) - due in 2013/2014. We invite the entire scientific community to contribute to this important effort. Until then, the conclusions of the IPCC assessment reports, and especially the Fourth Assessment Report, are as solid as careful science can make them. They reflect the current state of knowledge about one of the most complex and important of all topics - climate change science.

2007 NOBEL PEACE PRIZE

In 2007 all those involved in the IPCC were delighted to hear the following news: "The Norwegian Nobel Committee has decided that the Nobel Peace Prize for 2007 is to be shared, in two equal parts, between the Intergovernmental Panel on Climate Change (IPCC) and Albert Arnold (Al) Gore Jr. for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change." The IPCC accepted this prize on behalf of all experts who had contributed to its assessment work during the past 20 years. It further decided to use the award money to create a **Scholarship Programme** aimed at enhancing the knowledge and research base and at creating opportunities for young scientists in developing countries highly vulnerable to climate change.



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