

## Statement on IPCC principles and procedures

2 February 2010

The IPCC is a unique partnership between the scientific community and the world's governments. Its goal is to provide policy-relevant but not policy-prescriptive information on key aspects of climate change, including the physical science basis, impacts of and vulnerability to climate change in human and natural systems, options for adapting to the climate changes that cannot be avoided, and options for mitigation to avoid climate change. The IPCC relies on a combination of broad participation, rigorous oversight, and transparent, thorough adherence to carefully designed procedures to produce assessment reports that have become, over the last 20 years, the international gold standard in the scientific assessment of climate change. Any such human endeavour can never be completely error-free, but IPCC assessments are as close to this goal as the international community of scientists and governments can accomplish. The members of the IPCC (who are the world's national governments), its elected leadership, and the thousands of scientists who contribute to each report are continually working to improve all aspects of future reports.

An IPCC assessment report is a massive undertaking, in which hundreds of volunteer scientists examine all of the available scientific literature on topics related to climate change and put that literature in context through a process of assessment. The first component of an IPCC assessment is that all of the relevant literature is considered, whether or not it agrees with the dominant paradigms, and whether or not it has yet stood the test of time compared to other studies that have considered the topic. The second component is that the information from all of this literature is distilled into key messages that capture the state of knowledge at the time of the assessment. These key messages need not be known with 100% certainty, but the level of confidence must be carefully stated. A collection of pyramids might serve as a useful analogy for the structure of an IPCC assessment. A huge array of studies forms the base of each pyramid. Moving to higher levels, the information is increasingly distilled and qualified with appropriate confidence levels. For the IPCC, the top level is the key messages that appear in the Summaries for Policymakers. In these documents, each point undergoes not only the careful scrutiny of the scientists. It must also be approved, word by word, by consensus, by all the participating governments, typically representing more than 120 countries.

An IPCC assessment involves a very large proportion of the climate science community at one level or another. For the IPCC Fourth Assessment Report (AR4), 450 scientists from 130 countries served as Lead Authors. Another 800 served as contributing authors. More than 2500 experts provided over 90,000 review comments. And the scientists who were not directly involved in the writing or reviewing contributed through producing some of the literature on which the entire assessment is based. In the course of four lead author meetings, the chapter teams discussed and debated the quality and validity of the literature and used their expert judgment to agree conclusions. The process requires not only outstanding scientific expertise and the ability to synthesize large bodies of literature, but also effective teamwork. None of these authors or reviewers is paid by the IPCC for working on an IPCC assessment which, for the lead authors, can represent a very significant fraction of their time. This is also the case for the Chair of the IPCC and all of the elected leadership.

The integrity in the IPCC assessments and their fidelity to the underlying scientific information comes from four main components, all thoroughly specified in the IPCC procedures. These are (1) broad, balanced participation in the author teams, (2) emphasis on a comprehensive treatment of the relevant scientific literature, (3) two stages of widely distributed, independently monitored review, and (4) word-by-word, consensus approval, by governments, of the Summaries for Policymakers. With each component, important features help ensure high fidelity to the underlying science and minimal

opportunity for messages to be shaped by the views of one or a few individuals. The broad, international author teams, selected from government nominations to give appropriate geographical and gender balance as well as scientific expertise, usually include people who do not know each other before the process starts. Often, authors on a single chapter may disagree about important details. The emphasis on a comprehensive treatment of the literature means that relevant topics cannot get missed, if they are raised by authors or in the reviews. The multi-stage review process provides the opportunity for a very wide range of experts to have inputs, and independent monitoring ensures that author teams respond appropriately to every review comment. The fourth stage, word-by-word consensus approval by governments, is an important check on all the other components of the process. It is remarkable to think that every participating government has approved every word in an IPCC Summary for Policymakers.

The IPCC does not carry out original research. It assesses the findings in scientific publications. Most of the scientific literature assessed by the IPCC is published in scientific journals, where the journals' peer-review and editorial processes provide an important foundational stage of quality control. Some important information appears not in scientific journals but rather in reports from governmental and non-governmental organizations. For the IPCC to fulfill its comprehensive-assessment mandate, it needs to assess the information in these reports. This is an important responsibility, but it is also a challenge, because the diverse approaches to reviewing and editing in these alternative sources of information force the IPCC authors, reviewers, and review editors to utilize additional care and professional judgment in evaluating them.

Independent of whether a result is published in a high-profile scientific journal or a government report, it is not the case that the conclusions in every publication turn out to be 100% complete or correct. New data and new perspectives often reveal new mechanisms, complications, or possible interpretations. Sometimes the investigators conducting the study make mistakes or misinterpret data based on seeing only a small part of a big picture. The essence of science is testing interpretations against observations, and gradually building a body of knowledge that is consistent with all of the observations and experiments. The main motivation for doing an assessment is assembling all of the available information to see how the pieces fit together, what key themes emerge, and what once-promising hypotheses ended up not being consistent with new observations. A careful assessment is a powerful tool for transforming a huge body of science into the kind of knowledge that can support well-informed policy choices.

The IPCC procedures provide a strong foundation for the organization. They minimize the risk of errors and maximize the emphasis on balance, especially as messages move from first drafts of chapters toward the Summaries for Policymakers. The IPCC procedures, which are regularly reviewed and amended by the IPCC members, have served the international community effectively for over 20 years. 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. The scientific community still has much more to learn about climate change. But the scientific community and the world can count on the IPCC to provide an accurate picture of what is known and what is not known. In the future, knowledge will increase, and so will the need for information that is policy-relevant but not policy-prescriptive. In the approximately 3000 pages of the AR4, all climate change-related topics are discussed more or less in depth depending on their relevance and the state of existing knowledge, and will be meticulously reassessed during the course of the next four years.

The IPCC is in the early stages of another challenging and massive exercise, the preparation of the Fifth Assessment Report (AR5) - due in 2013/2014. We invite the entire scientific community to contribute to this important effort.