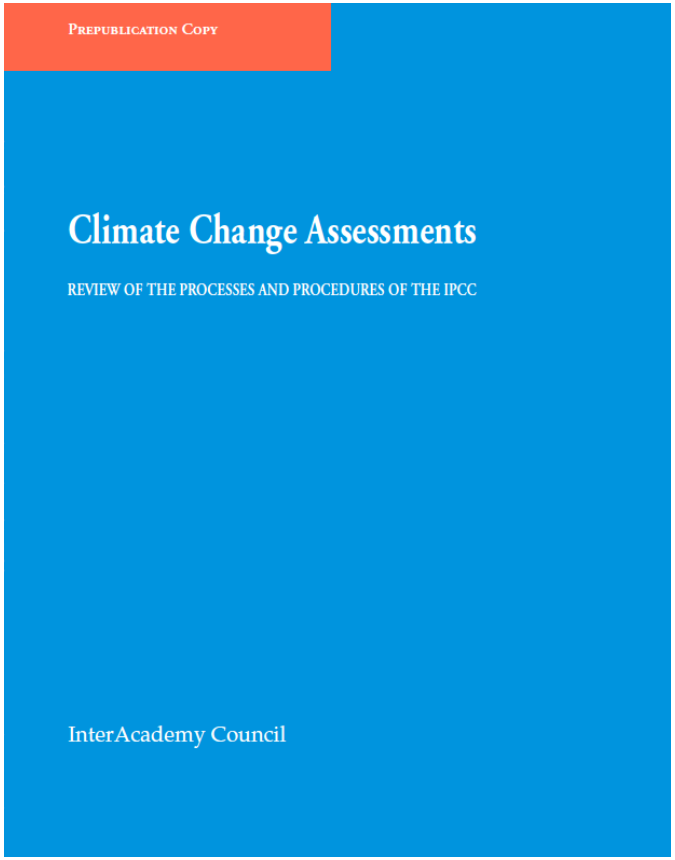
Climate Change Assessments:

Review of the Processes and Procedures of the IPCC



InterAcademy Council

Charge to the Committee

- Review the IPCC procedures for preparing assessment reports including:
  - Data quality assurance and data quality control;
  - Guidelines for the types of literature appropriate for inclusion in IPCC assessments, including use of non-peer-reviewed literature
  - Procedures for expert and governmental review of IPCC materials
- Analyze the overall IPCC process, including the management and administrative functions within the IPCC
- Analyze appropriate communication strategies and the interaction of IPCC with the media

IAC Review Committee

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Recommendations

- Two types of recommendations:
  - significant changes in management and governance
  - strengthened and enhanced procedures for carrying out an assessment
- The latter include:
  - Treatment of uncertainty – especially in SPMs
  - Review process
  - Handling of gray literature
  - Appointment of Working Group Chairs, Coordinating Lead Authors and Lead Authors

Recommendations on Management and Governance

- Appoint an Executive Committee with defined powers to act between plenary sessions of the IPCC
- Elect a full-time Executive Director with appropriate stature to lead the Secretariat and act on behalf of the IPCC chair
- Terms of senior leadership (i.e., IPCC Chair, Executive Director, and Working Group Co-chairs) limited to one assessment
- Adopt a conflict of interest policy

Recommendations on Processes and Procedures

- Improve the characterization and communication of uncertainty
- Strengthen the review process
- Develop procedures for gray literature
- Increase transparency about selection of authors

Treatment of Uncertainty

Two aspects to communicating uncertainty about a conclusion:

- Describe the amount of evidence and degree of consensus in the literature
- Assign a probability to a conclusion
  - WG I: Probability distribution over future temperature based on model results
  - WG II: Subjective probability of correctness assigned to major conclusions

Problems in AR4

- Only WG III used the Amount of Evidence/Level of Agreement Scale
    - All groups should use
- WG II often assigned subjective probabilities of confidence in cases where
    - Little evidence existed for a conclusion
    - The conclusion was ill defined (often in order to assign “high confidence”)
- No indication whose subjective judgments are involved

Examples WG II Confidence Use

- Many conclusions are vague, with no time frame or climate conditions under which they would occur:
- "Nearly all European regions are anticipated to be negatively affected by some future impacts of climate change, and these will pose challenges to many economic sectors." (*Very high confidence*)
- In Central and Eastern Europe, summer precipitation is projected to decrease, causing higher water stress. Health risks due to heat waves are projected to increase. Forest productivity is expected to decline and frequency of peatland fires to increase. (*High confidence*)

Examples WG II Confidence Use

- Other conclusions are stated as having high probability of occurrence, although based on little evidence:

- "Towards the end of the 21st century, projected sea-level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5-10% of GDP." (*High confidence*)

- "Agricultural production, including access to food, in many African countries and regions is projected to be severely compromised . . . .In some countries, yields from rain-fed agriculture could be reduced by up to 50% by 2020." (*High confidence*)

Recommendations: Uncertainty

- All groups should indicate amount of evidence and level of agreement
- Probabilities should be assigned to conclusions if and only if “high agreement, much evidence”
- Probabilities should be assigned only to conclusions that are well defined:
  - Indicate time frame and climate scenario
- No need for a subjective confidence scale
- If probabilities are assigned, use the numbers
- Use expert elicitation for key conclusions

Review Process

- Two Review Editors handle review process for each chapter
- Each chapter undergoes two reviews:
  - First by government-nominated experts
  - Then revised chapter reviewed by experts and governments (over 90,000 comments on AR4)
- Lead Authors have final say in responding to comments
- Concerns:
  - Comment overload
  - Review Editors don't have enough authority

Himalayan Glacier Example

- Most frequently cited error in AR4:

  "Glaciers in the Himalaya are receding faster than in any other part of the world (see Table 10.9) and, if the present rate continues, the likelihood of them disappearing by the year 2035 and perhaps sooner is very high if the Earth keeps warming at the current rate. Its total area will likely shrink from the present 500,000 to 100,000km2 by the year 2035 (WWF, 2005)."

- No reviewers caught error in first round; in second round 2 reviewers criticized the statement

Recommendations: Review Process

- Need to have Technical Support Units help Review Editors separate substantive from editorial comments
- Review Editors need to exercise authority in making sure substantive comments are addressed
  - Comments must be addressed in writing
  - Review Editors should have final authority
- TSUs should check references, especially to gray literature

Use of Gray Literature

- Many of the errors in AR4 were based on studies that were either unpublished or not peer-reviewed
  - This is especially true in WG II report
  - Percent of peer-reviewed references in AR3: WG I (84%); WG II (59%); WG III (36%)
- Lead Authors are supposed to check non-peer reviewed sources for quality
  - Non-peer-reviewed sources to be identified as such in refs.
- Recommendation:
  - Need clear guidelines for what gray literature is acceptable
  - Need to flag non-peer-reviewed sources in the references

Selection of Authors & WG Chairs

- Working Group Chairs elected by governments
  - No scholarly criteria for WG Chairs
- Governments select participants for Scoping Meeting
  - Important since scoping meeting outlines the report
  - Criteria for selecting participants unclear
- Coordinating Lead Authors and Lead Authors are selected by Working Group Chairs from government lists
  - No set criteria for nominees
  - Should country National Academies of Science nominate?
- In AR4 Regional Reports (WG II) only persons from the region could be CLAs or LAs

Recommendations: Selection of Participants

- IPCC should develop formal qualifications for Working Group Chairs in terms of scholarship and leadership
- Criteria for selecting participants at scoping meetings should be established and made public
- The IPCC should establish a formal set of criteria and processes for selecting Coordinating Lead Authors and Lead Authors.
- Don't limit CLAs and LAs for the WG II regional reports to residents of the geographic region

Concluding Thoughts

- Size of the assessments--in terms of length (3000 pages in AR 4) and number of persons involved (1400 authors) makes quality control difficult
- Should assessments be limited in scope?
- Should the Working Group structure be altered?
  - One possibility: global analysis, regional analysis, policy analysis
  - Make sure economists participate in WG II?
- Should the timing of reports be altered?
  - Bring out WG I report separately from WG II, III reports
  - Bring out WG II regional reports after WG II main report