The IPCC Must Maintain Its Rigor

LAST YEAR, THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) WAS awarded the Nobel Peace Prize along with Albert Gore Jr., sending a strong message about the importance of the world’s future climate. Indeed, for two decades, international scientists and policy-makers contributing to the IPCC process have provided assessments of climate change science, impacts, and mitigation, addressing one of the most far-reaching and complex challenges that society has ever faced. Yet this is no time for the IPCC to rest on its laurels. The climate system continues to change and science continues to improve, so policy must be kept current with our best understanding. Reformulating the science/policy interface should be considered and be open to change but must acknowledge lessons from the past. The factors that have been critical to the success of the IPCC need to be preserved if a rigorous scientific basis is to continue to inform the growing challenge of decision-making on climate change.

The IPCC’s assessments have been highly credible to both policymakers and scientists largely because, despite differences in language and approach between these communities, both groups recognize the importance of multiple reviews of drafts in an open process in which diverse authors, reviewers, and governments do not hide behind a cloak of anonymity. The successive reviews and revisions of complex material, with the broad inputs of many, take time. For instance, after scientists and governments defined its scope, the last Working Group I assessment took 3 years to be developed by 152 authors and then reviewed by more than 600 experts along with dozens of governments. Any move toward more rapid products risks incomplete identification of the range of justifiable views and a consequent reduction of the rigor, clarity, and robustness of the consensus.

Moreover, completion of an IPCC assessment report requires a demanding line-by-line approval of its summary that is critical for its value to policy-makers. This process ensures that key conclusions are accepted by all governments and expressed in language that is both scientifically accurate and useful to policy. It requires Working Group co-chairs and authors with the stature and expertise needed to justify their findings and levels of scientific confidence. The utility of the IPCC also depends on its direct relevance to climate policy decisions, and this sharp clarity of purpose requires that the IPCC avoid becoming entrained in many aspects of broader global change and sustainable development issues.

IPCC meetings of experts play roles in addressing specific issues such as drought or climate sensitivity, but they do not include the crucial and interactive aspects of review and approval and hence cannot serve either the science or policy communities in the same way as assessment reports. IPCC special reports follow the same process as a comprehensive assessment and can be highly valuable, but cover limited subtopics (such as aviation). Thus, only periodic comprehensive IPCC assessments can span the breadth of policy-relevant issues and research advances, and they must be retained for a proper balance between science push and policy pull.

The IPCC does not plan or carry out research, and this separation between research and assessment is essential if the IPCC is to be an objective assessor. The mandate of the IPCC is to evaluate information that must be independently documented, primarily as peer-reviewed literature. The planning and coordination of international research are best carried out by organizations such as the World Climate Research Programme, the International Geosphere-Biosphere Programme, and the International Human Dimensions Programme. These bodies often consider IPCC assessments and help provide the means for the scientific community to produce related research.

In physical climate science, there are pressing needs for further information on coupled climate system changes. There will very likely soon be further advances in understanding changes in temperature, rainfall, hurricanes and other extreme events, sea-level rise, regional modeling, the carbon cycle, and other climate-forcing factors. These and other developments are certain to provide rich grounds for a new comprehensive physical science assessment within about 5 to 7 years that can, if conducted using an appropriately rigorous process, be the foundation for the most appropriate next steps in global climate policy.

– Susan Solomon and Martin Manning

Published by AAAS