

Advance paper submitted to the
IPCC Expert Meeting on Communication, Oslo, 9-10 February 2016

Communicating the science of climate change mitigation: AR5 experiences from Working Group III

Youba Sokona, Ottmar Edenhofer, Ramon Pichs-Madruga, Patrick Eickemeier and Jan Minx

The world has just agreed on a new international climate agreement in Paris at COP21. It is remarkable how well the text of the Paris Agreement and decision aligns with the current science of climate change – this is a major achievement of the long-standing dialogue between scientists and policymakers within the Intergovernmental Panel on Climate Change (IPCC) as well as the United Nations Framework Convention on Climate Change (UNFCCC). As representatives and contributors of Working Group III in AR5, we see a series of key messages on mitigation from the report well reflected in the text. This pertains to statements about the long-term goal, pathways to a full decarbonisation and near-term emission reductions among multiple others. It is also remarkable that knowledge gaps identified in WGIII AR5 directly found their way into the Paris documents such as the lack of comprehensive science on mitigation pathways that limit warming to 1.5°C relative to pre-industrial levels. Some recent commentaries have correctly highlighted considerable scope for improvements in IPCC communications (1, 2), but we also feel that a series of innovations in IPCC communications have added up during AR5 and put the organization on a good track into the future.

A rosy start into the AR5 cycle

The new communication developments that came into life during AR5 are not all related to, but would not have materialized without the communications crisis in 2009/2010 when severe allegations were made about the integrity of the science and the ability of the IPCC to identify and correct errors in its reports. This triggered new resources, procedural reform and the required awareness that allowed the IPCC as an organization to professionalize further in the field of communications. At the root of this reform process was the insight by IPCC leadership that a comprehensive external review – ultimately carried out by the Interacademy Council – would be required to guide a reform process that would strengthen the organization for the future. For communications this included hiring an experienced communications manager in the IPCC Secretariat to coordinate activities across the institution, the development of a Communication Strategy that identifies and clarifies responsibilities, but also procedural additions like the Error Protocol for dealing with potential errors in IPCC products. Working Group III along with other IPCC leadership, the Panel, the Bureau, the Technical Support Units, authors and many external collaborators have made their contribution to professionalizing IPCC communications throughout AR5. Here, we focus on Working Group III activities in the area of communication along the lines of two questions: 1) How to adequately communicate at the science-policy interface? 2) What were key activities to ensure effective communication and outreach?

Communication at the science-policy interface

The IPCC is a unique institution at the science-policy interface. To secure its integrity in the long run the question of how to communicate results best also requires deeper thoughts on the adequate division of labour between science and policy. We believe that this is a question of utmost

importance that should be given the required attention in future IPCC communication exercises. Ultimately, the key issue at the science-policy interface is the entanglement between scientific facts and values and its implications for assessment-making. Clarifying this issue and developing a common understanding among IPCC leadership and author teams is the basis for an adequate science communication – particularly in solution-oriented assessments that are deeply rooted in the social sciences. Working Group III spent a lot of effort in understanding the issue and its implications, which is documented in a series of publications (3, 4), and briefly outlined in the WGIII AR5 preface (5).

In order to be policy-relevant without being policy prescriptive, Working Group III set out to explore the solution space of climate policy by characterizing alternative mitigation pathways and goals in terms of their technological, economic and institutional requirements. Scientists act as cartographers that provide knowledge maps to policymakers as the navigators who consider this information in the decision-making process. As any map needs a legend, adequate IPCC communications also require to be transparent about the value assumptions underpinning the science. Overall, this pathway cartography metaphor has been central to communicating mitigation science in the following way:

- *Structure of the report and its summaries:* The Working Group III report has been structured to establish increased transparency over concepts and methods and their underlying values and world views. For this purpose comprehensive framing chapters have been invented that are mirrored by introductory framing section in the Technical Summary and the Summary for Policymakers. Even though this may not seem to be of immediate concern for IPCC outreach activities, we believe that it is right at its core. Increasingly solution-oriented IPCC assessments will depend on this transparency – without it, the integrity of the organization will be at stake.
- *Internal communication:* There has been a heavy investment throughout the AR5 cycle to establish a shared understanding among authors of the WGIII approach to assessment-making. This was directly relevant for the way the report was written and later on communicated by Working Group III authors.
- *External communication:* The Working Group III approach to assessment-making itself was also subject of communication activities to explain the role, purpose and workings of assessment bodies like the IPCC.
- *Author selection:* Balanced communication through IPCC products requires involvement of diverse groups of experts from relevant fields. For example, it was a novelty in the Working Group III report for the IPCC to involve philosophers in AR5. This has been an effective way to establish transparency over alternative concepts of justice, responsibility or value that are at the core of climate change mitigation.

Preparing for effective communications

Working Group III has also initiated and been part of many other hands-on activities to improve IPCC communications and outreach:

- *Shaping a series of plain and understandable key messages in line with the available science:* Working Group III spent serious efforts into providing plain messaging throughout the report acknowledging the various constraints within the IPCC process to do so. A series of measures were then taken to make key messages more accessible to a broad audience in

communication and outreach efforts. These are described in this section below. Overall, we feel that a series of key messages from AR5 penetrated and have become guiding narratives of the climate change mitigation discourse. Among others these are:

- Climate policies are an exercise in risk management and need to be framed in a broader context of sustainable development.
 - Greenhouse gases are growing faster than previously despite efforts to curb emissions.
 - It is technically and economically possible to halt global warming and to keep the increase of the global mean temperature below 2° Celsius. Achievement hinges on the building of effective, global institutions.
 - The science of mitigation shows that the longer we wait, the more costly and the more risky mitigation will become.
 - Mitigation in line with the 2°C target increasingly depends on the ability to remove carbon dioxide from the atmosphere.
 - Mitigation action can realize co-benefits for other sustainability goals like reduction of local air pollution and poverty.
- *Building in-house communication capacity:* Working Group III TSU hired a communication manager with a long-standing experience in climate change communications. This was important for organizing Working Group III communications and contributing to IPCC-wide communication activities as well as the development of the IPCC communication strategy. Above all, this helped to translate the key messages from WGIII AR5 into plain language during outreach activities (see below).
 - *Developing a common and contemporary design for IPCC products:* WGIII lead the process of establishing a professional, corporate design for the AR5 products.
 - *Professional figure development:* All Working Group III figures were produced by a professional graphic designer. This did not only contribute to the professional look of the final publications, but also helped in accessibility of the figures and their usability for presentations and derivative publications.
 - *Focused outreach plan:* Working Group III developed a focused outreach plan around the approval plenaries as well as the Structured Expert Dialogue within the UNFCCC. While many other fora were targeted by WGIII outreach efforts, the targeted approach to communication enabled an efficient knowledge transfer of often highly complex information at two essential points: the publication of the report as the moment of greatest public attention, and the ongoing dialogue with policymakers in the UNFCCC process as key audience of IPCC reports.
 - *Additional outreach materials:* Like other Working Groups, a series of additional outreach materials were generated including factsheets, comprehensive presentation materials, and summary volumes. Working Group III also contributed to the translations of SPMs into other languages including non-UN ones. Working Group III further developed simplified version of report figures that were tailored to outreach purposes, i.e. the simple and effective communication of the main messages of the report. This was crucial as the language in IPCC summaries can be challenging at times (2). Once made available, those slides have been heavy in demand by WGIII leadership, IPCC authors as well as the general public providing the basis for conveying the report's key messages around the globe.
 - *Collaboration in the production of derivative products:* Through organizations such as the focal points of Norway and Germany, and various NGOs WGIII cooperated with

communications specialists outside of the IPCC to support other organizations spreading key messages from the report to different stakeholder groups.

References

1. G. J. S. Hollin, W. Pearce, Tension between scientific certainty and meaning complicates communication of IPCC reports. *Nature Clim. Change* **5**, 753 (2015).
2. R. Barkemeyer, S. Dessai, B. Monge-Sanz, B. G. Renzi, G. Napolitano, Linguistic analysis of IPCC summaries for policymakers and associated coverage. *Nature Clim. Change* **advance online publication**, (2015).
3. O. Edenhofer, J. Minx, Mapmakers and navigators, facts and values. *Science* **345**, 37 (2014-07-04 00:00:00, 2014).
4. O. Edenhofer, M. Kowarsch, Cartography of pathways: A new model for environmental policy assessments. *Environmental Science & Policy* **51**, 56 (2015).
5. IPCC, *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, United Kingdom and New York, NY, USA (Cambridge University Press, 2014).