ipcc
INTERGOVERNMENTAL PANEL ON climate change

WMO UNEP

IPCC Expert Meeting on Communication

Oslo, Norway
9–10 February 2016

Meeting Report

Edited by:
Jonathan Lynn, Monica Araya, Øyvind Christophersen, Ismail El Gizouli, Susan Joy Hassol, Enrique Maurtua Konstantinidis, Katharine J. Mach, Leo Meyer, Kiyoto Tanabe, Melinda Tignor, Rabelani Tshikalanke, Jean-Pascal van Ypersele

IPCC Expert Meeting on Communication

Oslo, Norway
9-10 February 2016

Meeting Report

Edited by:
Jonathan Lynn, Monica Araya, Øyvind Christophersen, Ismail El Gizouli, Susan Joy Hassol, Enrique Maurtua Konstantinidis, Katharine J. Mach, Leo Meyer, Kiyoto Tanabe, Melinda Tignor, Rabelani Tshikalanke, Jean-Pascal van Ypersele

Cover Photo: Marco Boella

IPCC Expert Meeting on Communication

Oslo, Norway
9-10 February 2016

Scientific Steering Committee
Monica Araya
Øyvind Christophersen
Patrick Eickemeier*
Ismail El Gizouli
Susan Joy Hassol
Taka Hiraishi
Enrique Maurtua Konstantinidis
Jonathan Lynn
Katharine J. Mach
Leo Meyer
Bruce Stewart***
Kiyoto Tanabe**
Melinda Tignor
Rabelani Tshikalanke
Jean-Pascal van Ypersele

Local Organizers
Norwegian Environment Agency
Øyvind Christophersen, Espen Larsen

IPCC Secretariat
Jesbin Baidya, Jonathan Lynn (Coordinating Editor), Carlos Martin-Novella, Nina Peeva, Werani Zabula

---

* until October 2015
** from October 2015
*** until December 2015

Preface

At its 41st Session, the IPCC Panel requested an Expert Meeting in which participants would share experiences, best practices and lessons learned from communication and outreach around the Fifth Assessment Report (AR5), and on which a report would be prepared for the 43rd Session of the Panel. The meeting was held in Oslo, Norway, on 9 and 10 February 2016, with the generous support of the Government of Norway.

This report summarizes the discussions at the Expert Meeting, which yielded a wealth of recommendations to the IPCC on how it could build on the advances it has already made in communication to ensure that its assessments are clear, accessible, actionable and relevant to all its stakeholders. The Expert Meeting was particularly timely not only because, following the election of a new Bureau, work is now starting on the Sixth Assessment Report, but also because a number of studies of how AR5 was communicated have recently appeared in the academic literature. Many of the recommendations reflect and build on decisions on the future work of the IPCC taken by the Panel at the 41st Session. Others will provide food for thought to the Panel, its members and third parties in their outreach work on the findings of the IPCC.

I would like to thank the Norwegian Environment Agency for hosting the meeting in Oslo, with special thanks to Øyvind Christophersen, who first proposed the meeting, and his colleagues for their tireless support and organization. The meeting would not have taken place without the work of the Steering Committee, who provided expert guidance on planning and implementation as well as preparing this report. Lastly, I would like to thank all the participants for their contributions to two days of rich and stimulating dialogue.

Hoesung Lee
IPCC Chair

Contents

1

Communicating the IPCC – Challenges and Opportunities

Communicating the IPCC – Challenges and Opportunities

The Fifth Assessment Report (AR5) – the IPCC's most recent comprehensive assessment, completed in 2014 – is widely recognized by journalists, communications scientists, governments and civil society organizations to have marked a step change in the way the IPCC communicates its activities.

The communication of AR5 saw both greater professionalism at all stages of the process, and greater breadth and diversity in the subsequent outreach activities.

The results of this can perhaps best be seen in the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) reached at the Conference of the Parties in December 2015 (COP21). That agreement is based on science, specifically the assessments that the IPCC communicated to negotiators through the Structured Expert Dialogue and other activities at UNFCCC meetings, and also to other stakeholders.

And yet the IPCC has faced growing calls from policymakers and other users to do more with its communications. IPCC assessments represent a unique cooperation between the scientific and policy communities. But even the Summary for Policymakers (SPM), the result of an intense dialogue between IPCC authors and government representatives to produce a text that is an accurate summary of the underlying scientific assessment while serving the needs of policymakers, is widely criticized as being unreadable and inaccessible for non-specialists.

Is the answer to simplify the language and visual elements of the SPM to make them more accessible? Can that be done without comprising scientific accuracy? Does the IPCC need additional communications tools? Should the IPCC reconsider how it works with the media and others? What is the role of third parties in communicating IPCC products and how should the IPCC interact with them? How do users of the IPCC work with IPCC reports? How do producers of other assessments deal with these problems?

To answer these and other questions, the IPCC held an Expert Meeting on Communication on 9-10 February 2016 in Oslo, Norway. The Expert Meeting brought together scientists who had worked on and communicated AR5, elected IPCC officials who will guide future assessments, communications experts, and representatives of governments and other users to discuss lessons learned from AR5 and to look to the future.

The Expert Meeting, proposed and hosted by Norway, and chaired by Christian Bjørnæs of CICERO, was particularly timely, as the first results of academic research into the communication of AR5 were appearing, and work was starting on the next series of IPCC products, leading to the Sixth Assessment Report (AR6).

To see how far the IPCC has come in communications, it is worth recalling that with AR5, and the related special reports, the IPCC issued its own press releases for the first time. Press releases for previous assessments had been produced by the IPCC's sponsoring organizations, the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO). This was because it was feared that to release a press release that necessarily highlighted some aspects of the SPM would entail a breach of the IPCC's policy-neutrality.

Some enhancements to IPCC communications came not from the communications team but from the authors themselves, for instance the use of headlines statements in the Working Group I contribution to AR5 and the Synthesis Report.

Other improvements for AR5 included:

- – Responding to media questions before finalization of the reports;
- – Media workshops to explain the workings of the IPCC and how it produces assessments;
- – Making IPCC communications more professional by working with outside communications experts;
- – Making the SPM and press releases available to media under embargo before the press conference;
- – Country briefings for different regions at the time of the release of the report;
- – Media training for Bureau members and authors;
- – Systematic planning of interviews with a range of authors, both face to face and remotely;

- Arranging facilities for broadcasters;

- Production of scientifically rigorous but compelling videos, overseen by the working group co-chairs and IPCC Chair;

- Ambitious programme of outreach activities all over the world;

- Cooperation with third parties producing versions of the report ("derivative products") targeting specific sectors in specific regions;

- Use of social media to publicize IPCC findings and outreach activities.

This gives the IPCC a strong foundation to build on for its future communications work. But there is much more it can and should do.

The two days of talks in Oslo yielded a rich seam of ideas for the IPCC. At one point, one of the participants noted that while some of the ideas under discussion were radical, others were simply "comms 101", and hardly rocket science. But the IPCC is not like other organizations, and does not enjoy the same freedoms that they do. In further developing its communications, the IPCC must recognize both the general challenges to scientific communication and the specific constraints that it faces. After all, the value of the IPCC's work depends on its credibility; the greatest care must be taken not to erode that. While communication theory and psychology point to more effective ways to transmit information, it must be accepted that some of the science that the IPCC deals with is complex: it is important to simplify as much as possible, without oversimplifying. Particular challenges exist around the treatment of uncertainty. While fundamental to science, the language with which uncertainty is communicated to policymakers and the public can result in misunderstandings. And it is important to heed calls for clearer, more direct messages, while remaining policy-neutral. The particular strength of an IPCC assessment derived from a dialogue between scientists and policymakers is enshrined in the approved text of an SPM; communications materials cannot deviate from that.

The Expert Meeting heard from authors of AR5 how they communicated the assessment, and what worked most effectively. Representatives of developed and developing country governments and civil society organizations presented their experiences of outreach activities around AR5. A research study on the communication of AR5, particularly in the UK, was examined, and the communication of the United States National Climate Assessment was presented as a comparison. The question of how misinformation can affect understanding of IPCC reports was discussed. And the importance of informing communication activities from the outset with an understanding of different stakeholders' needs and priorities, rather than bolting it on at the end and transmitting it in a one-way process, was analysed. Besides these plenary discussions, participants worked in breakout groups looking at readability, clarity and policy-relevance; derivative products; working with stakeholders and outreach; and working with the media, in order to draft recommendations. A total of 25 advance papers were submitted ahead of the discussions, and can be found in Annex 4 of this report.

The detailed recommendations can be found in Section 5 of this report. Besides reaffirming the good practices of AR5, a main conclusion was that thinking about communications – including engaging with stakeholders – should start right at the beginning of work on a report. The Expert Meeting also recommended that communications specialists such as science writers and graphics designers should be brought into the work of producing a report early on, in line with a recent decision by the IPCC. It encouraged the IPCC to keep the SPMs clear and concise. Participants emphasized that the media landscape and media technology are changing rapidly, and that the IPCC must be ready to embrace these changes as new reports are released in the coming years. And the Expert Meeting recognized that there are limits to the communications activities that the IPCC can and should undertake; it should define how it will work with third parties to amplify the communication of its reports.

The recommendations contained in this report provide a communications resource to the IPCC's working groups as they start work on AR6, scoping the outline of the reports and selecting authors. Some recommendations that affect work at the start of a report – on scoping meetings, the shape of the SPM, and the use of specialists – have been presented to the 43rd Session of the Panel, on 11-13 April 2016, for decision. Further recommendations will be taken up in a revision of the IPCC's Communications Strategy and its Implementation Plan, for which the help of Pauline Midgley is gratefully acknowledged.

2 Plenary Session Discussion Summaries

Plenary Session Discussion Summaries

The Expert Meeting included a series of presentations each morning, followed by question and answer exchanges, intended to frame the discussions in the breakout groups on recommendations for the IPCC. These sessions are summarized here, and Advance Papers submitted by presenters are provided in Annex 4.

The Plenary Sessions on the first morning (9 February) put IPCC communications into context by setting out the constraints faced by the IPCC in communicating its findings and its work and the demands being put to it; hearing from authors and former co-chairs about how they developed the Fifth Assessment Report (AR5), and the challenges they faced in writing and communicating it; hearing from representatives of governments and civil society about their experience in organizing outreach around the AR5; a report on a major study in how the media communicated AR5; and a discussion of how other organizations communicate climate assessments.

The Plenary Sessions on the second morning examined thematic topics: the challenge for those communicating IPCC findings when faced by misinformation and misconceptions; and an examination of a broader conception of communication based on engaging with the values of the stakeholders being addressed rather than viewing communication as a top-down exercise simply transferring information about a completed body of work.

The summaries below cover substantive Plenary Sessions. Breakout groups, reports from the breakout groups, the world café discussion, etc., are not included. For the full programme, see Annex 2. The Plenary Sessions were webcast, and recordings can be found at: https://www.youtube.com/playlist?list=PL8HWK0G9m3B6T8SN_B1H4h6rhVlAjEFt4

Session 1: Formal opening

Audun Rosland, director of the climate department at the Norwegian Environment Agency, emphasized the importance of the IPCC's assessments for policy-making, and its contribution to the Paris Agreement. The challenge is for the IPCC to communicate its findings to policymakers and other stakeholders so that they can be understood.

Hoesung Lee, IPCC Chair, noted that IPCC assessments are considered the gold standard of climate science, but asked what use they are if many intended users cannot understand them, do not know where to find what they need, or cannot use them in their own work. The IPCC has greatly enhanced its communications activities, but hears repeatedly from policymakers – the IPCC's principal audience – that they cannot easily use IPCC reports in their own work. The IPCC wants to make its reports more readable, and its products more relevant to its users. At the same time it must secure the scientific rigour, policy neutrality, accuracy and balance on which the gold standard is based. The Panel has called for further improvements to IPCC communications, by making greater use of digital technology to improve access and readability and drawing on the help of experts in different communications disciplines. The aim is greater accessibility, but also actionability, for which the IPCC needs to interact more effectively with its users through more sophisticated outreach, while understanding and speaking to their needs.

Session 2: IPCC communication issues – constraints and opportunities

Jonathan Lynn, Head of Communications at the IPCC, recalled that there are practical limits on what the IPCC can say and how it says it. Credibility is fundamental to the IPCC's work and anything that undermines that credibility would undermine the value of the IPCC. It must be recognized that at times the science discussed by the IPCC is complicated, and oversimplifying or distorting it is not the answer. The call for simple clear messages can easily morph into advocacy, and the IPCC must remain vigilant: it is not a campaigning organization. The IPCC's structure and procedures may pose communications problems. From a communications perspective it is better to present solutions at the same time as problems. But the IPCC has confirmed it will continue to issue its assessments as three separate working group contributions followed by a synthesis, and this practice is not open to discussion as part of improved communications.

The last few years have seen much progress. The IPCC introduced is own press releases in the AR5 cycle, produced compelling but scientifically accurate videos, and developed headline statements as a communication tool. Although the IPCC is conservative and cautious, change is possible when it is seen to work.

Now policymakers are saying they want the IPCC to make it easier for them to work with IPCC material. That means addressing local concerns when assessing a global phenomenon, and providing more information about the economic and social consequences of climate change – the costs and benefits of action and inaction. It means a more effective treatment of uncertainty, which can lead to policy paralysis but which is intrinsic to scientific reporting. It means a clear understanding of how and when the IPCC can move beyond the approved language of a Summary for Policymakers (SPM), for instance as was done in the Structured Expert Dialogue with the United Nations Framework Convention on Climate Change (UNFCCC). It also requires the IPCC to consider to what extent, and how, it should interact with third parties that communicate IPCC findings, to help them make their materials an accurate reflection of what the IPCC said. It involves awareness that different audiences have different needs in terms of language and thematic content. And it means understanding that communication is not something bolted on at the end of a report when the scientists have finished their work, but something developed organically with the assessment from the beginning.

In the discussion, IPCC Vice-Chair **Youba Sokona** noted that the frequent reference to working groups by number (Working Group I, II or III) is itself a barrier to communication. Working Group II Vice-Chair **Andreas Fischlin** asked for more detail about the policymakers that had been complaining about the difficulty of understanding IPCC assessments. **Jonathan Lynn** said it was striking how often this had come up in official contacts and outreach activities over the past year. Working Group III Co-Chair **Jim Skea** said that even some SPM texts were impossible to understand and gave an example. The use of uncertainty language is particularly challenging.

Nick Nuttall, of the UNFCCC, said that the communication effort around AR5 had been a real advance on what had gone before, benefiting from the contribution of many people. More can be done, especially following the Paris Agreement, with implementation providing a general context for the IPCC's next reports. He agreed that there is a need to improve the communication of risk and uncertainty, and that the agreed IPCC language can still act as stumbling block to comprehension. Communicators must be aware of the rapidly changing media and technology landscape as they prepare for reports to be issued in several years' time. He called for inclusion of studies of human psychology and behaviour in the next assessment.

Joyashree Roy, a coordinating lead author for Working Group III, recalled the actionable sector-specific summaries produced by Working Group III for the Fourth Assessment Report (AR4). These were translated into many languages and widely used by non-governmental organizations (NGOs). There is also scope to communicate individual chapters or their summaries. IPCC communications activities must go beyond policymakers in the narrow sense to address other decision-makers, e.g. multilateral funding agencies. A similar point was made by **Jessica Dator-Bercilla**, of Christian Aid/Manila Observatory, who noted that the line of responsibility for responding to climate change in the Philippines was at the village leadership level. **Jonathan Lynn** confirmed that the IPCC understands policymakers to refer to all levels of government and administration and a wide range of decision-makers.

Session 3: The AR5 experience – communications lessons from the authors

Chris Field, former Co-Chair, Working Group II (AR5), said that on the evidence of the Paris Agreement reached a couple of months earlier, the IPCC had communicated the science successfully. The agreement was science-centred, got the science right, and focused on issues raised by the IPCC. The essence and value of an IPCC report is the shared ownership by the scientific and policymaking communities arising from approval of the SPM in plenary. There are sometimes trade-offs between understandability and shared ownership, and sometimes statements come out less clearly than they should. This comes down to the need for author teams to understand questions raised by governments and finding the right words: it is a challenge of flexibility and creativity for the author teams. Figures offer a tremendous opportunity to use graphical elements to communicate more effectively; there were good and less good examples in AR5. It is important to invest in training the author teams so that they are effective in the approval plenary.

It is important to recognize the IPCC's successes in communications while being cautious about what is appropriate. So the IPCC should focus on where it can add most value rather than trying to do everything. Through shared ownership the IPCC adds unique value, which should be used as a base to expand a set of messages contributing to climate science communications from many sources and amplified by many stakeholders. It is important to see communication as a process not a product. For instance in AR5 the IPCC made it clear it wanted a conversation and constructive engagement with media.

Leo Meyer, former head of the Synthesis Report Technical Support Unit (TSU) (AR5), noted that the mandate of the Synthesis Report is to provide non-technical information suitable for policymakers. But the text is full of technical jargon, as it is based on the three working group contributions. Efforts to distill findings into headline statements can be challenging especially for Working Group II or III material, where the result may be bland truisms saying nothing.

SPM 4.4   Policy approaches for adaptation and mitigation, technology and finance

Effective adaptation and mitigation responses will depend on policies and measures across multiple scales: international, regional, national and sub-national. Policies across all scales supporting technology development, diffusion and transfer, as well as finance for responses to climate change, can complement and enhance the effectiveness of policies that directly promote adaptation and mitigation. *{4.4}*

Headline statements from these areas should not try to summarize everything in one sentence but focus on something new conveying a key message to policymakers. Author teams should make use of science writers or journalists, brought in early, to help with this.

Graphics can sometimes be difficult to understand, as page restrictions tempt authors to cram too much information into a graphic. The lengthy caption in this example from the Synthesis Report indicates an effort to do too much.
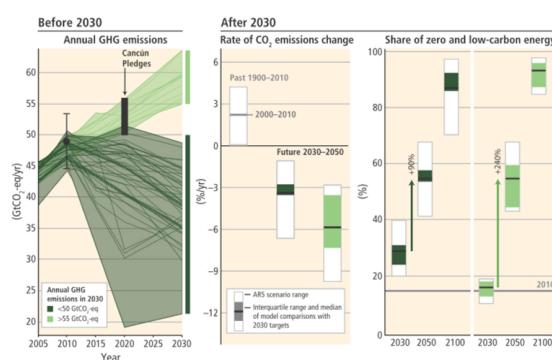

Figure SPM.12 | The implications of different 2030 greenhouse gas (GHG) emissions levels for the rate of carbon dioxide (CO₂) emissions reductions and low-carbon energy upscaling in mitigation scenarios that are at least *about as likely as not* to keep warming throughout the 21st century below 2°C relative to pre-industrial levels (2100 CO₂-equivalent concentrations of 430 to 530 ppm). The scenarios are grouped according to different emissions levels by 2030 (coloured in different shades of green). The left panel shows the pathways of GHG emissions (gigatonne of CO₂-equivalent per year, GtCO₂-eq/yr) leading to these 2030 levels. The black dot with whiskers gives historic GHG emission levels and associated uncertainties in 2010 as reported in Figure SPM.2. The black bar shows the estimated uncertainty range of GHG emissions implied by the Cancún Pledges. The middle panel denotes the average annual CO₂ emissions reduction rates for the period 2030–2050. It compares the median and interquartile range across scenarios from recent inter-model comparisons with explicit 2030 interim goals to the range of scenarios in the Scenario Database for WGIII AR5. Annual rates of historical emissions change (sustained over a period of 20 years) and the average annual CO₂ emission change between 2000 and 2010 are shown as well. The arrows in the right panel show the magnitude of zero and low-carbon energy supply upscaling from 2030 to 2050 subject to different 2030 GHG emissions levels. Zero- and low-carbon energy supply includes renewables, nuclear energy and fossil energy with carbon dioxide capture and storage (CCS) or bioenergy with CCS (BECCS). [Note: Only scenarios that apply the full, unconstrained mitigation technology portfolio of the underlying models (default technology assumption) are shown. Scenarios with large net negative global emissions (>20 GtCO₂-eq/yr), scenarios with exogenous carbon price assumptions and scenarios with 2010 emissions significantly outside the historical range are excluded.] *{Figure 3.3}*

It communicates information well to scientists in the same field, but not to non-specialists. By contrast a slide from the generic Synthesis Report presentation, not part of the report but based on it, works well, with a few simple elements and short title.
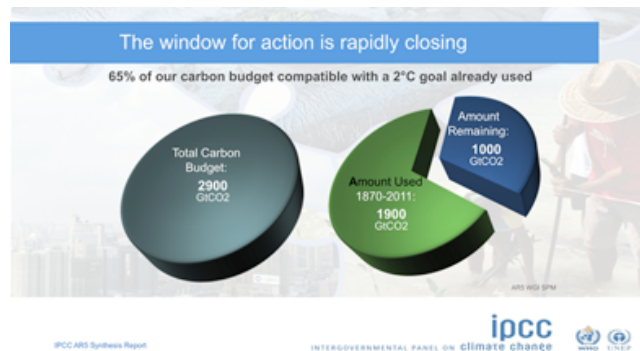
Pauline Midgley, former head of the Working Group I TSU (AR5), also noted the constraints of approved language and the challenges of communicating uncertainty. She noted that there has been a huge turnaround in communications during the AR5 cycle. Even before the Panel developed a communications strategy, Working Group I started to develop communications elements in its work plan. For instance it held media briefings at each Lead Author Meeting, not discussing the content of the report but explaining how the IPCC works. Communications and outreach activity must be integrated into the process at a level that can be sustained, bearing in mind that authors are not paid by the IPCC for their work and need to know what is expected of them from the start. Attention was paid to the narrative of the Working Group I SPM from the early stages of its development and this led naturally to the Working Group I headline statements, which were discussed intensively among authors. These headline statements are approved language as part of the SPM approval process, and therefore much stronger than a derivative product that is developed after finalization of the report. Frequently Asked Questions (FAQs), introduced by Working Group I in AR4, benefited from the contribution of a professional science writer from early on in the development of the Working Group I AR5 contribution.

Youba Sokona, who was also former Co-Chair, Working Group III (AR5), recalled the image used by Working Group III of the IPCC acting as a mapmaker for policymakers as navigators. If the map is not clear then the navigators cannot navigate. Working Group III also put effort into internal communications, ensuring that authors agreed on the same concepts and terms, and working to put complex problems into simple language. A wide range of authors is needed to capture the different elements of the subject and graphics must be produced professionally. Outreach activities must be adapted to local conditions and working groups can help outside institutions communicate IPCC findings through derivative products.

Lindsey Fielder Cook, of the Quaker United Nations Office, asked how the IPCC could communicate the sense of urgency needed to implement the Paris Agreement, while remaining within its mandate, especially as it would be some years before a new report is available. **Pauline Midgley** said that AR5 remained available as a resource to discuss the implications of the Paris Agreement and preparations for the Sixth Assessment Report (AR6). **Chris Field** added that former IPCC authors could also refer to research produced since AR5 and based on it, but this needed careful handling.

Stuart Neil, of the World Energy Council, noted that different stakeholders, such as energy ministers, energy companies, and the financial sector, needed to be addressed in different ways as their needs were often different and they used different language to explain similar concepts. **Youba Sokona** noted that IPCC scientists are in a dialogue with policymakers both at the outset of a report – the scoping process – and at the end with the approval of the SPM. But the IPCC does not select the government representatives who may be drawn from a wide range of policymakers at all levels.

Gabriel Blanco, a coordinating lead author of Working Group III, said it was important to link the IPCC's findings on climate change to individuals' social and political choices, and how such choices affect decision-making at all levels. It is important to bring social scientists and anthropologists into the author team for this. Authors must look carefully at the treatment of uncertainty, as it can be used to undermine scientific findings. The IPCC should work with journalists from early on in the development of a report to give them a sense of ownership and help them understand how the IPCC

works. It should also work with artists and filmmakers. Graphic designers should not only be employed to produce figures to order but treated as source of expertise on how to communicate findings.

Tim Nuthall, of the European Climate Foundation, recalled how communicators and scientists had gradually built trust and understanding at various points over the AR5 cycle, including the launch of the special reports. This meeting represents an opportunity to supercharge that relationship. It is important to understand the boundaries between the work of the IPCC and what others can do. **Chris Field** said these contacts had enabled the IPCC to develop ambitious outreach products such as videos and websites.

Joyashree Roy, emphasized the importance of elements such as the technical summary, executive summaries of chapters, FAQs, knowledge gaps and headline statements as communications tools. It was important for authors to start work on headline statements from the beginning of the report, which had not been the case for all working groups in AR5. **Leo Meyer** said it was important that authors understood the full range of tasks they would handle from the beginning of their engagement.

Session 4: The AR5 experience – lessons from outreach

Øyvind Christophersen, Norwegian focal point and Norwegian Environment Agency, outlined how Norway had communicated AR5.

Even before the report was completed, Norway worked hard on readability at the review stage through comments. The sequencing or structure of a report or presentation is important for effective communication. Start with the key findings, then provide background and what can be done. Many scientists take the reverse approach: starting with methodology, then listing what they have achieved and finishing with key findings. Besides starting with key findings it is important to focus on what is relevant and useful for readers and decision-makers. Given the challenges of rendering complex material clearly, it is important to focus on the most relevant material. That means in turn a focus on solutions as well as problems. Complex graphics can be effective in a report where the reader has time to study and decipher them, but for a presentation where they are projected for a short time only, a different, simpler format is needed. Photos should also be used.

For Norway it was essential to pick out the locally relevant material and translate it into Norwegian. That requires early access to materials. Local media too need the information in a timely manner, so local Norwegian launches of the report are timed to coincide with the IPCC's global launch.

Discussing solutions is more complicated in terms of language than stating the evidence for climate change. Thought should be given now as to how to communicate this in AR6.

Hunter Cutting, of Climate Nexus, recalled that NGOs had mounted a large communication effort – press conferences, previews, etc. – around AR4 as the IPCC had not done so. The IPCC's own communication effort for AR5 marked a great advance, especially in outreach, and this should continue in AR6. Using professional science writers will help develop a clearer text. In addition it is important to understand while preparing the text that a report reaches most policymakers through a filter of the media, and to understand the policy context in which policymakers are working. The treatment of the warming hiatus in AR5 is an example. The IPCC did not engage with media on this topic during the development of the report. Language changed significantly between the final government draft and the approved SPM – a case of governments adding clarity. But this was too late for many reporters to understand the detail and context; indeed this question continues to be discussed in the media. The IPCC's treatment in the report was technically correct but it lost an opportunity to provide guidance to media earlier on. Many reporters seized on the mention of the hiatus as

something new in the report. The use of the term uncertainty is often understood to mean doubt, and authors should find more accessible ways to discuss the concept, including using the language of risk.

Jessica Dator-Bercilla said that the series of climate-related disasters that have hit the Philippines since 2004 prompted questions from communities that led humanitarian NGOs to approach scientists for answers. This resulted in the creation of interdisciplinary platforms bringing together scientists, including IPCC authors, community members and policymakers at the local and national level. The focus was on discussion, drawing on AR4, AR5 and the Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX), rather than the production of materials such as posters or animations. This enabled participants to develop evidence-based advocacy, drawing on combinations of community leaders and scientists, resulting in new legislation on disaster risk management, and funding for adaptation. Stakeholders in the Philippines also used data from AR5 to promote climate resilience in Asia-Pacific Economic Cooperation (APEC) and the inclusion of resilience and risk management in the Climate Vulnerable Forum.

Christiane Textor, of the German IPCC Coordination Office, said that official German outreach concentrates on explaining the IPCC to bolster its credibility. The government facilitates outreach about the findings rather than doing it itself, and supports German scientists attending meetings. Communication in German is essential, and based on IPCC materials, although it can be challenging to condense thousands of pages of IPCC reports into short, but accurate documents. IPCC reports are not easy to navigate and so the German IPCC Coordination Office shows people where to find information – the right report, and the right place in the report. It also organizes annual meetings facilitating the science-policy dialogue between climate researchers and representatives from ministries, government agencies, NGOs and business. These have the added benefit of showing that IPCC reports are produced by living people not an anonymous UN body. A massive open online course (MOOC) developed by the German Climate Consortium and WWF based on the findings of AR5 shows how third parties can conduct outreach effectively.

Rabelani Tshikalanke, of South Africa's Department of Environmental Affairs, described the outreach event held in South Africa in November 2014 with the help of CDKN. This regional event drew participants from all over Africa, and had extra impact locally by coinciding with South Africa's National Climate Change Response Dialogue. The event started with a media workshop, which not only familiarized regional media with the work of the IPCC, but also included discussions on climate-related story ideas that reporters could develop. A session for local scientists sought to encourage the local research community both to close local knowledge gaps, e.g. on drought, and to work with the IPCC. Many stakeholders in the region have little awareness of the IPCC, while IPCC findings are often not downscaled to the local level and therefore not relevant to policymakers. A science-policy dialogue discussed how to promote the interface between the two communities and simplify IPCC messages for local policymakers. The main results included the need to downscale findings to a local or city level where policymakers can take decisions; the need to provide simple information in local languages; and the need to increase the contribution of African scientists to the work of the IPCC. Using African authors in IPCC outreach now sets a good example to young scientists in terms of encouraging them to work with the IPCC.

Simbisai Zhanje, of CDKN, discussed the three national outreach events organized by CDKN in Africa in 2014. These took place in Kenya, Ethiopia and Uganda. As with the regional African event described above, these had three layers: a science-policy dialogue between stakeholders and IPCC authors; a meeting for young scientists to encourage them to publish their research and to work for the IPCC as reviewers or authors; and a media workshop. The events demonstrated a huge demand for information at the regional, sub-regional and country level, not only among policymakers but also the private sector and civil society. Without a clearer understanding of the impacts of climate change at different levels it is hard to move from business as usual. Different stakeholders need different information in different formats, e.g. policy briefs for ministers and more detail for technocrats, while different ministries also have varying focuses. The use of African IPCC authors helped provide country context including local development priorities. For the research community it is important to demonstrate that climate change is an interdisciplinary topic not just an environmental concern, and greater contact between IPCC focal points and the research community is needed to increase local scientific involvement with the IPCC. More training for reporters and editors is needed so that media

provide continuous coverage of climate change rather than only when there is a disaster. In some countries social media has only limited reach and community radio is more effective for reaching the broad population.

Imelda Albaño, of Philippines EnviroNews, said it was important to include the human dimension of climate change into future reports to help change people's perceptions. **Debra Roberts**, Co-Chair of Working Group II, agreed that different levels of policymaker require different types of information. In some countries even headline statements will be too complex at the village level. **Christiane Textor** said governments can involve all levels of policymaker in the review process.

Laura Gallardo, University of Chile, said it is important to focus on cities as that is where the majority of people live and where most action to tackle climate change will take place. In discussing the use of science writers, it is important to consider languages other than English and remember that storytelling can change with culture and language. **Øyvind Christophersen** said complex language in the original report could make it difficult to translate clearly.

Session 6: The JPI Study on Communicating AR5 and
Session 7: Climate Communications – Other Assessments

James Painter, of the Reuters Institute for the Study of Journalism, reported on the JPI Study on communicating AR5, part of the Joint Programming Initiative AR5 in Europe project, coordinated by CICERO and funded by the Norwegian Research Council (See Advance Papers for the full report). The study looks at how science gets into policymaking, examines the role of focal points, and examines media coverage of AR5. One conclusion is that it is important to test communications approaches and materials on users in advance, to understand how they use them. There is little academic work on how the IPCC is used by policymakers and what information there is tends to be anecdotal, with huge gaps about users' needs and what they would find useful in communication. The study surveyed around 30 mainly UK users from 4-5 user groups taken from the IPCC Communications Strategy: local UK politicians and councillors; CDKN, the UK Foreign Office; business; NGOs; higher education; and media representing the wider public. All those interviewed already used IPCC reports and were interested in them. They were asked three questions: How do you use the report? What do you think about the language and clarity? What recommendations do you have? Of the 10 findings, four are discussed here.

1. All those surveyed found the headline statements from Working Group I very helpful. There is some academic analysis showing that headline statement text made its way into print media.
2. The business community knew about the derivative products produced by the Cambridge Institute for Sustainability Leadership and CDKN, and found them very useful. But there were some questions on how such reports should be made available in different languages, and how they could use risk language that is understood.
3. Most of those surveyed (80-90%) thought that the use of specialist writers, brought in early, was a good idea. There were questions about who was meant – journalists, scientists who can write, science communicators – and there should be guarantees that the scientists and not the writers have the final say. Graphic designers should also be brought in this way.
4. Communications activities must reflect the revolution underway in new media and how information is consumed. There are huge and rapid changes, for instance in the growing use of video on social media. It is impractical to expect IPCC authors to be on top of this but there are experts who can be tapped. This is not only a first-world issue.

Responding, **Laura Gallardo** raised the question of what is meant by policymakers. IPCC approval processes involve representatives of national governments, but there are other levels of policymaking: for instance COP21 brought together mayors from around the world. To what extent can this UK-centric study be extrapolated to the rest of the world? Different cultures must be reflected in communications work (including the IPCC's own communications team).

Susan Joy Hassol, of Climate Communication, presented the communication of the 2014 U.S. National Climate Assessment (NCA, also NCA3). Work on this assessment incorporated communication from the very beginning.

A strong editorial team was brought together that was experienced in explaining complex matters simply, and presenting and synthesizing large bodies of complex information. The NCA used professional photographs and graphic designers, listening to their advice and testing information on them. The communication team worked with the scientists in an integrated and iterative manner, in contrast to the traditional sequential approach of producing the science and then handing it over to the editors. In these interactions the scientists always had the final say, but this never became a point of contention because the team worked together for the best outcome.

The NCA made use of simple clear language and strong photos.

The science of science communication informed the choice of photos: photos showed people to make them relevant and easier for people to connect with.

Such photos depicted both the impacts of climate change as experienced by real people --

-- and possible solutions. They show people taking action, and they tell stories of people dealing with climate change.

The NCA also used simplified graphics that could be understood by non-specialists rather than those used in specialist journals.
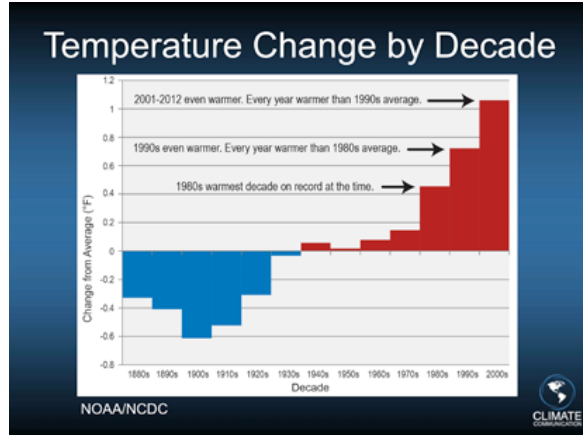
Some graphics were further simplified and prepared for broadcasters and other media, so that a package of broadcast-ready visuals was available to media as the report was being launched.
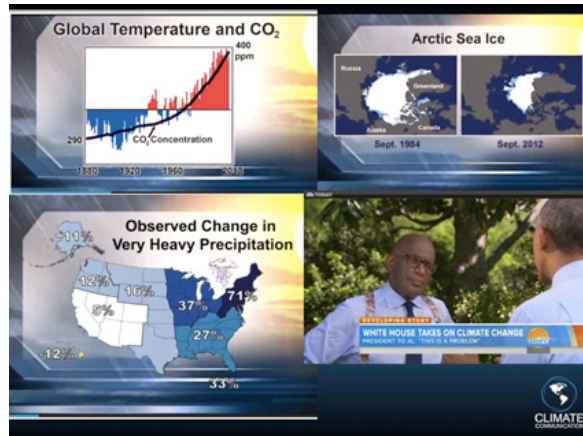
The editors and scientists also paid careful attention to the way the findings of the different chapters were synthesized.

Rather than having one key message per chapter and pasting that into a synthesis document, authors stepped back to consider the major, overarching, cross-cutting themes of the assessment. Each of the 30 chapters had its own key messages, and drawing on these the authors developed 12 report findings for a Highlights document, which is a synthesis rather than a summary.

Authors provided traceability for these findings through chapter icons at the bottom of the page.

A section on "Concluding Thoughts" uses photos to help tell stories. Scientists uncomfortable with the notion of "stories" may wish to call them case studies.

All the authors received communications training both for media and on giving effective presentations, and slides for presentations were provided with advice on how to use them. A series of webinars were held so that all authors could participate, and those authors who would work most with the media received intensive media training in person.

The report's findings and key messages were distilled further into three simple messages, and authors practised various ways of delivering these, reflecting the principle that effective communication depends on simple clear messages repeated often by a variety of trusted sources.

The resulting headlines show that the NCA team got its message across.

The authors also considered how best to deal with uncertainty language. Some authors (as well as the public) had trouble with the dual concepts of confidence and likelihood as applied by the IPCC, and there were concerns about keeping the use of language consistent. The agreed-upon solution was to include in each chapter a section of supporting evidence, which included an assessment of confidence and an explanation of the language used for confidence levels, as well as descriptions of the process used by authors to develop key messages, the evidence base, and remaining uncertainties. Thus this information is available to those users who want it, but is not in the body of the main text where it could disrupt the flow of the chapter for other users.

Communication of the assessment was greatly enhanced by setting up a network of networks (NCAnet) involving 170 organizations which were kept informed throughout the process and could help deliver findings to their members.

Adam Corner, of Climate Outreach, said the NCA showed it was possible to communicate an assessment in an evidence-based way. For instance there is growing evidence that visual communications should be used, and not to use them runs counter arguably to the philosophy of the IPCC. The question arises as to how that evidence base should be incorporated. **Øyvind Christophersen** recalled that SREX too had used case studies. They are a way to build bridges between hard science and the stories that need to be told. The challenge is picking the right case studies and summarizing them.

Nick Nuttall said communication of the NCA had benefited from strong government support. It would be good if governments could be persuaded to get messages out in their own countries in a similar way in the run-up to AR6. The intensive communication around the report meant no one could be ignorant of it. But how much did it cost? **Leo Meyer** asked whether the assessment and its communication had affected the position of naysayers.

Susan Joy Hassol said there is a science of science communication and we should use it. Everything done with the NCA was based on science. For example, there is evidence that case studies or storytelling work. In summarizing findings there is a danger that they become abstract and general and thus do not touch people. It is necessary for the team to work iteratively with stories in order to choose the best case studies. There were costs in communicating the NCA in this way, for instance using professional photographs as well as graphic design and editorial experts. The NCA had an effect, for instance in demonstrating that climate change is happening now and is not just a problem for the future; the report is still being cited.

James Painter asked how much of the experience of the NCA in the United States could be transferred to the IPCC. The NCA is a great product but with very different processes. The Reuters Institute for the Study of Journalism has done some work recently on how the media uses uncertainty language. The uncertainty framing of articles on IPCC findings dropped sharply between AR4 and AR5.

Heidi Cullen asked whether the NCA had defined metrics of success in advance. **Susan Joy Hassol** said this was looked at afterwards, particularly in terms of media coverage and website visits, both of which were impressive. More

than 2000 news stories appeared within a week of the report's release, and media mentions have continued steadily, with more than 5000 stories citing NCA3 by October 2015, often 5 to 10 per week. Within the first year of its release, the full report was downloaded more than 850,000 times. One objective that was stated by the team in advance was to greatly expand the number of organizations engaged with the assessment; a social network analysis by an outside team of researchers showed that that objective was met. **James Painter** said there were established metrics for communication and they should be used.

Surveyor Efik, of the Climate Change Network Nigeria, said NGOs in Nigeria had had to get the scientific community there to simplify the language of AR5 and put it into the local development context before they were able to communicate with policymakers and the media. **Richard Black**, of the Energy and Climate Intelligence Unit, said the NCA had taken some very innovative approaches but much of what was described is Communication 101. Why can't the IPCC just do this? **Lance Ignon**, of the IPCC Secretariat, said much of the discussion so far had been about the printed word, but, as the NCA release had shown, there had to be a greater emphasis on speaking and presentation. **Beth Holland**, of the University of the South Pacific, said that the key to successful communication is an inclusive approach yielding shared ownership. What are the key recommendations for this besides involving more authors from developing countries? **Tim Nuthall** applauded the NCA's decision to embed communication from the beginning. He urged the IPCC to sit down with the NCA team and work out what is transferable, including looking at NCAnet. **Andreas Fischlin** asked about the ratio of scientists to communications experts on the NCA.

Susan Joy Hassol said the key to inclusivity was involving stakeholders from the beginning and keeping them informed and involved throughout. NCAnet was set up at the start of the NCA process and reached deeply into a wide range of stakeholder networks. There was an open process with anyone able to submit documents for review by the author teams as input to the assessment. With regard to the ratio of communications experts to scientists, there were four official editors on the NCA compared with hundreds of scientists, but the editing team tried to participate in the initial author team meetings to provide input from the start. The broader communications team at the Technical Support Unit was made up of about a dozen people, divided about evenly between editorial, graphics, and web experts. A web design contractor was also brought in to supplement the web experts on staff. **James Painter** said a strong recommendation was to involve the business sector, and individual sectors such as finance, in the scoping process, particularly with a view to understanding what kind of language business uses. **Laura Gallardo** said understanding of stakeholders was important: users must be able to see their reality reflected in the report.

Session 15: Tackling misinformation and misconceptions

John Cook, of the University of Queensland, discussed the science of science communication, in particular the psychological research into misinformation and how to address misconceptions. The IPCC is very influential and therefore there are attempts to undermine what it says. There was a surge of articles (27 in 17 days) in the mainstream media challenging climate science in the run-up to the release of the Working Group I report in September 2013 – before the report was even out.
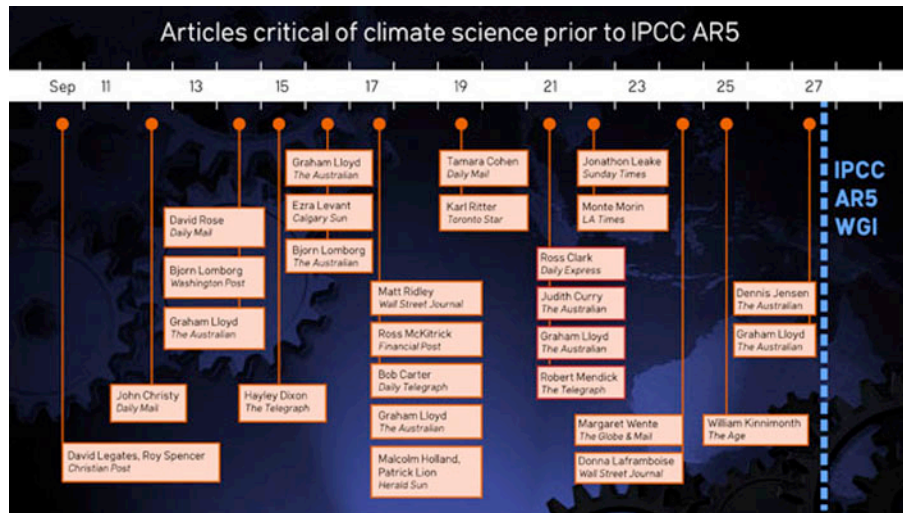
Since then analysis of the content of articles in blogs and publications critical of climate science and policy shows that articles about science continue to predominate over policy, contrary to expectations that the reverse would happen as confidence in the scientific fundamentals grows.
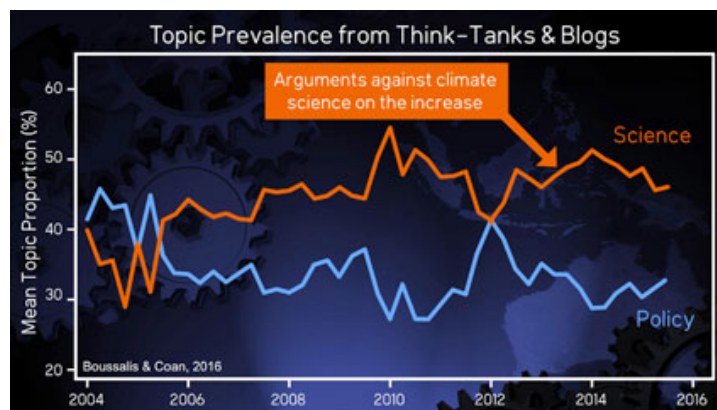
What should be the response of the IPCC? Should it just communicate the science or address the misinformation and misconceptions? Studies show that misinformation affects and undermines the perception of science. Only a few pieces of misinformation can have an effect.
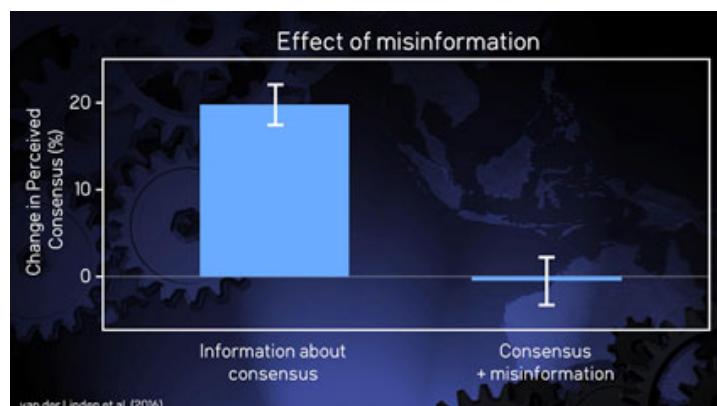
On the other hand, there is an educational opportunity. Research shows that lessons are more effective when combined with refuting related misconceptions.
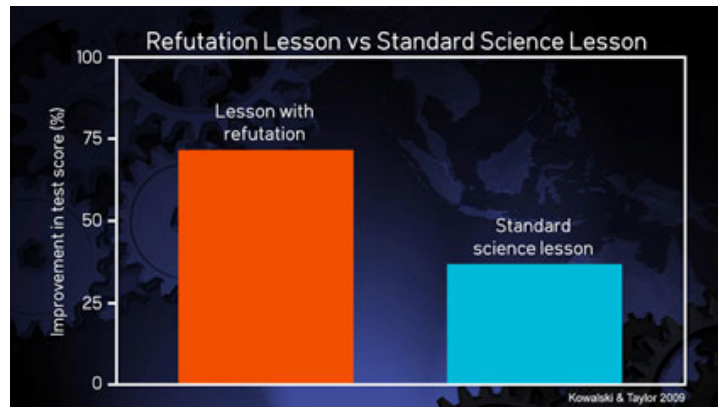
However, addressing misconceptions carries risks, as it can reinforce them. The way AR5 addressed the topic of the apparent hiatus in rising temperatures – adopting that language – or raising the question of solar influence on climate change, may have confirmed these ideas in the minds of some readers.

Box 9.2 | Climate Models and the Hiatus in Global Mean Surface Warming of the Past 15 Years

The observed global mean surface temperature (GMST) has shown a much smaller increasing linear trend over the past 15 years than over the past 30 to 60 years (Section 2.4.3, Figure 2.20, Table 2.7; Figure 9.8; Box 9.2 Figure 1a, c). Depending on the observational data set, the GMST trend over 1998–2012 is estimated to be around one-third to one-half of the trend over 1951–2012 (Section 2.4.3, Table 2.7; Box 9.2 Figure 1a, c). For example, in HadCRUT4 the trend is 0.04°C per decade over 1998–2012, compared to 0.11°C per decade over 1951–2012. The reduction in observed GMST trend is most marked in Northern Hemisphere winter (Section 2.4.3; Cohen et al., 2012). Even with this "hiatus" in GMST trend, the decade of the 2000s has been the warmest in the instrumental record of GMST (Section 2.4.3, Figure 2.19). Nevertheless, the occurrence of the hiatus in GMST trend during the past 15 years raises the two related questions of what has caused it and whether climate models are able to reproduce it.

Figure 9.8 demonstrates that 15-year-long hiatus periods are common in both the observed and CMIP5 historical GMST time series (see also Section 2.4.3, Figure 2.20; Easterling and Wehner, 2009; Liebmann et al., 2010). However, an analysis of the full suite of CMIP5 historical simulations (augmented for the period 2006–2012 by RCP4.5 simulations, Section 9.3.2) reveals that 111 out of 114 realizations show a GMST trend over 1998–2012 that is higher than the entire HadCRUT4 trend ensemble (Box 9.2 Figure 1a; CMIP5 ensemble mean trend is 0.21°C per decade). This difference between simulated and observed trends could be caused by some combination of (a) internal climate variability, (b) missing or incorrect radiative forcing and (c) model response error. These potential sources of the difference, which are not mutually exclusive, are assessed below, as is the cause of the observed GMST trend hiatus.

Internal Climate Variability
Hiatus periods of 10 to 15 years can arise as a manifestation of internal decadal climate variability, which sometimes enhances and sometimes counteracts the long-term externally forced trend. Internal variability thus diminishes the relevance of trends over periods as short as 10 to 15 years for long-term climate change (Box 2.2, Section 2.4.3). Furthermore, the timing of internal decadal climate

Frequently Asked Questions
FAQ 5.1 | Is the Sun a Major Driver of Recent Changes in Climate?

Total solar irradiance (TSI, Chapter 8) is a measure of the total energy received from the sun at the top of the atmosphere. It varies over a wide range of time scales, from billions of years to just a few days, though variations have been relatively small over the past 140 years. Changes in solar irradiance are an important driver of climate variability (Chapter 1; Figure 1.1) along with volcanic emissions and anthropogenic factors. As such, they help explain the observed change in global surface temperatures during the instrumental period (FAQ 5.1, Figure 1; Chapter 10) and over the last millennium. While solar variability may have had a discernible contribution to changes in global surface temperature in the early 20th century, it cannot explain the observed increase since TSI started to be measured directly by satellites in the late 1970s (Chapters 8, 10).

The Sun's core is a massive nuclear fusion reactor that converts hydrogen into helium. This process produces energy that radiates throughout the solar system as electromagnetic radiation. The amount of energy striking the top of Earth's atmosphere varies depending on the generation and emission of electromagnetic energy by the Sun and on the Earth's orbital path around the Sun.

Satellite-based instruments have directly measured TSI since 1978, and indicate that on average, ~1361 W m^{-2} reaches the top of the Earth's atmosphere. Parts of the Earth's surface and air pollution and clouds in the atmosphere act as a mirror and reflect about 30% of this power back into space. Higher levels of TSI are recorded when the Sun is more active. Irradiance variations follow the roughly 11-year sunspot cycle: during the last cycles, TSI values fluctuated by an average of around 0.1%.

For pre-satellite times, TSI variations have to be estimated from sunspot numbers (back to 1610), or from radioiso-

Research provides clear guidelines on how to structure science communication, particularly when misconceptions are involved. The most important thing is to communicate the science clearly. But there must be an explicit refutation of the misconception, flagged as coming before it is discussed. Lastly the techniques used to communicate the fallacy should also be examined.

So the IPCC should tackle misconceptions in published content, but adopt the guidelines of published research. One option is for the physical scientists to write the content, and to collaborate in presenting it with social scientists who have expertise in the psychology of misinformation.
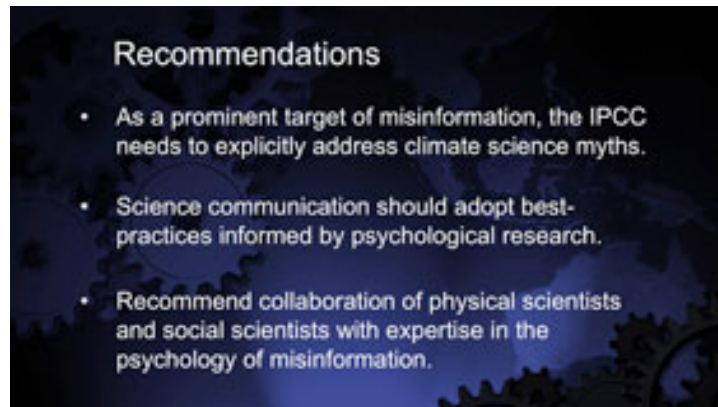
Chris Field asked whether the refutation of misinformation was more effective coming from within the IPCC or from outside. **Andreas Fischlin** asked whether FAQs in the report could play a role. **Jim Skea** said that scepticism about the physical science was less evident now than earlier in the UK. Instead arguments were raised that climate change is happening but it is not worth doing anything about it, or that ambitious climate action is immoral as it inhibits the ability of developing countries to grow out of poverty. **Nick Nuttall** asked why challenges to climate science were so strong in the Anglo-Saxon countries. **Asher Minns**, of the University of East Anglia and Future Earth, asked how many people had to sign up to climate science before misinformation could be considered to be refuted. **Richard Black** asked why there were no groups countering misinformation about solutions and policy in the way that groups tackled fallacies about climate science. **Suraje Dessai**, of the University of Leeds, raised the challenge of dealing with misinformation about findings with lower confidence, for instance regional projections.

John Cook said that scientific findings should be accompanied by an explanation when they are released to inoculate them against misinformation. It would be natural to combine them with an explanation of the misconceptions. It does not require a huge change to content, and for the IPCC it could be done with FAQs. Misinformation about climate policy is present in the Anglo-Saxon countries but articles about science still predominate there. So arguments against science cannot yet be ignored. The target audience for refutation is not those who reject science in any circumstances but undecided people open to evidence and vulnerable to misinformation. Data shows there is still confusion among the public about whether climate change is happening and this is countering the impact of the IPCC's findings. But there also need to be responses to misinformation about climate policy and solutions. Regarding uncertainty, much of the misinformation relates to areas that are already well understood, but in countering misinformation it is important to identify the areas of science that are well understood and those that are less so.

Jonathan Lynn said much of the work of countering misinformation would be handled by third parties. The IPCC could play a role at the outset, for instance by including FAQs in its reports, but there was no role for the IPCC to engage with misinformation about climate science in blogs or the media. Conversely it would respond to misinformation or misconceptions about the way it works.

Session 16: Beyond the transmission belt – "upstream communications" and stakeholder values

Paul Lussier, of Yale University, noted there are recommendations to engage with stakeholders and to engage with social media, but really these are the same thing: social media is driven by values and communities cohere around values. Often the discussion of social media revolves around values and stakeholders with the same values. Discussion also tends to include colourful, exciting, engaging versions of graphs and videos. There is a place for that. But research shows that communities do not form around some-thing but around some-one. All the animations in the world cannot match articulations about content that relates to what moves me, what I'm excited about, what I'm joyful or angry about.

When we talk about social media, we are usually not talking about new communications models, yet we must engage in new models in order to leverage our work. Environmental communications generally discuss the planet, not people.
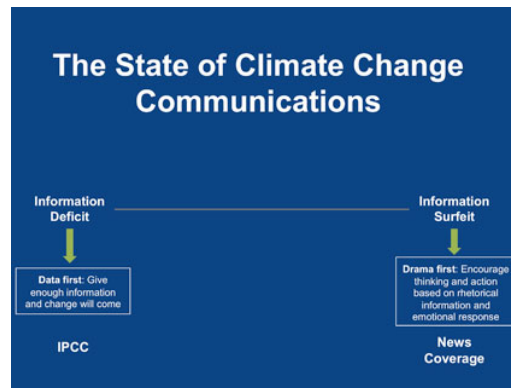
This is difficult when we try to create compelling media about environmental issues that people want to watch, because of the perception in media companies that the environment is about the planet, not about people. Stories about business or social justice belong somewhere else, not in the environment silo.

The media works with the information surfeit model. Don't focus on the facts because people already have too much information. Engage your audience and make it dramatic.

The traditional approach of science communicators is to give people the facts. Make it funny, make it digestible, but it's a fact-driven approach.
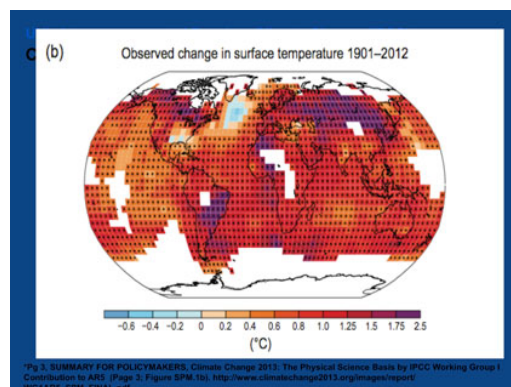
Both of these are weak. Neither has the "long tail". The information deficit model leaves people weary and challenged while the information surfeit model leaves them bleary and cathartic, and does not last.
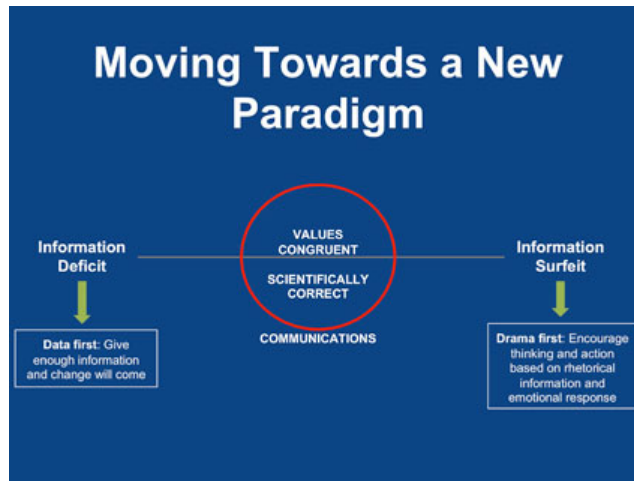
We have developed a model that focuses less on downstream communications, on how we message science. Here the traditional approach is to add on communications at the end of producing the science.
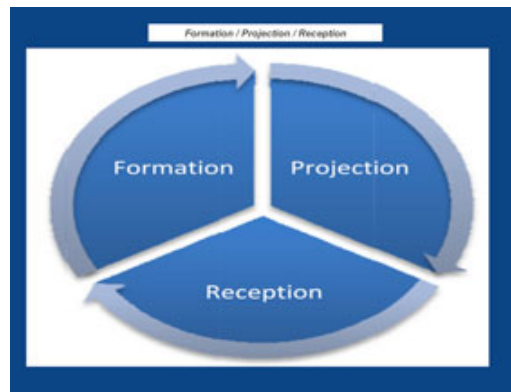
Instead we focus on what we are messaging: not what we can do about climate change but what addressing climate change can do for us. So our messaging does not just reflect what we are asking of people, but what the science is asking of us. We determine the science then allow others to interpret it. Here, we focus first on the upstream aspect of communications (formation), then on what we actually say (projection), then how it is received (reception). For our purposes here we will focus on formation of messaging.
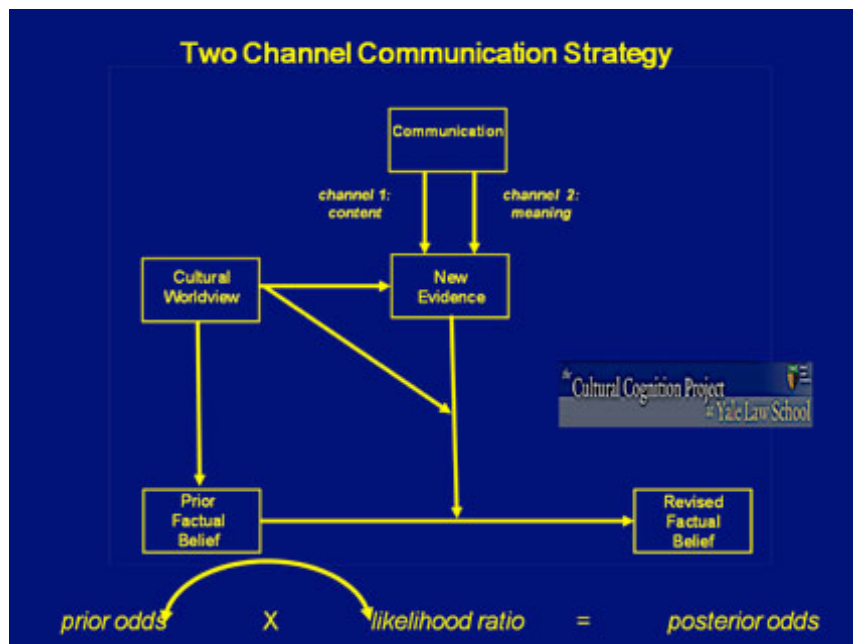
This is the basis of our schema to build and deploy communications pathways through which science-oriented targets can be incorporated into stakeholder-siloed concerns. The aim is to marry knowledge and meaning, and connect evidence with evolving cultural world views in a way that allows for the facilitation of -- not the advocacy of -- revisions to people's "factual beliefs".

If we want to encourage and facilitate science uptake we must transpose messaging into less about something, and more about someone. These approaches are not mutually exclusive. We want to generate a reaction when someone reads an IPCC report…

I'm excited because my concerns are reflected in this document. Thus we move from questions like *Why is carbon dioxide increasing so much?*
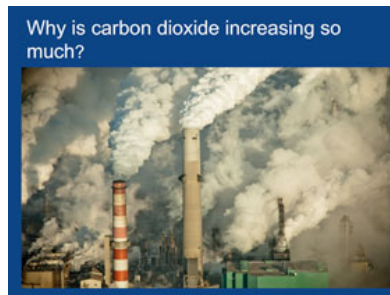
to *How is rising carbon dioxide affecting the choices a consumer makes?*

How does rising carbon dioxide affect the choices a supplier makes?
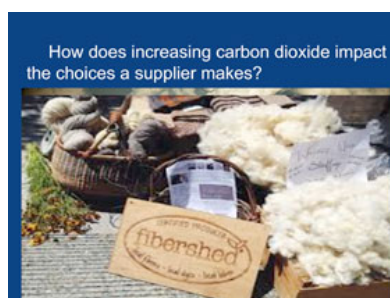
Where will we run?, What will we grow?, Will we still get along?, Will I be free?, Will I be safe?, Will my home still be here?, Will my wine taste the same?, What will this new world look like?, How much worse will the shoveling get?
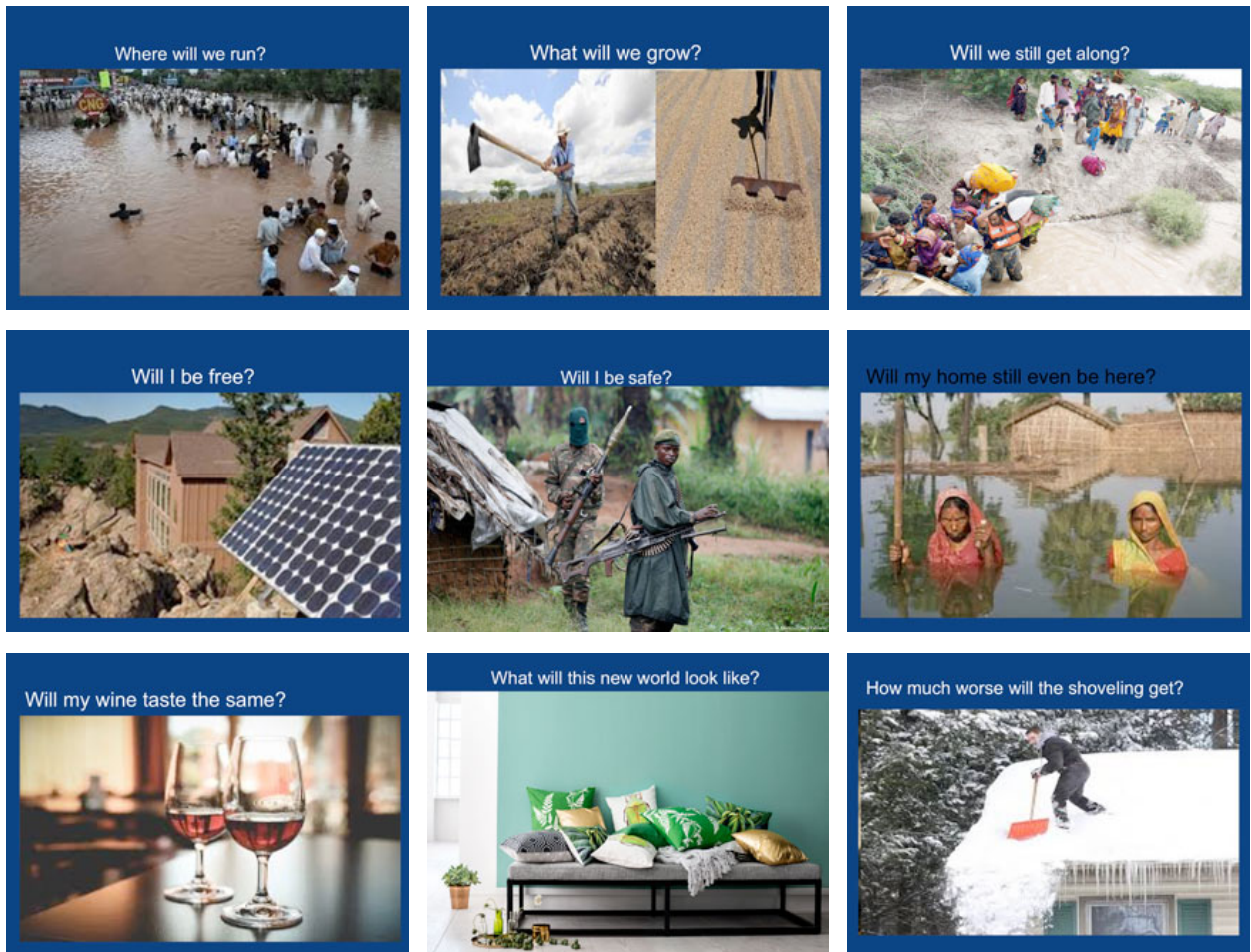
Data about climate change offer opportunities to connect the data to individual sector concerns.
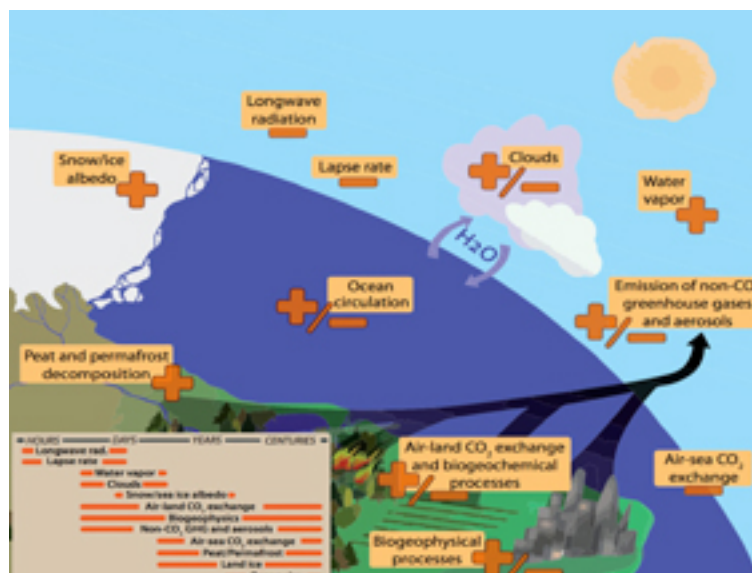
We see each of these data modules as narrative rubrics that we can use to create narratives to connect to each of these human sectors (science, media, policy, business, belief). We have held a series of workshops around the world to examine language used by different groups. We find that in bringing in different stakeholders we speak different languages in terms of their primary values. We all speak different languages. The table shows primary value for the languages we speak – e.g. for science "accurate", for business "actionable".

Defining Language and Narrative Determinants
Science and Other Sectors

SCIENCE	MEDIA	POLICY	BUSINESS	BELIEF
Accurate	Dramatic	Realistic	Actionable	Archetypal
Qualifying	Engaging	Speaks to Need	Speaks to Revenue	Circumscribing
Highlight Uncertainty	Highlight Certainty	Highlight Risk	Highlight Benefit	Highlight certainty
Cautious	Certain	Careful	Candid	Anthemic
Build Case for Further Research	Build Audience and Interest	Build Constituency	Build Business Case	Build following
Objective	Persuasive	Popular	Visionary	Persuasive
Generate Understanding	Generate Ratings	Generate Momentum	Generate Shareholder Interest	Generate action
Steer Clear of Policy	Commit to a Conclusion	Commit to Policy Recommendations	Build Science-Based Business Scenarios	Community Ethos

This might suggest there are entirely opposite sets of values when science and media are together. We like to blame naysayers and media consolidation for the low coverage of climate change. But there is a need to build bridges between the two to generate stories based on combined understanding: it does not have to be either/or. We can highlight the need for certainty and marry it with scientists' need for accuracy, or the policymaker's desire to be careful with a scientist's instinct for caution.

Research based on Maslow's hierarchy of needs shows that questions of science and anti-science tend to arise at the top of the pyramid, where people are already fulfilled and can afford a global view. At the lower levels where survival is the main concern, the narratives are of health or food and water.
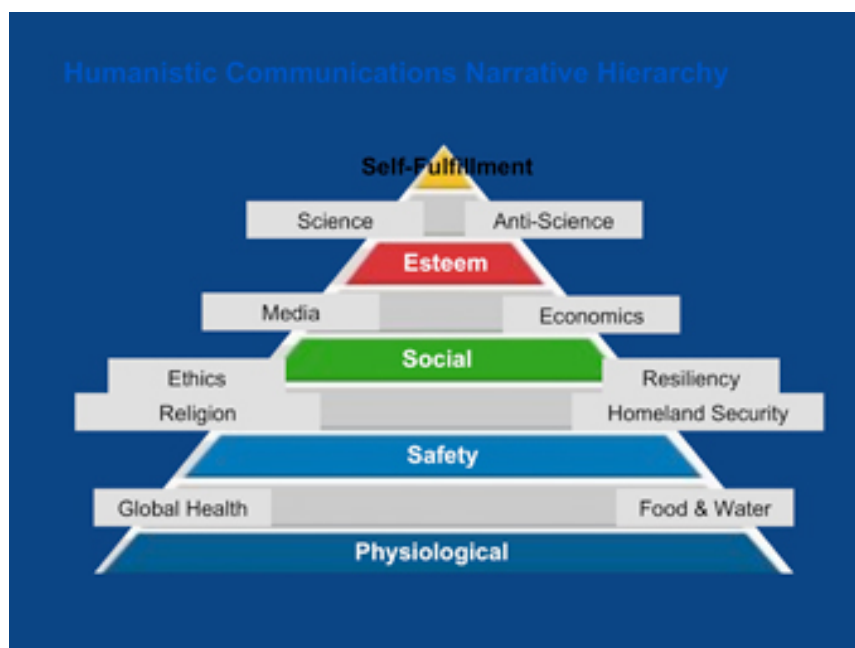
Within each of these silos we can speak to the most important parts of our beings. I want to share my interests with others who also prioritize my values based on these "I", "it", "we", "its" quadrants.
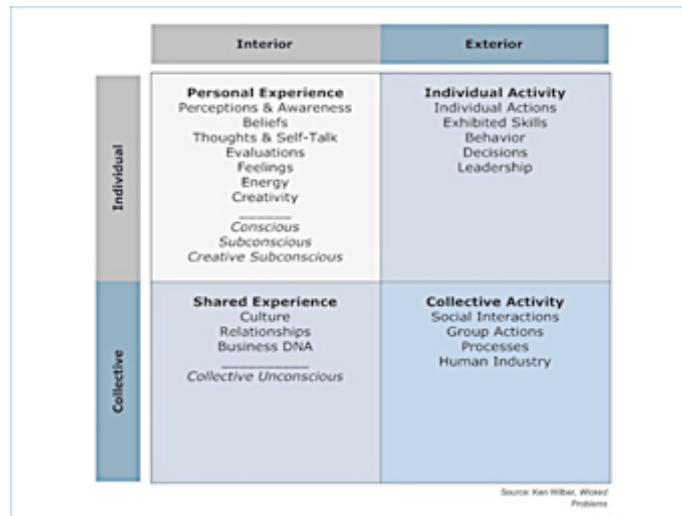
This shows an example of how we must move from the data into narratives of real experience, e.g. with health drawing on climate change data, via information about air pollutants, to stories about respiratory disease. And these become the basis for communities and network building, since narratives form the corps of network structures (bucket brigade, military squad, moveon.org, telephone tree, etc.)
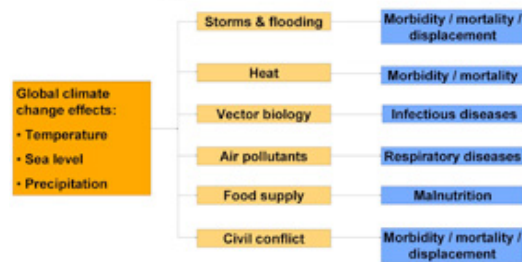
This is an example of how we are moving from research to action, asking policymakers to invest resources and research in this modality. We process information through communications via stakeholders who have a part in developing the upstream communications for the conversation.
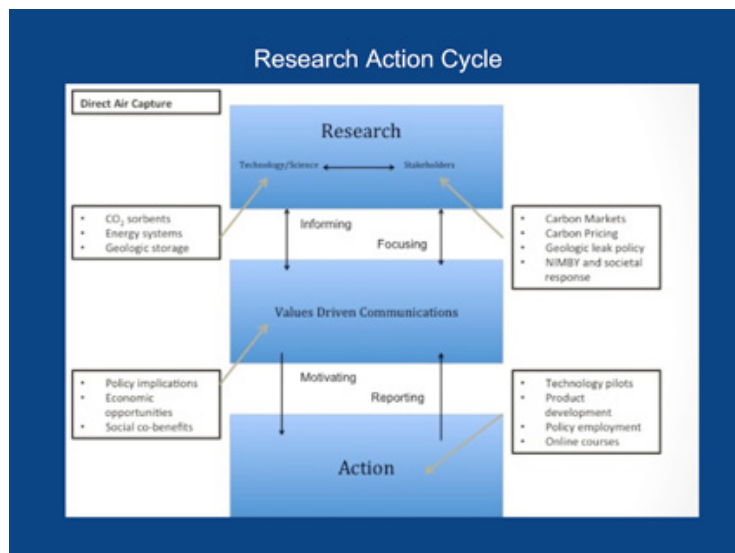
This can be applied to the question of which images are found to be inspiring and prompting action. Focus groups have shown that the image of earthrise over the moon, so powerful a few decades ago as an image of a fragile, unique planet, is much less effective now compared with an image of a boy with a dog in a typhoon. This is not because that image shows people; it is because people see themselves in the boy and imagine a narrative, not only about him, but about themselves and what they would be doing.

Wine growers want to know what type of grapes to grow, what will be the effect on my industry, how can I help mitigate the effects of climate change?

This concern drives itself - science need not drive it.

Responding, **Beth Holland** said she would provide a perspective on the unique circumstances of the South Pacific, which includes those countries most threatened by sea-level rise. She expected when she arrived at the University of the South Pacific that she could combine knowledge of the scientific facts with the vulnerability of local people to make a difference. She failed initially because of a lack of Pacific experience, she did not know her audience, and she arrived in the wake of the controversy about Himalayan glaciers that undermined the IPCC's science credibility. In response she focused on stakeholder engagement and spent time listening, especially in villages as she was working on a project involving village-level adaptation. A robust training programme for climate scientists was set up, with a postgraduate programme at the university. This made it possible to work with governments in the COP process, providing policy briefs and negotiators. This built credibility, making it possible for the local scientific community to go to political leaders as negotiators and show them the science they needed.

Adam Corner agreed with the importance of engaging with values and language and asked how that could be mapped over to the work the IPCC does. Perhaps this is a role for derivative products associated with IPCC reports: ask your audience, find out who they trust. **Lindsey Fielder Cook** agreed that it was important to talk about the personal dimension. She recalled the finding in AR5 that under business as usual scenarios it may be difficult to work outside in some areas for parts of the year. How do we explain what that means for individuals? People want to know what is happening now, how urgent is it, and what can they do. What is causing the fear that seems to be behind some of the scepticism and pushback? **Claudio Angelo**, of the Observatório do Clima, asked how upstream communications can be reconciled with the IPCC's stance on neutrality.

Paul Lussier said scientists are not being invited to engage in values recommendations or prescriptions. They are being invited to partner with stakeholders to give their values a scientific basis. Stakeholders ask how science can address their concerns. This approach, bringing together scientists with winemakers in California, has led to winemakers funding higher resolution models to give them more information they can use to pursue their goals affected by climate change. In Mozambique, we hoped to encourage climate change education and awareness. We ended up engaging with meteorologists and discussed how the frequency and severity of typhoons would only increase due to climate change. We developed signage and a "tree house" disaster network, and obtained more funding for climate change mitigation. We determined it was important to engage with the stakeholders and find out what their priorities were, and address those.
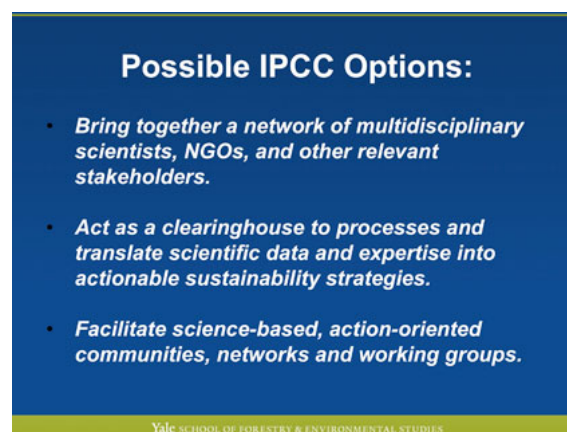
Beth Holland said that knowing what users' values are and listening to them to understand their concerns is the most important thing for getting the combined power of the wonder of science with the perils and triumphs of being human. She recalled that she could not find measuring sticks to demonstrate the threat of sea-level rise. Then she realized that Pacific canoe paddles are about one meter in length and was able to use those to illustrate how much the ocean could rise. The exact numbers do not matter, but the perception of the sea rising by the height of one or more upright paddles was powerful.

Paul Lussier suggested that it was important to aggregate the priorities of different groups with particular interests in order to help address broader questions from individuals or groups about how to deal with general problems in each region regarding climate change.

Laura Gallardo questioned whether a focus on individuals or stakeholders implied we are all selfish rather than collaborative. **Jessica Dator-Bercilla** said people in the Philippines were seeing the drama of climate-related disasters at first hand and were moved by the impacts, but now they want to know what to do about it. **Leo Meyer** said the best way for the IPCC to serve stakeholders was through assessments of peer-reviewed literature. Therefore stakeholders must ensure that there is a body of peer-reviewed research for the IPCC to work on. **Chris Field** said the discussions had underlined how IPCC audiences are not homogenous. There are already plenty of valuable communications tools in the suite of AR5 communications materials that are available.

3 Breakout Group Discussion Summaries

Reports prepared with the help of the listed co-chairs and rapporteurs

Breakout Group A: Improving Readability, Clarity and Policy Relevance

Co-Chairs: Richard Black, Debra Roberts
Rapporteur: John Cook
Rapporteur for the IPCC Communications Strategy: Christiane Textor

This Breakout Group covered a range of topics mainly relating to the structure of the report and processes for producing it, to tackle a problem raised by many users: that the Summary for Policymakers (SPM) is difficult for non-specialists to understand and therefore hard to use in their own work in disseminating information about climate change. This problem has also been raised by policymakers in different countries, indicating that the policy-relevance of the SPM is impaired.

Processes
Here the discussion concentrated on two main areas: the involvement of end-users in the design of the report and the use of specialists to enhance the clarity of text and graphics.

Reflecting a similar recommendation from Breakout Group C, the group proposed that Working Groups should seek input from stakeholders in the scoping process. This is to ensure that the report reflects stakeholders' information needs. They recommended developing a methodology to obtain this input. They also proposed that the scoping process should be iterative, as the report develops, to ensure that it meets stakeholders' priorities.

Specialists with professional skills and experience in communicating can also contribute to the clarity and accessibility of a scientific text intended for non-specialist audiences. Thus communications skills should be one factor to consider when nominating and selecting authors, although this would not apply to all authors. Appropriate specialists, such as science writers, from a range of disciplines, should be involved at all stages of the report, and not only when the report is finalized. And the IPCC can learn from the experience of other organizations that produce and communicate assessments.

This can be complemented by training for authors, in writing and communicating, including developing guidance notes on effective style. This is in addition to training to help authors interact with the media. Training on presentation skills can improve the quality of outreach to diverse audiences and help authors convey information to non-specialists.

The group also discussed two specific communications areas. Regarding graphics, it recommended that graphic designers and data visualists should be brought in early to help clarify what type of graphics should be used. The approach to graphics should take into account the findings of communications science, and authors should be given training in the effective use of graphics. Graphics should be tested for intelligibility at the review stage and simplified versions of graphics should be prepared for the SPM and outreach if necessary. Graphics and underlying data should be archived for transparency and traceability.

The group also discussed the treatment of uncertainty (see Advance Paper by David Budescu), and recommended an Expert Meeting should be held that can lead to more effective and intelligible treatment of risk and uncertainty based on findings from communications science and advice from communications professionals. (See related proposal by Breakout Group B.)

Structure
The group considered calls by some users for a more readable and accessible "Summary for Citizens" in addition to the SPM. It concluded that possible improvements to the SPM rather than an additional summary would meet this objective. The SPM should highlight the most policy-relevant findings rather than attempting to be a fully comprehensive reflection of the full report. It should be as short as possible, with agreed page limits (and with guidance on length from stakeholders in the scoping process). It should highlight key messages at the start, by using headline statements or an executive summary. If resources allow, working groups could explore the possibility of a multi-layer, interactive report that would be accessible to different users. As already done in AR5, the report should contain Frequently Asked Questions (FAQs).

Breakout Group B: Derivative Products

Co-Chairs: Leo Meyer, Simbisai Zhanje
Rapporteur: Joyashree Roy
Rapporteur for the IPCC Communications Strategy: Youba Sokona

This Breakout Group examined the role of materials produced to communicate IPCC findings to different audiences, sectorally or geographically, known as derivative products. The group reviewed materials produced by the IPCC itself outside the formal approval process for reports, such as "supporting material"[1] for expert meetings and workshops, and communications and outreach materials developed by the Working Groups or Secretariat.

Third-Party Derivative Products

The experience with previous assessments has shown that such third-party products can be highly effective in communicating IPCC findings to specific audiences. It would be impossible for the IPCC to undertake this task itself, given the number of potential audiences. Third parties may have a particular understanding of the needs of different audiences, have greater freedom than the IPCC to communicate findings as they are not bound by approved language and can use graphics and data visualization in ways that may not be appropriate for the IPCC. At the same time, the IPCC has a strong interest in ensuring that such products accurately reflect IPCC Assessments.

The IPCC should therefore continue to encourage the development and production of derivative products by third parties. These are encouraged to use interactive infographics and data visualization. IPCC authors, co-chairs, and staff from the Technical Support Units and Secretariat are encouraged to provide support by reviewing products, subject to availability of resources including time. IPCC authors should get visible recognition for their contributions. Third-party products should carry a clear disclaimer that responsibility for the content rests with the third party, not with the IPCC.

In the past, the IPCC's sponsoring bodies, the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO), have produced derivative products. They and other UN agencies should be encouraged to do so in future.

As part of a general effort to make the IPCC website more accessible and user-friendly, the website should include links to third-party derivative products found appropriate by the co-chairs or Chair. Printed copies may be distributed at IPCC outreach events or other meetings attended by the IPCC.

The IPCC could stimulate and coordinate the development of such materials by consulting stakeholders, including representatives of organizations that can produce such products, on the types of products that would be useful, during the scoping process.

[1] IPCC Procedures Appendix A Section 6 http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles-appendix-a-final.pdf

IPCC Materials

Concerning "supporting material" produced by the IPCC, it would be valuable to have an Expert Meeting early in the Sixth Assessment Report cycle on the science of communicating climate change, looking among other things at the psychology of the reception of IPCC findings. (See related proposal by Breakout Group A.)

Representatives of stakeholders, including those producing derivative products, should be invited to become Expert Reviewers, and meetings between them and authors may be held during review periods, as provided for by IPCC Procedures[2]. This would give third parties early access to drafts and allow them to comment on them, supporting their own production work.

The videos produced by the IPCC for the Fifth Assessment Report were useful. Future videos should be shorter, and make greater use of explanatory animation and spoken text coupled with images rather than talking heads. Videos should be made available in languages other than English. Videos illustrating the work of individual IPCC authors would be useful.

Press releases on the release of reports – carefully prepared in cooperation between Working Groups and the Secretariat in advance of finalization and adjusted following approval of the SPM – are a key element in communicating findings through the media. The document should include the key messages from the report that media can cut and paste.

The IPCC does not need to engage on a regular basis in rebutting misinformation on climate change issues that appears in the media. The IPCC may respond if misinformation is spread about the way the IPCC works, and a rapid response would be required if a major crisis on IPCC findings arises.

Frequently Asked Questions (FAQs) have proven useful and should be used in all IPCC Assessment Reports. These FAQs should address obvious questions of interest to the public, and draw on the best practices of communications science and psychological research to ensure they are effective in communicating findings accurately.

The IPCC may facilitate contacts with authors for governments and non-governmental organizations, for instance by providing lists of authors willing to engage in this way on the website.

---

[2] IPCC Procedures Appendix A Section 4.3.4.1

Breakout Group C: Stakeholders and Outreach

Co-Chairs: Rabelani Tshikalanke, Jean-Pascal van Ypersele
Rapporteur: Jessica Dator-Bercilla
Rapporteur for the IPCC Communications Strategy: Eduardo Calvo

This Breakout Group examined ways the IPCC could enhance its engagement with stakeholders to gain a better understanding of how they use IPCC reports and what they want from them, in order to improve policy-relevance. In particular it reviewed the IPCC's outreach activities and use of social media. The most important user of IPCC reports is the UNFCCC. Policymakers at all levels of government are the key audience. Stakeholders from civil society and practitioners from different sectors also work with IPCC materials and need them to be accessible and user-friendly, without impairing the integrity of the text. In its endeavours to be more policy-relevant, the IPCC must not become policy-prescriptive.

Scoping

Similarly to Breakout Groups A and B, this group identified the scoping process as an important moment for anchoring policy-relevance in a future report. The IPCC Procedures[3] already note that participants at scoping meetings should include experts with a background from relevant stakeholder and user groups, including governments. The question arises how to increase the participation of such experts in scoping meetings to increase the relevance of reports to different types of stakeholders by understanding their needs and priorities in an IPCC Assessment.

Options include preparing a communications plan explaining the scoping process and the channels through which experts from stakeholder groups can provide input. Such material can be channeled to observer organizations and national focal points.

It is important to include representatives from all levels of government and a range of stakeholders and interested sectors, e.g. cities, civil society, youth & children, business, faith groups, etc. UN agencies, observer organizations and climate change networks can help identify representatives.

Pre-scoping meetings with different stakeholder groups can be organized to discuss priorities, and the output of these dialogues can be feed into the scoping process.

Scoping meetings can also consider the use of tagging, in consultation with stakeholders, which would enable users to pull up targeted sector-specific reports. In this case the scoping meeting could propose a preliminary list of tags.

Outreach

The IPCC Communications Strategy[4] already urges the IPCC to make its findings available and accessible to broader audiences outside the immediate policymaking community. The aim of outreach is to ensure that this is done effectively.

The IPCC could better define the various target audiences of its outreach activities as well as the objectives of communication with these audiences, bearing in mind the limits to IPCC resources and capacity, and the ability of third parties, including organizations such as UNEP and the WMO, to engage such audiences effectively. For instance, to what extent should the IPCC increase its communications to the general public? How can the IPCC reach children and what is the objective of communicating with them?

---

[3] IPCC Procedures Appendix A Section 4.1

[4] Communications Strategy Paragraph 5 http://www.ipcc.ch/meetings/session35/IAC_CommunicationStrategy.pdf

The Structured Expert Dialogue with the UNFCCC, the IPCC's main stakeholder, contributed effectively to the negotiation process, and such communication should be developed.

Outreach events offer an opportunity to draw out the relevance of IPCC findings to local conditions. One way is to involve authors from the host country or region. The Secretariat can work with hosts and partners to develop a programme that reflects regional priorities. And local hosts can identify suitable participants from stakeholder and practitioner groups, e.g. ministries, met offices, cities and municipalities, disaster risk management, water management etc.

As also discussed in Breakout Group A, IPCC authors can reach audiences more effectively with training in presentations for non-specialists, media training and speaker guidelines tailored for each event.

The Secretariat can prepare generic presentations, with validation by the Chair/co-chairs, which can be customized by individual authors for specific events.

Recent outreach activities have benefited from the participation of developing country delegates from neighbouring countries or other regions of the host country, supported by voluntary contributions from member states. The IPCC could look for ways to encourage and facilitate such cooperation in the future. The IPCC could also investigate the possibility of opening the Trust Fund and other funds to voluntary contributions, bearing in mind the risks of a conflict of interest.

Given the effort and resources involved, the IPCC should investigate how to evaluate outreach and compare the impacts with different audiences.

The IPCC should engage with organizations that take elements of IPCC Assessments and communicate them in more audience-specific ways (see discussion in Breakout Group B).

Social Media

The IPCC takes a conservative approach to social media, and could investigate how to broaden use to improve knowledge of the IPCC's findings, operations and activities. It could also analyse past social media use both for official communication and by the broader community of experts involved in IPCC reports to better understand the perception of the IPCC and its messages, the types of audiences that are reached, the accuracy of the messages, coherence between messages from different sources, and the potential for networking, e.g. with other UN organizations. Communications professionals may provide useful guidance in this evaluation.

Outreach events, and other IPCC activities if appropriate, can broaden their reach through webstreaming. Social media can also be used to deliver short videos (see also Breakout Group B).

Breakout Group D: Media Relations

Co-Chairs: Monica Araya, Tim Nuthall
Rapporteur: Heidi Cullen
Rapporteur for the IPCC Communications Strategy: Ko Barrett

This Breakout Group examined IPCC communication through the media, before, during and after the release of a report.

Like Breakout Group A, it found that Working Groups would benefit from the inclusion of communications specialists, such as science writers, to promote clarity and readability. The group also recommended the presence of staff or authors who would understand the public policy landscape and how news media might filter or handle some findings, especially controversial ones.

Pre-Release
Building relationships with the media must start well before the release of a report. It is important to brief media on how the IPCC works so that they understand the process. Attending industry conferences is one option.

The Chair/co-chairs and others can brief media before finalization, focusing on topics in the outline, not prejudging the final approved text.

Co-chairs and TSU and Secretariat communications staff should establish strategic communications objectives and start to develop key messages and FAQs at the time of the first-order draft. These will be refined at the time of the first SPM draft.

Take control of the inevitable leaks of review drafts. Despite significant efforts to keep them confidential, every draft was leaked during the last assessment cycle. The IPCC should plan for these leaks: do not confirm substance, but provide context from approved outlines. External scientists are freer to comment. Consider revising procedures so that official drafts are released to the public at the time of review, not after publication of the final report. Do not release rough early drafts (e.g. the "zero-order draft") that may diverge significantly from the final product. Owning the release of the draft ensures that the IPCC can directly handle questions from the media and help frame the emerging content of the report over the course of the approval process. In any case be transparent about the limits on transparency, and explain why some things are not open.

Convene editorial board meetings with key media for the Chair/co-chairs.

The media landscape and media technology will change. Be prepared to embrace new opportunities in 5-6 years, while continuing to recognize the role of radio and mobile.

The Release
Plan for a press conference on a Monday. The weekend is to allow accredited media to study the embargoed text, to allow time for the Chair/co-chairs and authors to rest, to allow member states to prepare and translate materials for their launches, and to prepare for the press conference. Rehearsal time is mandatory.

The launch of a report should be handled globally, backed by regional launches, and in a way that supports non-English speakers.

Interviews should be offered with a range of authors who have undergone media training. Include a local context in media training where possible.

Broadcasters and web-based media need professionally produced multimedia products including animations, infographics and video. As discussed by Breakout Group A, simpler versions of graphics should be produced for broadcasters and online media.

Given the IPCC's limited resources, it is important to rely on multipliers. Within the media, that is wire services. Building a network of networks, with their own communications capacity, can also be powerful: engage with institutions and sectors interested in climate science, and tap into communications officers at research organizations and scientific societies.

4 Side Event

Side Event – Children's Panel on Climate Change

The Children's Panel on Climate Change (Barnas Klimapanel) is a group of Norwegian children collecting information about climate change for children and presenting it to policymakers. They explained their work to participants of the meeting and then led a discussion. Topics discussed included how they could use IPCC materials, how they could interact with the IPCC, and how similar organizations could be set up in other countries. They reinforced the message that IPCC materials are often too complex for non-specialist audiences, and underlined the need for materials on climate change that are accessible to young people. Following the presentation they took part in the breakout session with Breakout Group C (stakeholders).

From left: Kristiane Reigstad, Kaja Nyland, Elida Haltbrekken Tveitdal, Sara Sørbye, Eliah Hudgins (back), Victor Larsen Steenberg (front), Jarl Erik Torghatten Halvorsen

From left: Kaja Nyland, Kristiane Reigstad, Elida Haltbrekken Tveitdal, Sara Sørbye   From left: Jarl Erik Torghatten Halvorsen, Victor Larsen Steenberg, Eliah Hudgins

5 Conclusions and Recommendations

Conclusions and Recommendations

The Expert Meeting, through discussions in breakout groups, came up with a long list of recommendations that would enable the IPCC to communicate more effectively in AR6.

Many of these ideas – from media training for authors to the use of FAQs, from explaining to journalists and other stakeholders how the IPCC works to presentations for young scientists, from the use of embargoes to cooperation on third-party derivative products – were already tried and tested in AR5. So it was useful to have them endorsed for the future. The forthcoming revision of the Communications Strategy will provide an opportunity to take up many of these recommendations.

The recommendations below are arranged thematically. But a number of general principles emerged from the Expert Meeting:
- Communications are an integral part of the report process and work on communications (e.g. considerations of clarity and working with specialists) should start at the outset of developing the assessment.
- Effective outreach requires engagement with stakeholders, also from the outset, to understand what they are looking for in an IPCC report.
- The media landscape is changing rapidly and the IPCC must be nimble and responsive so that it uses the best technology when future reports appear.
- Communicating IPCC findings to diverse audiences is a huge task. The IPCC cannot do it all. Third parties have an important role to play and the IPCC must define how it will work with them.

Detailed Recommendations
General
- The IPCC can't do everything in communications and there is a role for third parties.
    - The IPCC should clearly define the boundaries of its communications role, but should also define clearly how it intends to engage with third parties wishing to take its core material and make it more accessible to broader audiences. Third parties can draw on resources that go beyond the IPCC's funding possibilities.
    - The IPCC should make it clear that it is not responsible for third-party products.
- Update the IPCC Communications Strategy and especially its Implementation Plan to make it simpler, less prescriptive and more flexible.
- To reach broader audiences communications about the IPCC and its products should also be available in languages other than English.
- Given radically changing communications, the IPCC should be prepared to adapt its Communications Strategy and Implementation Plan between now and the release of the Sixth Assessment Report, and survey the communications technology and media landscape for new opportunities.
- Enhance cross-Working Group cooperation throughout the process, including scoping and drafting, and identify ways to implement this.
- Enhanced communication and outreach activities have financial implications: the Panel should explore ways to increase the availability of funding, including voluntary contributions from external stakeholders (paying regard to possible conflicts of interest).

Clarity, readability, access - general
- Involve communications specialists from a range of disciplines in the writing process (decision of the 41st Session of the Panel), from the scoping process onwards.
    - Communications skills should be taken into consideration in selecting author teams and TSU staff.

- Author teams should include or be supported by science writers (scientists, or journalists with a science background, who write professionally about science for non-specialist audiences), at least in the SPM team.

- Author teams or TSUs should include someone who can understand how stories are filtered through the news media and the public policy landscape and how this affects the reception of IPCC findings.

- Specialists from a range of communication disciplines including graphics designers and data visualists should be involved at all stages.

- Authors should be trained in writing and communicating, including the use of clear language, as budgetary resources allow. A guidance paper on writing (e.g. short sentences, no jargon) should be established with the help of professionals.

- The approach to graphics especially for the SPM should take account of the findings of communications science, e.g. psychological studies of how visual images are received and understood.

- Avoid the temptation to squeeze too much information into graphics that are difficult to understand, in an effort to comply with page limits.

- Use search tags in scoping and drafting to ensure material relevant to particular groups is readily accessible (Communications Strategy §5).

- Authors should receive training in giving presentations as well as media training (with provision of templates for consistency), as resources allow, and starting early on.

- Derivative products are often based on individual chapters so it is also important to pay attention to brevity, clarity and readability in the full report.

- While Assessments develop incrementally using previous Assessment Reports as a starting point, the Report itself should be written so as to be self-contained, setting out the current status of knowledge without repeated references to how things have changed since the previous Assessment.

- See proposal for Expert Meeting below.

Clarity, readability, access – summaries

- The report should be written clearly and elegantly, with particular attention paid in this regard to the Summary for Policymakers (SPM), Frequently Asked Questions (FAQs), Executive Summaries and Headline Statements.

  - Give priority to policy-relevant questions in the SPM. The SPM does not need to cover the findings of every chapter. It should be as short as possible, with page limits.

  - While a separate "Summary for Citizens" has been considered, possible improvements to the SPM rather than an additional summary would serve this purpose. It should have a clear storyline and should be conceived and written in a clear and highly accessible way, with the most important and relevant findings brought to the top, e.g. as an Executive Summary or through headline statements. It should be supported by communications materials in language and graphs tailored to needs of specific audiences.

  - This shorter text at the top of the SPM need not include all the detail of uncertainty statements, ranges and some other details and data although this information should be available in the "full" SPM.

- Explore possibilities for a report in a multilayer, interactive form to make it more usable for different users (implies an electronic rather than print report, and has human and budgetary resources implications).

- Recognize the importance of graphics in communicating with non-specialists.

  - Consider what approval process is needed for animated graphics.

  - Graphics should be tested for intelligibility during review.

  - Authors should be trained in developing graphics.

- Graphics may be simplified for the SPM, broadcasters and outreach, if needed.

- FAQs addressing key questions in the public domain, as done in the Fifth Assessment Report, should be used in all assessments. Science writers should be involved closely in the production of FAQs.

Engaging with stakeholders to enhance policy-relevance

- The most important stakeholders are the UNFCCC, governments and policymakers **at all levels**, and the rest of the UN system.
  - Secondary audiences include business, IGOs, NGOs, youth and children, educators, faith groups, general public, and media including weather forecasters.
  - Engage policymakers at all levels including local; pay attention to sectors e.g. cities, disaster risk management, water management, agriculture, health etc.
- Better define audiences and the objectives of communication with them, considering how to make information available and accessible (including in languages other than English) so that it is relevant to them, without harming the integrity of the approved text (enforcing Communications Strategy §§4 and 5).
- Engage with stakeholders from the outset to understand their priorities and requirements so that the report is policy-relevant. You cannot simply bolt on communications at the end and provide information to "ignorant" audiences (information deficit model); you must understand what information is relevant and how it should be presented. Many users seek practical and actionable information in an IPCC report that can inform their behaviour and response to climate change.
- Engage with organizations that take elements of IPCC assessments and communicate them in a more audience-specific format (derivative products).
- The Secretariat and TSUs will nominate appropriate organizations to the Chair/co-chairs.
- Seek greater input from stakeholder groups in the scoping process (Procedures Appendix A 4.1).
  - Co-chairs and working group vice-chairs are encouraged to identify audiences and stakeholders who should provide input; observer organizations as well as governments can help them.
  - Working groups should develop a methodology to get their input (e.g. encourage governments to consult with stakeholders and forward information; encourage governments to nominate representatives of stakeholder groups as experts to the scoping meeting; hold pre-scoping meetings with stakeholder groups).
  - Involve communications specialists in this process and prepare a scoping communication plan explaining the process and how experts from stakeholders may contribute.
  - Conduct a needs assessment with stakeholders for derivative products at the scoping stage.
  - Representatives from different levels of policymaking should contribute.
  - Ask UN, observers and climate change networks to identify communications experts.
  - Scoping should be an iterative process.
  - Keep in mind the end users of the SPM when structuring and writing it.
  - Hold informal discussions with stakeholders at the pre-scoping stage. Consider publishing transcripts of these discussions or dialogues even though they are not formally approved, or webcasting proceedings.

Other outreach

- Share IPCC reports at events organized by other organizations.
- Ensure that outreach activities reach various stakeholder groups with dedicated events (including materials and discussions in languages other than English) as possible and appropriate.
  - Ensure that authors from the host country or region, or from other developing countries, are speakers at outreach events held in developing countries.
- Include events for local young scientists in outreach activities.
- Open the Trust Fund and other funds, including working groups, to voluntary contributions from other stakeholders (paying regard to possible conflicts of interest).
- Create a communications network of networks that are able to become more engaged in the development of the report and are then more informed and engaged at the point when the report is launched. Encourage this network to take the report and communicate it to their trusted audiences.

- Engage broad range of institutions and sectors that have an interest in climate science.

- Tap into communications officers at research organizations and scientific societies; these professionals are trusted by scientists and by journalists covering science.

- Interact with associations/federations of science communications.

- Social media is important in building networks.

- Consider how to evaluate outreach, including how it worked for different audiences.

- List authors, with contacts, role in report and expertise, on the website, who are willing to take questions from governments and NGOs.

Press materials and media relations

- Begin pre-release relationships with media by attending journalism conferences to educate them and lay the groundwork for understanding the process and eventual findings.

- Offer pre-report briefings by co-chairs/Chair or authors they designate, without prejudicing eventual findings.

- Co-chairs and the communications team from the Secretariat and TSUs should meet starting with the production of the first-order draft to establish strategic communications objectives, develop key messages and talking points and develop FAQs.

- Ditto with the first draft of the SPM (NB key messages are a communications tool not to be confused with headline statements that are the responsibility of authors).

- Convene editorial board meetings with key media outlets involving the Chair/co-chairs.

- Hold local (but webcast) media briefings on fringes of all IPCC meetings (lead author meetings, expert meetings) to promote local awareness of IPCC.

- Media training for authors is important and time should be scheduled and protected. Training should be linked to an actual opportunity if possible and done in the region so authors get a regional media context.

- Launch reports on a global basis, drawing upon and supporting non-English speakers: hold a global press conference and where possible simultaneous regional press conferences using local authors and webcasting.

- Aim for press conferences on Monday (not Sunday) – to give authors time to rest, do embargoed interviews, practise talking points, prepare for the press conference and allow member states to prepare their own national outreach strategies including translating IPCC communications materials.

- Make embargoed materials (including the approved SPM, press release) available to accredited media to enable them to prepare thoughtful articles in advance of the press conference. Offer embargoed interviews to key media (e.g. wire services).

- Press releases should include key findings of assessments phrased in a way that can be cut and pasted by media.

- This, and production of press materials in general, requires careful cooperation between the Secretariat and Co-chairs/authors coordinated with the approval plenary process.

- Media briefings before and after the launch should explain IPCC processes, starting early in the process, and before the launch explain what is going to be in report (without prejudging exact findings).

- Brief media in a national or regional context.

Derivative products

- Encourage production of derivative products by third parties.

  - Such reports carry a clear disclaimer that they are not endorsed by the IPCC and that responsibility lies with the third party.

  - IPCC authors, co-chairs, Secretariat and TSU staff are encouraged to support these by reviewing for quality control, subject to availability of resources, including derivative products in languages other than English.

  - IPCC authors should be credited for their contribution.

    – Chair/co-chairs should select derivative products for inclusion on the IPCC website, on a third-party outreach page with a clear disclaimer.

    – Hard copies of such selected derivative products may be distributed at IPCC meetings and outreach events etc.

    – Encourage UNEP, WMO and other UN agencies to produce simplified guides (as they did in the past) for posting on their and IPCC websites.

- Help coordinate derivative products from major producers.

    – Consult stakeholders at or around scoping meetings on needs for derivative products.

    – Consider an open call for participation in such meetings; include representatives of groups interested in producing derivative products.

    – Invite stakeholders and those producing derivative products to take part in the development of the report as Expert Reviewers.

    – Organize meetings for them with authors during the review period (Procedures Appendix A 4.3.4.1).

Social media, other communications technology, website

- Investigate how the IPCC could use social media to improve knowledge of its findings and ways of operating and to obtain feedback on its communications and the needs of various stakeholders; review existing social media practice.

- Use professionally produced short video and animations, including graphics, upload in social media and translate (fewer talking heads, more spoken text and images), as resources allow.

- Work with children to produce child-friendly videos (or facilitate production by an appropriate third party).

- Consider videos about authors as a human-interest story explaining their background and research.

- Be aware of the evolving media landscape and the need for global focus, be open to new media in 5 years time, continue to recognize the role of radio (developing countries) and mobile.

- Enhance the IPCC website to make it more user-friendly, accessible and appealing to different audiences, with access to third-party products, and homogenize all websites.

    – Consider an IPCC children's website/portal.

Transparency

- Publish formal drafts of report at the time of review, with appropriate disclaimer (strong recommendation).

    – This requires media capacity (media advisory, co-chairs/authors available to provide context).

- If drafts remain confidential, plan for the inevitable leaks.

    – Recognize leaks will happen and plan for them in existing procedures.

    – Take control of the leak, not by confirming substance but by providing context from approved outlines etc.

    – Rely on relevant external scientists to help frame the response.

- Consider webstreaming and remote participation for some IPCC activities (not all processes should be open).

- Have a clear policy on transparency explaining why not everything is public – be transparent about the fact that there is non-transparency at some stages and explain why these decisions are taken when they are.

- Archive graphics and underlying data for transparency and traceability.

Proposed expert meeting (relevant to clarity, readability, access)

- The science of communicating climate change: including researchers from communications science and IPCC authors to better understand the psychological and technical questions and potential impacts of IPCC messages.

    – This expert meeting should pay special attention to questions of communicating risk and uncertainty.

Annexes

1. Background Information
2. Programme
3. List of Participants
4. Advance Papers
5. Recent Literature
6. Background Documents

Annex 1. Background Information

IPCC Expert Meeting on Communication
Oslo, Norway • 9-10 February 2016

At the 41st Session of the IPCC (IPCC-41) (Nairobi, Kenya, 24-27 February 2015), the Panel decided to organize a meeting with the mandate to share experiences, best practices and lessons learned from communication and outreach around the Fifth Assessment Report, and prepare a report for the 43rd Session. It agreed to include 20 journeys for this meeting in the forecast budget for 2016. The Norwegian Environment Agency (Miljødirektoratet) generously offered to host the meeting in Oslo.

The Acting Chair of the IPCC formed a Steering Committee consisting of the members at the time of the IPCC Communications Action Team (CAT) and external representatives. Its members are:

Former CAT:

- Ismail El Gizouli (former IPCC Acting Chair)

- Jean-Pascal van Ypersele (former IPCC Vice-Chair)

- Melinda Tignor (former Director of Operations, IPCC Working Group I Technical Support Unit (TSU))

- Katie Mach (former Science Director, IPCC Working Group II TSU)

- Patrick Eickemeier (former Head of Communications, IPCC Working Group III TSU)*

- Taka Hiraishi (former Co-Chair, Task Force on National Greenhouse Gas Inventories)*

- Kiyoto Tanabe (Co-Chair, Task Force on National Greenhouse Gas Inventories)**

- Leo Meyer (former Head, IPCC Synthesis Report TSU)

- Bruce Stewart (Acting Secretary, IPCC)***

- Jonathan Lynn (Head of Communications, IPCC)

----
* until October 2015
** from October 2015
*** until December 2015

External members:

- Øyvind Christophersen (Norwegian focal point for the IPCC)

- Rabelani Tshikalanke (South Africa Department of Environmental Affairs)

- Enrique Maurtua Konstantinidis (Fundación Ambiente y Recursos Naturales)

- Sussan Joy Hassol (Climate Communication)

- Monica Araya (Nivela)

Observers:
- Carlos Martin-Novella (Deputy Secretary, IPCC)
- Espen Larsen (Norwegian Environment Agency)

The Steering Committee met once in person (in Paris, during the 21st Conference of the Parties (COP21) of the United Nations Framework Convention on Climate Change) on 10 December 2015 and 10 times by conference call (21 August 2015, 1 September 2015, 16 October 2015, 27 October 2015, 19 November 2015, 5 January 2016, 12 January 2016, 20 January 2016, 27 January 2016, and 2 February 2016). The focus of these calls was agreeing the dates of the meeting,

finalizing the list to be submitted to the Chair of the IPCC of participants to be invited, and finalizing the goals and agenda of the meeting.

The Expert Meeting was held on 9-10 February 2016 in Oslo. A total of 72 participants attended the meeting, including 49 invited experts, of whom 19 from developing countries/economies in transition had their travel supported by the IPCC. The other participants were 10 from the preparatory Steering Committee (of whom 3 had their travel supported by the IPCC Trust Fund), 8 from the current IPCC Executive Committee and 5 from the Secretariat.

The meeting was chaired by Christian Bjørnæs, Communication Director of the CICERO Center for International Climate and Environmental Research, Oslo, Norway. About half of the meeting was devoted to presentations and about half to discussions in breakout groups on recommendations. A total of 25 advance papers were submitted ahead of the discussions, and can be found in Annex 4 of this report.

The costs of the meeting for the IPCC totaled CHF 77,034, consisting of travel support for invited experts, members of the Steering Committee, members of the current Executive Committee and Secretariat staff.

19 invited experts (developing countries/economies in transition)	CHF 51,611
3 members of the Steering Committee (developing countries/economies in transition)	CHF 8,321
3 eligible members of the Executive Committee	CHF 7,807
5 secretariat staff	CHF 9,248
Miscellaneous	CHF 47

In addition, the Norwegian Environment Agency hosted the meeting, and participants received support from governments and institutions, including the United Nations Framework Convention on Climate Change Secretariat, World Meteorological Organization, governments of Belgium, France, Germany, New Zealand, Norway, Switzerland, United Kingdom and United States, Cambridge Institute for Sustainability Leadership, Carbon Brief, Climate Outreach, European Climate Foundation, Finnish Meteorological Institute, Fordham University, Institute for Global Environmental Strategies, Quaker United Nations Office, Reuters Institute for the Study of Journalism, The B-Team, University of East Anglia, University of Queensland Global Change Institute, World Energy Council, Yale Program on Climate Change Communication, and Yale University.

The presentations covered general questions of communication, the particular constraints facing the IPCC in communications, the experience of communicating AR5 from the perspective of the authors and previous co-chairs, the experience of AR5 outreach from the perspective of governments, other policymakers and civil society organizations, how AR5 was reported by the media, and how other organizations communicate their climate assessments. The breakout groups examined readability, clarity, policy relevance – including the scoping process, use of communications experts, and use of multimedia; derivative products; outreach and communications with different stakeholders; and communicating through the media.

Plenary sessions of the Expert Meeting were webcast and about 500 people followed them. A recording of these can be found at: https://www.youtube.com/playlist?list=PL8HWK0G9m3B6T8SN_B1H4h6rhVlAjEFt4.

Annex 2. Programme

IPCC Expert Meeting on Communication
Oslo, Norway • 9-10 February 2016

Tuesday 9 February
(*08.00-09.00* registration)

1. *09.00-09.15* Formal opening
    Audun Rosland, director of the climate department, Norwegian Environment Agency
    Hoesung Lee, IPCC Chair *(via videoconference)*
    Chair: Christian Bjørnæs

2. *09.15-09.45* IPCC communication issues – constraints and opportunities
    Chair: Christian Bjørnæs
    Presenter: Jonathan Lynn
    Advance paper
    Advance paper on preparations for the release of AR5 and previous reports
    Current IPCC Communications Strategy
    IPCC Communications Strategy Implementation Plan
    AR5 Communications Strategy

3. *09.45-10.30* The AR5 experience – communications lessons from the authors
    Panel discussion with co-chairs and authors from AR5 who describe what worked and what did not in developing the report from a readability and access perspective, identifying key challenges and areas for improvement
    Panelists will be requested to submit brief advance papers, and highlight key points in opening statements of ~5 minutes to initiate the discussion
    Chair: Christian Bjørnæs
    Panelists: Chris Field, Leo Meyer, Pauline Midgley, Youba Sokona
    Advance papers

4. *10.30-11.15* The AR5 experience – lessons from outreach
    Panel discussion with representatives of governments and NGOs on AR5 outreach in developed and developing countries
    Panelists will be requested to submit brief advance papers, and highlight key points in brief opening statements of ~2-3 minutes to initiate the discussion
    Chair: Christian Bjørnæs
    Panelists: Øyvind Christophersen, Hunter Cutting, Jessica Dator-Bercilla, Christiane Textor, Rabelani Tshikalanke, Simbisai Zhanje
    Advance papers

5. *11.15-12.15* World Café (with coffee)
    The context for this discussion is that AR6 will probably appear in 2021/2022. How will we communicate its findings to the teenagers and young people (currently children) who will face the consequences of climate change that AR6 will describe? Already young people today tend not to get their information from conventional media such as newspapers and TV, or from books. The questions will be:
    – How can the IPCC communicate its often dense and technical material not only to policymakers but the wider world, bearing in mind that communications methods are changing fast?
    – What new stakeholder groups can the IPCC reach and how?
    – What new communications products can the IPCC use (including new types of derivative products, or new types of outreach activity)?

Hosts: Monica Araya, Øyvind Christophersen, Enrique Maurtua Konstantinidis, Katie Mach, Asher Minns, Rabelani Tshikalanke, Michael Williams, Mandy Woods, Jean-Pascal van Ypersele
Participants will be allocated to one of nine groups, which will each move between three tables for three sessions of 15 minutes each

6. *12.15-12.45* The JPI Study on Communicating AR5
   Chair: Monica Araya
   Presenter: James Painter
   Respondent: Laura Gallardo
   (Panelists from previous sessions encouraged to comment)
   Advance paper on JPI study
   Advance paper: *compilation of recent relevant research and publications*

7. *12.45-13.30* Climate communications – other assessments
   This will also touch on questions such as training scientists in presentations for non-specialists, and use of photos
   Chair: Monica Araya
   Presenter: Susan Joy Hassol
   Advance paper

8. *13.30-14.30 Lunch*

9. *14.30-17.15* Breakout sessions to develop recommendations for the Panel (coffee available *16.00*):

   NB 1: Recommendations should also address specific issues in developing countries.

   NB 2 Recommendations should consider any resource implications, and should also consider the communications role of National Focal Points and Technical Support Units.

   NB 3: Participants are encouraged to move between groups. If moving between groups, it is recommended to do so at 16.00 on Tuesday and at 11.15 or after lunch on Wednesday.

   NB 4: Co-Chairs and rapporteurs will also develop recommendations for updating the IPCC Communications Strategy (and Implementation Plan), with help from participants dedicated to this task. (Pauline Midgley, Rapporteurs for the Communications Strategy for each breakout group).

   i.   *14.30-15.00* Reports back from World Café by hosts; briefing on role of breakout sessions and participation in different breakout groups
        Chair: Christian Bjørnæs

   ii. *15.00-17.15* Breakout sessions

   A.   Recommendations on improving readability, clarity and policy relevance of the IPCC reports (including scoping; use of language experts, science writers, graphics designers; summary for citizens of the world; translation; training on presentations; use of video, animations and graphics)
        Co-Chairs: Richard Black, Debra Roberts
        Rapporteur: John Cook
        Rapporteur for Communications Strategy: Christiane Textor
        Participants to include: David Budescu
        Advance papers

   B.   Recommendations on derivative products (including any formal or informal role for the IPCC; development of presentations for non-specialists)
        Co-Chairs: Leo Meyer, Simbisai Zhanje
        Rapporteur: Joyashree Roy
        Rapporteur for Communications Strategy: Youba Sokona
        Participants to include: Eliot Whittington
        Advance papers

C. Recommendations on communications with stakeholders (including scoping, outreach and social media; stakeholders include children; presentations for non-specialists)
    Co-Chairs: Rabelani Tshikalanke, Jean-Pascal van Ypersele
    Rapporteur: Jessica Dator-Bercilla
    Rapporteur for Communications Strategy: Eduardo Calvo
    Participants to include: Andreas Fischlin; Paul Lussier
    Advance papers

D. Recommendations on communications with and through media (including communications before a report is finalized, use of external resources, the launch process, media training, transparency of IPCC meetings and activities)
    Co-Chairs: Tim Nuthall, Monica Araya
    Rapporteur: Heidi Cullen
    Rapporteur for Communications Strategy: Ko Barrett
    Participants to include: Lance Ignon, Jill Peeters
    Advance papers

10. *17.30-18.15* Reports of Day 1 breakout sessions and follow-up discussion
    To include some written material or slides
    Chair: Christian Bjørnæs

11. *18.15-18.30* Compilation of Day 1 Twitter comments (#IPCCOslo)
    Presenter: Nina Peeva

12. *19.00-21.30* Visit to Ski Museum and Holmenkollen ski jump tower with dinner, followed by guided tour in groups and talk about importance of snow to countries like Norway and challenges posed by climate change
    Buses will leave the meeting venue at 18.30 and go directly to the museum/ski jump (not via hotels). Transport will be arranged back to the hotels afterwards.

Wednesday 10 February

13. *08.00-09.00* Meeting of breakout group co-chairs and rapporteurs to discuss recommendations for communications strategy

14. *09.00-09.15* Recap of previous day, discussion of cross-cutting issues including social media, training authors, products not approved by the Panel, involvement in third-party products.
    Chair: Christian Bjørnæs

15. *09.15-09.45* Tackling misinformation and misconceptions
    Chair: Christian Bjørnæs
    Presenter: John Cook
    Advance paper

16. *09.45-10.30* Beyond the transmission belt – "upstream" communications and stakeholder values
    Chair: Christian Bjørnæs
    Presenter: Paul Lussier
    Respondent: Beth Holland
    Advance papers

17. *10.30-12.15* Breakout sessions (as above) (coffee available at 11.00)

18. *12.15-13.45* Lunch
    Side event – Children's Panel on Climate Change (Barnas Klimapanelet)
    – Presentation by Children's Panel on Climate Change
    – Discussion on communicating climate change to young people

19. *13.45-15.15* Breakout sessions contd.

20. *15.15-16.00* Break for rapporteurs to prepare reports

21. *16.00-16.45* Reports of breakout sessions, follow-up discussion (coffee available at 16.00)
    Chair: Christian Bjørnæs
    Rapporteurs: Christine Textor, Joyashree Roy, Jessica Dator-Bercilla, Heidi Cullen, Pauline Midgley

22. *16.45-17.00* Compilation of Day 2 Twitter comments (#IPCCOslo)
    Presenter: Nina Peeva

23. *17.00-17.15 Conclusions and explanation of next steps*
    Presenter: Jonathan Lynn

Annex 3. List of Participants

IPCC Expert Meeting on Communication
Oslo, Norway • 9-10 February 2016

Imelda ALBAÑO
Philippines EnviroNews
PHILIPPINES

Mercedes ANDRADE
National Autonomous University of Mexico
MEXICO

Claudio ANGELO
Observatório do Clima
BRAZIL

Monica ARAYA
Nivela
COSTA RICA

Yunwen BAI
Greenovation Hub
CHINA

Jesbin BAIDYA
IPCC Secretariat

Hoda BARAKA
350.org
EGYPT

Ko BARRET
IPCC Vice-Chair
National Oceanic and Atmospheric Administration
UNITED STATES OF AMERICA

Christian BJØRNÆS
Centre for International Climate and Environment
(CICERO)
NORWAY

Richard BLACK
Energy and Climate Intelligence Unit
UNITED KINGDOM

Gabriel BLANCO
Universidad Nacional del Centro
de la Provincia de Buenos Aires
ARGENTINA

David BUDESCU
Fordham University
UNITED STATES OF AMERICA

Eduardo CALVO
Co-Chair: IPCC Task Force on National Greenhouse
Gas Inventories
Universidad Nacional Mayor de San Marcos
PERU

Øyvind CHRISTOPHERSEN
Norwegian focal point for the IPCC
Norwegian Environment Agency
NORWAY

Maite CIGARAN
Libélula
PERU

John COOK
University of Queensland
AUSTRALIA

Lindsey Fielder COOK
Quaker United Nations Office
GERMANY

Adam CORNER
Climate Outreach
UNITED KINGDOM

Heidi CULLEN
Climate Central
UNITED STATES OF AMERICA

Hunter CUTTING
Climate Nexus
UNITED STATES OF AMERICA

Jessica DATOR-BERCILLA
Christian Aid
PHILIPPINES

Suraje DESSAI
University of Leeds
UNITED KINGDOM

Ahmed DJOGHLAF
Co-Chair: Ad-hoc group on the Durban Platform, United Nations Framework Convention on Climate Change
ALGERIA

Surveyor EFIK
Climate Change Network Nigeria
NIGERIA

Argelia FERNÁNDEZ
Environment Cuba
CUBA

Chris FIELD
Co-Chair: IPCC AR5 Working Group II
Carnegie Department of Global Ecology
UNITED STATES OF AMERICA

Andreas FISCHLIN
Vice-Chair: IPCC Working Group II
ETH Zurich
SWITZERLAND

Jan FUGLESTVEDT
Vice-Chair: IPCC Working Group I
CICERO - Centre for International Climate and Environmental Research - Oslo
NORWAY

Laura GALLARDO
Universidad de Chile
CHILE

Evelyne GBE DEBA
United Nations Environmental, Scientific and Cultural Organisation
COTE D'IVOIRE

David HANSFORD
Writer, Editor, Blogger and Photographer
NEW ZEALAND

Susan Joy HASSOL
Climate Communication
UNITED STATES OF AMERICA

Beth HOLLAND
Pacific Centre for Environment and Sustainable Development
FIJI

Lance IGNON
IPCC Secretariat

Enrique Maurtua KONSTANTINIDIS
Fundación Ambiente y Recursos Naturales
ARGENTINA

Nina KUKKURAINEN
Finnish Meteorological Institute
FINLAND

Espen LARSEN
Norwegian Environment Agency
NORWAY

Hoesung LEE
IPCC Chair
University of Korea
REPUBLIC OF KOREA

Anthony LEISEROWITZ
Yale Programme on Climate Change Communication
UNITED STATES OF AMERICA

Paul LUSSIER
Yale University
UNITED STATES OF AMERICA

Jonathan LYNN
IPCC Secretariat

Katie MACH
Head of Science: Technical Support Unit, IPCC AR5 Working Group II
Carnegie Department of Global Ecology
UNITED STATES OF AMERICA

Valérie MASSON-DELMOTTE
Co-Chair: IPCC Working Group I
University of Paris-Saclay
FRANCE

Leo MEYER
Head: Technical Support Unit, IPCC AR5 Synthesis Report
THE NETHERLANDS

Pauline MIDGLEY
Head: Technical Support Unit, IPCC AR5 Working Group I
GERMANY

Asher MINNS
Tyndall Centre UEA and Future Earth Europe
UNITED KINGDOM

Paul MONARE
South African Broadcasting Corporation
SOUTH AFRICA

Stuart NEIL
World Energy Council
UNITED KINGDOM

Tim NUTHALL
European Climate Foundation
BELGIUM

Nick NUTTALL
United Nations Framework Convention on Climate
Change (UNFCCC)

James PAINTER
Reuters Institute for the Study of Journalism
UNITED KINGDOM

Jill PEETERS
VTM News
BELGIUM

Nina PEEVA
IPCC Secretariat

Roz PIDCOCK
Carbon Brief
UNITED KINGDOM

Hans Otto PÖRTNER
Co-Chair: IPCC Working Group II
University of Bremen
GERMANY

Debra ROBERTS
Co-Chair: IPCC Working Group II
EThekwini Municipality
SOUTH AFRICA

Joyashree ROY
Jadavpur University
INDIA

Jim SKEA
Co-Chair: IPCC Working Group III
Imperial College London
UNITED KINGDOM

Youba SOKONA
IPCC Vice-Chair
The South Centre
SWITZERLAND

Per Espen STOKNES
Norwegian Business School
NORWAY

Kiyoto TANABE
Co-Chair: IPCC Task Force on National Greenhouse Gas
Inventories
Institute for Global Environmental Strategies
JAPAN

Christiane TEXTOR
German IPCC Coordination Office
GERMANY

Melinda TIGNOR
Head: Technical Support Unit, IPCC Working Group II
GERMANY

Rabelani TSHIKALANKE
South Africa Department of Environmental Affairs
SOUTH AFRICA

Keith TUFLEY
The B Team
SWIZERLAND

Eliot WHITTINGTON
Cambridge Institute of Sustainability Leadership
UNITED KINGDOM

Michael WILLIAMS
World Meteorological Organization

Mandy WOODS
WWF International Global Climate and Energy Initiative
SOUTH AFRICA

Xueyan YANG
Beijing Foreign Studies University
CHINA

Jean-Pascal van YPERSELE
IPCC AR5 Vice-Chair
Université catholique de Louvain
BELGIUM

Werani ZABULA
IPCC Secretariat

Simbisai ZHANJE
SouthSouthNorth
SOUTH AFRICA