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Climate services for a net zero resilient world

AR7 Idea Generation Workshop

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About CS NOW

Commissioned by the UK Department for Energy Security & Net Zero (DESNZ), Climate Services for a Net-Zero Resilient World (CS-N0W) is a 4-year, £5.5 million research programme, that uses the latest scientific knowledge to inform UK climate policy and help us meet our global decarbonisation and resilience ambitions.

CS-N0W enhances scientific understanding of climate impacts, decarbonisation, and climate action, and improves the accessibility of the UK's climate data. It contributes to evidence-based climate policy in the UK and internationally, and strengthens the climate resilience of UK infrastructure, housing, and communities.

The programme is delivered by a consortium of world leading research institutions from across the UK, on behalf of DESNZ. The CS-N0W consortium is led by Ricardo and includes research **partners Tyndall Centre for Climate Change Research**, including the Universities of East Anglia (UEA), Manchester (UoM) and Newcastle (NU); institutes supported by the **Natural Environment Research Council (NERC)**, including the British Antarctic Survey (BAS), British Geological Survey (BGS), National Centre for Atmospheric Science (NCAS), National Centre for Earth Observation (NCEO), National Oceanography Centre (NOC), Plymouth Marine Laboratory (PML) and UK Centre for Ecology & Hydrology (UKCEH); and **University College London (UCL)**.

RICARDO Tyndall Centre for Climate Change Research UKRI Natural Environment Research Council UCL

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Acronyms

Acronym	Definition
AI	Artificial Intelligence
AR6	IPCC Sixth Assessment Report
AR7	IPCC Seventh Assessment Report
CAU	Climate Action Unit
CCS	Carbon capture and storage
CCU	Carbon capture and utilisation
CDR	Carbon Dioxide Removal
CID	Climate Impact Drivers
CLAs	Coordinating Lead Authors
CS-N0W	Climate Services for a Net Zero Resilient World
DESNZ	Department for Energy Security and Net Zero
FP	Focal Points
GCF	Green Climate Fund
GGA	Global Goal on Adaptation
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
LAs	Lead Authors
LDCs	Least Developed Countries
NBS	Nature Based Solutions
NDC	Nationally Determined Contributions
SDGs	Sustainable Development Goals
SIDS	Small Island Developing States
SMEs	Small and medium-sized enterprises
TSU	Technical Support Unit
UNFCCC	United Nations Framework Convention on Climate Change
WG	Working Group
WMO	World Meteorological Organization

1. EXECUTIVE SUMMARY

This report presents a thematic analysis of the ideas generated during the **Exploring Ideas for the IPCC Seventh Assessment Report** (AR7) workshop. The workshop was held at the Royal Society in London on 18 and 19 September 2023 with approximately 170 policymakers, practitioners, and IPCC authors from 62 countries.

The aim of the workshop was to explore how to make IPCC reports more **actionable** – a need expressed by **end users** of the reports (policymakers, practitioners, finance and business decision makers, etc.). Here, 'actionable' means providing information that helps someone to understand *how to take action*. It is distinctive from being 'policy prescriptive', which is telling someone *what they should do.*

In a participatory workshop format, IPCC authors, policymakers and practitioners **co-created** ideas that speak to this aim. These fall into three categories:

1. Participants developed **practical ideas** to make IPCC reports more actionable for end users. Some of these would need to be adopted by the IPCC itself. Others can be implemented by individuals and organisations wishing to support the IPCC in making its reports more actionable. Three major themes emerged:
    a. The need to **assess solutions** to climate change – rather than continue to assess climate change as a problem.
    b. The need to reconsider the assessment and structuring of **regional information**, especially on risk, vulnerability and adaptation.
    c. The need to include processes and engagement steps to **better understand the decision-making needs of end-users** of the IPCC reports.
2. Participants reported **new ideas on the role they could play themselves** in making IPCC reports more actionable. These were ideas for:
    a. Novel research and assessment methodologies to be published in the peer-reviewed literature so that they can feed into the assessment for AR7.
    b. How to encourage wider participation, support IPCC authors during the assessment process, or support the wider operation of the IPCC.
    c. How to better communicate IPCC outputs or engage with different end-user communities in scoping and using IPCC outputs.
3. Finally, the workshop also prompted **recurring points of conversation** and/or differences of opinion that are hard to resolve. These are symptomatic of the complex and multifaceted nature of climate change. We will discuss some of these recurring points to highlight **how change can happen,** and **how it can get stuck**.

Taken together, the findings of the workshop lead to the conclusion that all IPCC stakeholders have an active part to play in **identifying and pursuing actions – relevant to their own role – to make IPCC reports more actionable**. Suggestions for different types of actors based on their role are set out in the next section.

1.1 HOW TO NAVIGATE THE REPORT – A ROADMAP

Section 2 sets out the key messages from the workshop in the form of suggested actions to make IPCC outputs more actionable – grouped by role and phase in the IPCC process.

Section 3 presents a high-level analysis of the written materials produced during the workshop. The analysis provides information on how the suggested actions in Section 2 follow from the activities and discussions that took place during the workshop.

Section 4 provides details regarding the objectives and structure of the workshop, to provide all relevant information to those wishing to conduct similar workshops.

Section 5 briefly highlights the outcomes of a side event in the UK Pavilion at COP28 that presented initial findings from the workshop.

The **Appendices** provide verbatim the written materials generated by participants.

2. SUGGESTED ACTIONS AND POINTS OF INTERVENTION

The below suggestions are primarily based on the materials from the workshop, though some are informed by pre-workshop interviews undertaken to inform the workshop, as well as discussions since the workshop. These suggestions should not be taken as prescriptive – they are not telling people *what* they should do. Instead, they are showing potential points of intervention. This means that if someone takes an action based on that suggestion, they can expect to contribute to making IPCC outputs more actionable.

The suggestions are grouped by intervention area:

1. Suggestions for researchers
2. Suggestions for research calls and funding processes
3. Suggestions for the IPCC reports scoping phase
4. Suggestions for the selection of author teams
5. Suggestions for author preparation and support
6. Process suggestions for Focal Points
7. Process suggestions for the Bureau

Some of these map clearly onto a community (e.g. ‘researchers’), others are an important phase in the IPCC process in which people with different roles participate (e.g. ‘scoping’).

As noted above, the two major content areas that participants in the workshop identified as needed in an actionable IPCC report were the need to **assess solutions**, and to reconsider the assessment and structuring of **regional information**. In the Sixth Assessment Report (AR6), WGI already provides high-level regionalised content (in the atlas), whereas WGII has regional chapters for all regions of the world. The many asks for more or differently structured regionalised information (certainly for WGII) could have multiple underlying reasons:

1. the required scientific data does not yet exist (i.e., there are research gaps)

2. the regional information included in the report does not speak to the real needs of decision makers (i.e., the content has a policy-relevance problem)
3. the regional chapters are structured such that decision makers cannot easily find what they need (i.e., the problem is one of structuring the information)

It is unclear to what degree these 3 factors apply to specific chapters or sections; all could apply in different measure. This leads to different suggestions for research and scoping below.

The third major area of ideas is not about content for the report, but is to maintain a focus on end-users and understanding / speaking to their needs, to ensure that the science community works to satisfy **real end-user demand** rather than **assumed demand**.[1]

2.1 SUGGESTED ACTIONS FOR RESEARCHERS

These are suggestions for the research community for actions to undertake outside of the IPCC process, but in time for research outputs to become assessable in IPCC AR7.

2.1.1 Suggestions for research serving as content for the IPCC reports

Researchers can conduct research that can feed into the IPCC process in at least three ways:

1. By conducting primary research where data and evidence gaps exist, and then publishing papers about this research in time for the assessment process.
2. By creating new products (e.g., case-study databases or catalogues), and then publishing papers about these products that become assessable in IPCC AR7.
3. By producing systematic reviews where the evidence already exists but is fragmented, perhaps even dissipated across multiple disciplines.

Table 1 contains a 2x3 grid in which specific ideas that came up in the workshop can be placed according to the research focus area and research mechanism.

Table 1. Research recommendations, based on ideas from the workshop

Report content recommendations	**Primary research where data gaps exist**	**Creation of products that become reviewable and assessable**	**Systematic reviews where evidence already exists but is fragmented across disciplines**
Focus on solutions: research and assessment of implementation and deployment	Examining similarities between adaptation and mitigation at the project	1. Construction of databases / catalogues of mitigation and adaptation projects	1. Nature-based solutions 2. Potential and limitations of CDR 3. System transitions

[1] This point has been made several times in the research literature, for example: Findlater, K., Webber, S., Kandlikar, M. *et al.* Climate services promise better decisions but mainly focus on better data. *Nat. Clim. Chang.* **11**, 731–737 (2021). https://doi.org/10.1038/s41558-021-01125-3

issues: what works where and why?	implementation level	2. Reviews of existing portfolios of solutions (e.g. GCF-funded projects)	
Focus on regional info. or info. that links multiple geographical scales, especially on hazards, vulnerability and adaptation	Regional data for risk and vulnerability assessment in regions where the scientific data does not yet exist	Databases or repositories bringing existing regional info. together	What hazards, vulnerability and adaptation data exists for which geographical area, and what is missing?

2.1.2 Suggestions for methodology development

A second area of suggested research actions is not on producing *content* for AR7, but on methodological developments that can contribute to a more actionable IPCC. These include:

1. **Creation of robust assessment methodologies that go through peer review so that they are ready for use in the AR7 assessment process.** The pre-workshop interviews revealed that in some AR6 chapter teams, new assessment methodologies had to be developed by author teams as part of the assessment process. The ability to devote effort to the development of these methodologies was limited by the time constraints of the assessment cycle. In other chapter teams, authors said, *"We couldn't do X because we didn't have the time or mandate to develop the assessment methodology for X."* Across the workshop itself, there were repeated asks for certain kinds of methodologies that are either non-existent, or where it is unknown whether these methodologies exist in other disciplines. For example:
    a. How to robustly assess grey literature on the implementation and deployment of adaptation projects. 'Grey literature' in this context refers to project reports written by adaptation practitioners that have not undergone peer review.
    b. How to robustly assess grey literature on the implementation and deployment of mitigation projects. 'Grey literature' in this context can refer to national reports (e.g. on NDCs) and project reports written by mitigation practitioners.
    c. How to integrate different knowledge systems to allow for the integration of e.g. indigenous and local knowledge alongside scientific knowledge.
2. **Developing robust methodologies for bringing end-users into dialogue from the outset of the research** so that they can help shape the research to satisfy their needs. This contrasts with the 'traditional' way where researchers conduct research, and then think about 'stakeholder engagement' on the findings of the research. Although there is burgeoning literature on co-production, much of it is aspirational and/or not relevant to the context of making IPCC outputs more actionable for decision makers. This

assertion is supported by an increasing number of academic papers pointing out that the promises of science/decision-maker co-production in the context of climate change has so far not escaped **assumed demand**: researchers continue to produce research on what they *think* decision makers need, rather than what they really need.[2]

3. Other methodological developments, such as research on how AI technology could be used for systematic reviews and assessments, for the automated creation of outputs that are tailored to specific end-user groups, or for language translation. As elsewhere in the academic community, this is a controversial suggestion, with strong proponents and opponents on either side of the debate. During the workshop, the potential of AI was suggested many times. To develop these methods in an appropriate manner would require the involvement of AI and technology researchers outside of the IPCC assessment process– hence its inclusion here as a separate area of development.

2.2 SUGGESTIONS FOR RESEARCH CALLS AND FUNDING PROCESSES

Research funders have an important role to play in enabling the research outlined above. This manifests itself in three suggestions for research calls, and three suggestions for rethinking how these research calls are constructed and how funding is decided.

1. Research funders can produce focused calls to fund research on the two main research gaps outlined above (assessing solutions and providing regionalised information).
2. Research funders can produce calls to fund research on the methodology development topics mentioned above (e.g. on robust co-production methodologies; on integrating knowledge systems; on using AI in systematic reviews and assessments, etc.)
3. Research funders can make specific funding streams available for the production of systematic reviews that bring together fragmented disciplinary evidence to streamline the IPCC assessment process. This approach is institutionalised in the medical sciences (e.g. Cochrane Reviews), but barely exists in the environmental sciences.

There are three process suggestions for research funders to make this process work:

1. **Timeframes**: to have an influence on AR7, this research needs to be conducted in a timescale appropriate for the assessment cycle. Lessons learned from accelerated research funding streams during COVID may be applicable here.
2. **Co-production**: it would help to bring scientists and decision makers together in co-production workshops to scope the research calls before the research even begins, to respond to real demand rather than assumed demand, as mentioned above. UK Research and Innovation has a precedent that comes close to this process in the guise of ‘sandpits’. These are residential interactive workshops that bring researchers together with independent stakeholders to scope out innovative research approaches. These have been used in the past in other research domains but so far not on climate change. Practices used in other national contexts may serve as inspiration too. For example, in the written materials generated in the workshop, a reference was made to

[2] See n1 and also Section 4 of the report.

the ‘German model’ of research funding, which we assume is the Fraunhofer model of funding science-practitioners together.

3. **Building the capacity of reviewers to distinguish assumed demand from real demand**. Even if a funding call is co-produced with decision makers, and even if a research team writes a proposal that speaks to a real demand from those decision makers, then the proposal can still stumble and fall in the peer review process. This often happens because reviewers that come from a more traditional academic background are not well equipped to think about or understand decision-maker needs. They are likely to judge the proposal primarily on ‘novelty’ – the main currency on which peer-review decisions are based. They are also likely to bring their own ‘assumed demand’ into the peer review process. Although research funders often brief reviewers on the focus of a review process, on its own such a briefing is unlikely to overcome the problem. More would need to be done by research funders to build the capacity of potential reviewers for reviewing proposals that speak to actual decision maker needs.

2.3 SUGGESTIONS FOR THE IPCC SCOPING PROCESS

The scoping of different reports and chapters of AR7 is a key moment to influence content and structure of the AR7 outputs. There are 2 suggestions relevant to the 2 content areas:

1. **Assessing solutions**: during the workshop, the ask for actionable information in the form of an assessment of what has worked and why surfaced again and again. If every relevant WGII and WGIII chapter team would put *‘assessing implementation and deployment issues’* at the top of a priority list when scoping the chapter, this would change the chapter structure by foregrounding the solutions-focused literature that policymakers are asking for. This is currently not being done systematically, but can be achieved by changing the focus in the scoping. Paraphrasing an AR6 author in one of the pre-workshop interviews: *“The literature on deployment and implementation issues of mitigation projects in our sector isn’t thin on the ground, but we weren’t explicitly told to assess that literature. We tried to do it anyway, but it was an afterthought.”*.

2. **Regionalised information**: it is perplexing that the ask for regionalised information is the strongest in the context of WGII (risk, vulnerability and adaptation) where regional chapters already exist. As pointed out above, this can be because the scientific data does not yet exist; because the provided information does not speak to decision-maker needs; or because decision makers cannot find the information in the current structure of the report. Whereas the research gap can be resolved with research actions (see the relevant suggestions in **Section 2.1**), and the decision-relevance of the provided information needs to be worked out in collaboration with end users, a restructuring of the regional chapters may also help. At least three participant teams asked for a restructuring of regional content in WGII. The rationale for this ask is that, for example, ‘Asia’ and ‘Africa’ are not homogenous regions in terms of impacts. They consist of at least 4-5 different sub-regions where impacts are experienced differently, and require different adaptation responses. A restructuring of the regional information along homogeneous sub-regional lines may improve the policy relevance and actionability of regional information on risk, vulnerability and adaptation.

2.4 SUGGESTIONS FOR AUTHOR SELECTION

The diversity of author teams is often seen as an important driver of making IPCC reports more policy relevant. But generic calls for diversity need to be translated into specific outcomes envisaged for increasing a certain type of diversity (geographical or professional). A few specific ideas for author selection and diversity of author teams came up in the workshop that can serve as blueprints for that need for specificity:

1. A participant noted that IPBES had started to address the intersection of climate change and biodiversity loss in a bottom-up fashion through bringing climate experts into author teams, cross-fertilising areas of expertise.
2. During the workshop, the similarity between adaptation and mitigation projects at the implementation level came out of a conversation between adaptation and mitigation experts. This is an example of the benefit of having different kinds of experts engage with each other. AR6 already contained examples of cross-WG collaborations, but there was a repeated ask in the workshop to take cross-WG collaborations to the next level. This applied specifically to softening the boundaries between adaptation and mitigation put in place by the separation between WGII and WGIII. The IPBES example is applicable here: by having a greater mix of experts in relevant chapter teams, the adaptation/mitigation separation can be reduced in a bottom-up fashion.
3. On adaptation specifically (WGII), the need for more practitioner participation came up several times in the pre-workshop interviews and in the workshop itself. Interestingly, for some regional chapters (like the Africa chapter) lack of practitioner perspectives may have been less of a problem: because of under-resourcing of adaptation work, authors often wear professional hats as academic researchers *and* as adaptation practitioners. In other regional contexts, where there is a larger separation of adaptation researchers and practitioners, it could be beneficial to link professional associations of adaptation practitioners into the IPCC process. Several participants mentioned that they would liaise with the associations they were part of. This recommendation could be followed up by focal points in national contexts or at the level of the IPCC itself.

2.5 SUGGESTIONS FOR AUTHOR PREPARATION AND SUPPORT

Among the many different views on how authors should prepare for participating in the assessment process, one that stood out in particular is the fact that first-time authors are often ill-equipped to carry out the type of assessment expected in the IPCC process (which, current authors pointed out, is not the same as conducting a literature review common in academic work). This can lead to bruising encounters later in the cycle when Coordinating Lead Authors (CLAs) override decisions and cut content of those ill-equipped authors. One recommendation to resolve this would be a training for all authors on how to perform IPCC-style assessments, tailored to the context of the particular working groups and chapters. If this training cannot be delivered via the IPCC itself, then it could be offered in a more bottom-up fashion, through e.g. countries offering this to their national author teams; or on an ad-hoc basis by experienced authors to first-time authors in the same network or institution.

Many demands were levelled at the role of the CLAs, who do not only need to be technical experts but also need to be good people managers (of the chapter teams). A few participants offered that, as experienced CLAs from previous assessment cycles, they could mentor a new CLA. This can proceed based on individual initiatives, but focal points could try to institutionalise this for national author teams; or the IPCC itself could institutionalise it by providing a match-making service between potential mentors and mentees.

On author participation, several existing IPCC authors also mentioned that they would encourage colleagues to participate in IPCC processes by sharing their experiences as an author, and by helping junior colleagues to understand the IPCC and how they can contribute. These personal actions that participants in the workshop said they would undertake can also be supported at a national level, or at the level of the IPCC itself.

2.6 PROCESS SUGGESTIONS FOR FOCAL POINTS

Focal points (FPs) have a role to play in preparing the national context for involvement in the IPCC process, and engagement with IPCC outputs. At the end of the workshop, FPs themselves suggested actions they were thinking of taking back to their national contexts. These examples can serve as inspiration for FPs in other contexts.

1. **Actions to widen national participation in the IPCC process**. FPs mentioned mapping their national scientific communities, contacting national scientists directly to ask them to become involved in the IPCC, building national networks of relevant scientists, and connecting with existing networks of scientists to widen participation.
2. **Actions to support IPCC authors during the assessment cycle**. FPs mentioned providing government support for national IPCC authors through setting up national networks, or by providing facilitation support to national author teams. This could take the form of providing professional facilitation support to CLAs to help them structure and deliver chapter team meetings to be run more effectively and equitably.
3. **Actions focussing on user needs**. FPs mentioned they could do more to work on national-level user needs, and on establishing mechanisms to address these needs. They also mentioned working with other colleagues in policy to understand how they could better feed end user needs into the IPCC process (through e.g. a national position during the scoping phase). This last example, in particular, would be useful in bringing an enhanced end-user perspective into the scoping. For example, FPs could first consider their requests for what the synthesis report needs to contain to be actionable, and then consider how that feeds into their requests for the other reports.
4. **Actions to engage stakeholders on IPCC outputs**. FPs frequently recognised that the IPCC itself could not do everything that decision makers at a national level require. Examples of the role they envisaged playing here included: running webinars with key stakeholders on translating IPCC outputs to regional or sectoral contexts; doing more to socialise IPCC outputs in national institutions; and building the capacity for translation and downscaling of IPCC global reports to the local level. Especially on the latter, examples of good practices already exist, and more could be done to share these good practices between countries. To give an example, during the pre-workshop interviews,

it emerged that in Bangladesh a national research institute had taken the responsibility to translate and downscale the information on risk and adaptation in WGII of the AR6 report to the needs of sub-national decision makers. Bangladesh is now also involved in a network of neighbouring countries to share those best practices. Actions of this type could deal with the demands for more regional information that were prevalent in the workshop, in a way that would not increase the burden on the IPCC itself.

2.7 PROCESS SUGGESTIONS FOR THE BUREAU

The Bureau plays a role in enabling and supporting some of the suggestions made in previous sections (for example, in prioritising a solutions focus during the scoping of relevant WGII and WGIII chapters). The responsibility for implementing the following recommendations would lie completely or mostly with the Bureau.

1. **Creating a draft outline of the Synthesis Report (SYR) first, with an action focus**. The suggested idea is to provide a narrative outline of the SYR first, starting from the perspective of what end-users would need from the SYR, and to use that overarching structure to support the scoping of the WG reports. This would ensure that all reports remain focussed on the key outcomes agreed by end-users for the SYR.

2. **There is a need to adopt more robust, evidence-based decision-making processes to avoid group think – especially for large scoping decisions.** Big, consequential decisions are taken during the scoping process in a way that is not structured, and is not grounded in good decision-making practices. One example of that is on adaptation in AR6 WGII. During the pre-workshop interviews and in the workshop itself, the adaptation content of WGII was mentioned many times as showing the largest actionability gap. Piecing together the perspectives of several different participants, one of the main causes of the problem appears to have been a very early scoping decision to abolish adaptation-specific chapter(s) for WGII, and to instruct each regional chapter to deal with adaptation in the regional context. The idea was that this bold move would mainstream adaptation. This decision had consequences for the composition of chapter teams and the overall make-up of expertise in WGII. When it came to writing the WGII Summary for Policymakers (SPM), it meant that neither the content to draw from, nor the expertise to write the adaptation-specific content, was sufficiently present. WGII SPM authors mentioned having to start from scratch on adaptation for the SPM and for the adaptation input into the SYR. Even if this adaptation-specific decision is reversed in AR7, the example shows the need to adopt more robust, scientifically informed decision-making practices for large, potentially consequential scoping decisions. For example, one principle from the science of decision-making is to always ask two questions when discussing a decision: “What will be the benefits of this decision?” and “What are the risks or downsides of this decision?” It is likely that the group making the decision to abolish adaptation-specific chapters only considered the first question, and did not ask that second question in a rigorous way. ‘Rigorous way’, could mean by conducting a consultation process gathering the expert opinion of different WGII stakeholders who were not part of the original meeting where the decision was made.

3. **Consider providing facilitation support for CLAs.** At the end of the workshop, many participants highlighted the difference that professional facilitation had made to the workshop, and how that is different from the normal IPCC meeting formats where it is usually the responsibility of the CLAs to structure and lead the meeting. Providing professional facilitation support, via the Technical Support Unit (TSU), could be a way to lighten the load of the CLAs. It could make for more productive scoping and assessment meetings, and better relationships in author teams. Note that in AR6, training was offered to CLAs in how to moderate discussions. Though that may also have been called 'facilitation', this is different from what we mean here. To the team who facilitated this workshop, facilitation means structuring a meeting in such a way that the structure does much of the heavy lifting of bridging and aligning different perspectives, rather than expecting that to come from the skills of the moderator.
4. **Providing communications-for-policy-actionability training for communication officers in the TSUs.** Good efforts were made in AR6 to have specific communication officers in the TSU translate AR6 into non-technical language. This may help with engagement, but it does not help with making the outputs of the IPCC more actionable. A specific capacity building programme for TSU staff on how to make communication outputs speak more to the actionability problem could help to resolve the current confusion between 'non-technical communication' and 'policy-relevant communication'.
5. **Learn from IPBES best practices.** The way that IPBES resolved assessment at the intersection of biodiversity loss and climate change by increasing the diversity of its author teams was mentioned in **Section 2.4.** Another workshop participant mentioned being surprised how much the IPCC was behind IPBES in the inclusion of indigenous knowledge into the assessment process. Upon investigating, it surfaced that IPBES has set up a Task Force on Indigenous and local knowledge systems to specifically address this problem. Given the frequent asks for the inclusion of indigenous knowledge by participants in the workshop, the IPCC might learn specifically from IPBES on this topic, as well as on other topics more broadly.

2.8 SUGGESTIONS: CONCLUSION

This concludes the suggestions for actions and points of intervention to make the IPCC reports more actionable for end users. The main parts of the report provide a more in-depth overview of the workshop results, the workshop approach, and the analysis methodology. The Appendix contains a full account of the written materials generated during the workshop.

3. OVERVIEW OF WORKSHOP RESULTS

Results of a co-creation process between 'producers' and 'users' of IPCC reports
This section presents a high-level analysis of the written materials produced during the workshop. These materials are the result of a co-creation process in which 170 researchers, policymakers and practitioners worked together in a structured, facilitated process to explore how to make IPCC reports more actionable for end users.

Based on a 'serious but not literal' analysis
The workshop materials were analysed by taking all ideas seriously rather than literally. Two examples will clarify why this principle is useful to identify opportunities for change:

1. A participant suggests a Special Report on topic X. When taken literally, it would be easy to reject the idea as unrealistic, because a Special Report needs approval by consensus in the IPCC panel. In contrast, a serious interpretation asks the question: "What unmet user need is revealed by this ask, and how else can it be satisfied?"
2. A participant asks for more regionalised assessment on topic Y. Taken literally, the idea might be rejected by people who think that the content already exists, or that it should be provided by other organisations, not the IPCC itself. A serious interpretation, instead, would ask questions like: "Does this ask exist because end users find it difficult to locate the regionally relevant information they need?"

Three major thematic areas of unmet needs and ideas for how to satisfy them
Applying a 'serious but not literal' lens to the materials co-created by participants revealed three major thematic areas of unmet needs (**Section 3.1**). The first two are 'user' needs, the third one is primarily a 'producer' need.

1. The need for more assessment of adaptation and mitigation **solutions** to climate change: what works, where and how; what doesn't work and why?
2. The need for more **regionalised** assessment, or assessment on multiple geographical scales – especially on risk, vulnerability, and adaptation.
3. The need for producers to use better methods (or develop new methods) to **understand end-user needs** and how to satisfy them.

In a literal interpretation, many of the individual ideas would be difficult or impossible to implement because they fall outside of the IPCC mandate or because they would need a consensus decision in the IPCC panel. In a serious interpretation, it means using them as a warning sign to look for other means to satisfy the unmet needs expressed by the idea.

The diversity of professional roles, the different perspectives this brings, and the absence of points of widespread agreement make it impossible to recommend a small number of top-down actions from the workshop. However, if the workshop co-creation process revealed one point of importance, it is that the 'actionability gap' can be closed far more through the collective, distributed, bottom-up actions of a range of actors than through top-down changes to the IPCC process and outputs. Participants identified many new ideas for how they could contribute to this collective process (**Section 3.2**) – but undoubtedly more exist. The main recommendation of this report is therefore that **all actors involved in the IPCC process continue to identify and pursue bottom-up actions that can contribute to making IPCC reports more actionable for end users**.

"I think it's important for informal groups like this to push the boundaries of what's possible. If we're going to achieve the Paris Agreement, it's the space of actors out there who are going to make it happen. There is desire for change, for becoming more relevant and solutions/actions focused. Ideas for cross-WG chapters; more integrated views of issues where 1 issue doesn't belong to 1 WG; ideas for how to integrate users' perspectives; they are feasible within the boundaries of where we are. There are lots of ideas from this process that can be brought out that are feasible: they may stretch the boundaries a bit, but that's our job."
Participant comment in final plenary (**A.7.27**)

Roadmap of the overview
Section 3.1 outlines the 59 practical ideas to make IPCC outputs more actionable that were co-created in the workshop. **Section 3.2** gives an overview of the ideas participants expressed for how they could contribute to the desired change themselves. **Section 3.3** describes recurring points of conversation that show were conversations can get stuck, but also how to get them unstuck. **Section 3.4** revisits the primary recommendation.

3.1 IDEAS TO MAKE IPCC OUTPUTS MORE ACTIONABLE

The ideas are drawn from materials produced during an activity in which participants developed (in pairs and in small group conversations) specific ideas to meet end-user needs.[3] These ideas can be grouped into 3 major themes that each reveal an unmet need. They show complementary routes to making IPCC outputs more actionable:

1. By assessing solutions / recipes for implementation
2. By scaling down / providing regional assessment
3. By focussing on the needs of specific end users

A fourth group of miscellaneous ideas focusses on improving operational aspects that are important to improve, but do not speak directly to producing more actionable outputs.

Each of the 59 ideas have a predominant focus on 1 theme but each idea has an overlap with the other themes. For example, a solutions-focussed idea may also mention the need for regionalisation or to better understand end-user needs.

The ideas were usually built around a particular mechanism to achieve the idea's desired outcome. Examples of such suggested mechanisms were special reports, cross-working group (WG) chapters, a database of case studies, a workshop with end users, etc. As noted above, it is important to take the suggestions on mechanisms to achieve the idea's objectives seriously, but not literally. The mechanism may not fit within the mandate of the IPCC or may not be implementable for other reasons. Nonetheless, there might be other mechanisms that can deliver the same outcome while avoiding these implementation challenges. We therefore discuss the mechanism separately from the gist of the idea.

In the following sections, we discuss the 3 major themes. We then explore the mechanisms proposed, and whether these, or others, can be used to achieve the ideas' desired outcomes.

[3] The "ideas development" activity is described in **Section 4.5.5**. The text of all of the 59 ideas developed in the workshop is available in **A.4**. **Appendix A.4.1** lists all ideas in the order they were numbered, whereas **Appendix A.4.2** shows them grouped together under the 3 major themes.

3.1.1 Assessing solutions / recipes for implementation

"Assessing solutions" means determining what works, where, and how (and, just as importantly, what doesn't work).

For 16 of the practical ideas, the focus was on assessing solutions. This included:

- Assessment of mitigation options/solutions (4 ideas)
- Assessment of adaptation options/solutions (4 ideas)
- Assessment of both mitigation and adaptation options (1 idea). Several of the mitigation and adaptation ideas above added – during the multiple feedback rounds of the activity – "Could work for adaptation/mitigation too".
- Developing new sources of information that could provide the basis for assessing solutions: Green Climate Fund projects and national reports on climate response.
- Assessment of sector-specific solutions: climate-resilient agriculture and a systems transitions special report.
- Cross-WG chapters focussing on specific policy-relevant but cross-cutting solutions: carbon dioxide removal (CDR), nature-based solutions (NBS), climate-resilient development, and finance.

Applying the 'serious but not literal' lens to these ideas, this theme reveals that many users need access to credible assessments of practical, real-world climate solutions, their implementation challenges, and how to overcome them. What are the good practices of adaptation and mitigation actions in various locations and different sectors? What credible information sources can support such solutions-focussed assessment?

Several of the mechanisms suggested (e.g., special report, cross-WG chapter) would need support by the IPCC bureau, inclusion during the scoping process, and/or approval by the IPCC panel. Other suggested mechanisms (catalogues or databases of solutions) could be built by outside organisations. If these resources have been developed by outside organisations, they would still require to be assessed in relevant IPCC chapters to be findable by policymakers and practitioners who turn to the IPCC reports for their information needs, or to achieve the level of credibility required by them.

3.1.2 Scaling down / providing regional assessment

The need for more regional assessment (or assessment linking multiple geographical scales) was expressed early and often in the workshop. At the end of the workshop's first day, one participant wrote in their reflections on the day:

> *"All tables that I went to had identified regional needs, so it's a common end user need for all WGs."* (**A.3.1.6**)

In the "ideas development" session, it was the explicit focus of 16 ideas:

- Regional information about the physical science basis (WG1 – 4 ideas)
- Regional information on vulnerability, risk, and adaptation (WG2 – 9 ideas)
- Generic ideas about the need for more regional information, without specification of what the regional analysis should be about (3 ideas)

Furthermore, the need for or possibility of regional/localised information was also mentioned in ideas in the other categories:

- Four of the ideas focusing on assessing solutions (two of the four mentioned it in the context of mitigation (WG3), in the context of assessing what works *where*)
- Three of the ideas focussing on end users
- Two of the miscellaneous ideas

This means that 25 of the total of 59 ideas mentioned the need for or possibility of more regionalised / localised information.

Many of the ideas were in the context of WG2 (impacts, vulnerability and adaptation). This could be seen as surprising, as the AR6 WG2 report had regional chapters. Taken seriously, it can be interpreted as a sign that the regional organisation of the AR6 WG2 report does not currently satisfy the information needs of end users. In fact, three ideas (**A.4.1.44** and **A.4.1.49**) made this point explicitly. They proposed a reorganisation of the regional chapters into more homogenous regions (for example, by dividing Asia into 4 or 5 smaller sub-regions). It might be possible to structure information at a chapter level in such a way that end users will find it easier to locate the regionalised information they need.

Ideas that mentioned more regionalised assessment often included actions that would fall outside of the IPCC's remit. In other words, a substantial amount of the required work could be undertaken by the research community to prepare (through peer-reviewed publication and product development) the evidence base that would allow more regionalised information to be assessed in the IPCC reports. Including a focus on the right level of policy-relevant regional/localised information in the scoping of relevant AR7 chapters would send an important signal to the research community to provide this evidence base.

3.1.3 Focus on end users

Another group of 21 ideas had their primary focus on end-user needs:

- Ideas started from end-user needs (4 ideas):
    a) Two ideas focussed on the development of a particular IPCC output starting from end-user needs (the Synthesis Report and the IPCC glossary).
    b) Two ideas proposed the development of workshops that would bring end-users and their perspectives closer into the IPCC process.
- Generic / aspirational ideas about the need to meet end-user needs (e.g. UNFCCC policy makers, the Global Goal on Adaptation (GGA), providing decision support in general) – rather than propose a specific mechanism to achieve this (6 ideas)
- Generating outputs from the IPCC reports that would be tailored to specific end-user groups. Some of these proposed manual generation, while others proposed dynamic/automatic generation (7 ideas).
- Regarding media as end user, proposing a media engagement plan (1 idea)
- Research funders as end user, and on how to develop structured ways to identify research priorities for them, such that funding can be assigned to filling of those research gaps (3 ideas).

The need to engage with end-users to better understand their needs, or the possibility to satisfy end-user needs better was also mentioned in ideas in the other categories:

- Seven of the ideas focusing on assessing solutions
- Four of the ideas focusing on regionalised assessment
- Two of the miscellaneous ideas

This means that 34 of the total of 59 ideas included understanding end-user needs or speaking to end-user needs as part of the idea.

Among all the ideas mentioning user needs, there was a distinction between those that proposed specific engagement actions to scope user needs (through e.g. workshops and surveys); those that mentioned the need to satisfy end-user needs (but which didn't mention specific engagement actions); and those that assumed that the idea could satisfy end-user needs, but didn't specify the need for end-user engagement to do so. Sometimes, the original idea had been developed without mentioning the need for end-user engagement, which was then added later as feedback by other participants.

3.1.4 Miscellaneous ideas

A further six ideas addressed specific problems of current IPCC operations which might be helpful to resolve – but would not *directly* generate more actionable outputs. These included issues related to author management and performance, IPCC funding and capacity, drawing on literature in languages other than English, and transparency and accessibility of the data and information underlying the reports.

3.1.5 Mechanism vs thematic areas of the ideas

The thematic areas used to categorise the ideas above express the kinds of needs end-users have – they do not dictate the mechanism that addresses these needs.

In some cases, the mechanism(s) selected by the proponents of the idea might fall outside of the mandate of the IPCC, or they might need IPCC Bureau support and IPCC Panel approval to be implemented. However, the objective expressed by the idea might be implementable through other mechanisms.

For example, an assessment of systems transitions – one of the solutions-focussed ideas – might not need a special report (as was proposed by its authors in **A.4.1.3**) but could be brought about in a bottom-up fashion through a focus on solutions and implementation challenges in sector-specific chapters (for WG3) or region-specific chapters (for WG2). Achieving this requires:

1. That a focus on assessing solutions is included in the chapter scoping; and
2. The development of the relevant literature through peer-reviewed publication.

Each of the proposed ideas can be looked at similarly: if a literal interpretation of the idea requires too much top-down support and approval (from the IPCC Bureau and the IPCC panel), how else can it be implemented such that its desired outcomes are realised?

3.2 NEW IDEAS ON THE ROLES PARTICIPANTS COULD PLAY

In one of the final activities of the workshop – the "takeaways" activity – participants identified ideas regarding the roles that they themselves could play to make IPCC reports more actionable.[4] These ideas are especially important because the workshop intended to spark a 'community response' (with researchers, with focal points, etc), empowering them to deliver change in their own context. As discussed in **Section 4.4.2**, the workshop was designed to focus more on equipping participants to think about the role they could play, rather than on harvesting information from participants themselves. The richness of the proposed ideas shows the success in equipping participants to take on important roles in realising more actionable IPCC outputs.

These takeaways about participants' own roles were often underpinned by 'aha moments' that happened across the two days. For example, researchers discovered that the concept of 'research gaps' did not mean much to policymakers, who instead found the 'recipes for solutions' to the problems they faced more useful.

Participants identified the following actions they could undertake themselves:

1. Actions to widen participation into the IPCC
2. Actions to support IPCC authors during the assessment cycle
3. Actions to support other aspects of the IPCC process
4. Actions that focus on understanding end-user needs
5. Communication and end-user engagement actions on IPCC outputs
6. Actions for research that would speak to specific end-user needs
7. Actions funders can take to drive useful research

Participants also learned more about the IPCC process and about how others perceive the IPCC process. Many also noted realisations around the usefulness of facilitation to ensure the success of workshops and meetings, and how this would be relevant for IPCC processes. There were also personal takeaways about the skills needed across the IPCC ecosystem, and suggestions for better collaboration with other organisations to strengthen IPCC inputs and outputs. These suggestions for collaboration often mentioned a bottom-up approach, which is within the remit of the participants themselves, without needing formal IPCC approval.

3.3 RECURRING POINTS OF CONVERSATION

Not all ideas that were discussed in the workshop show a clear and direct line towards achieving the main aim of the workshop – more actionable IPCC outputs. There were many points of discussion and/or disagreement that could not, and cannot, be resolved directly. These are often rearticulations of key problems faced by the IPCC and international collaboration in general, and/or are related to the complex, multi-faceted nature of climate change. They invariably pop up in group discussions. At the start of the workshop, the existence of such recurring discussion points was introduced as the possibility to meet 'usual suspects' (see **Section 4.4.5**). This was done to give participants a common vocabulary to

[4] The "takeaways" activity is described in **Section 4.5.7**. The full text of the takeaways – as they were written down by participants – are available in **A.6.**

move away from them if needed. Despite this early introduction, because it can be difficult to recognise them in the moment, there were still many examples of usual suspects visible in the group discussions and written materials generated by the participants. Here we discuss 5 usual suspects to show how conversations can get stuck, but also how to get them 'unstuck'.

3.3.1 Differences of opinion about what is possible within the IPCC mandate

Discussions of what is and is not allowed or possible within the mandate appeared many times during group discussions. The reason this is a usual suspect is because **reasonable people with deep expertise can and will disagree about such abstract, generic questions precisely because of their individual experiences and expertise**.

> *"I have discovered that there is a broad range of perceptions on what the IPCC should be for, even within a group of people highly involved in the process."* **A.6.1.1**)

However, the interpretation of what an organisation is for and what is possible within its mandate often changes over time because experts constantly develop new practices to solve existing problems, which further their understanding of an organisation's purpose.

Specific examples of these differences of opinion often involved the inability to change a particular aspect of the IPCC's operation through a top-down, consensus decision of the IPCC Panel. If ways forward out of these conundrums were suggested, it was by participants who pointed to the potential of bottom-up actions to reach a similar objective.

For example, in the final plenary (see **A.7**), one person expressed the view that it would be unimaginable for the IPCC and IPBES Panels to reach agreement on how to assess the intersection of climate change and biodiversity loss. A participant with knowledge of IPBES responded that IPBES had already started doing this in a bottom-up manner, by inviting scientists with expertise on climate change into its author teams.

Another example where the existing structures and process of the IPCC seem to be precluding change is the separation of adaptation and mitigation. The need to better link adaptation and mitigation came up in multiple activities on the first day (see **A.1.4.4**). Over the course of the second day, one group with adaptation and mitigation experts reached the shared observation that – at the process and project implementation level – individual adaptation and mitigation projects often look the same. During the final plenary, one participant offered up this project-level connection between adaptation and mitigation as a bottom-up way to integrate the two (see **A.7.18**):

> *"Adaptation and mitigation projects look similar at the project level, perhaps this is a place to connect them."*

There are 2 reasons why this observation is important to highlight: firstly, it is another example of participants noticing the possibility of bottom-up change where top-down change would be difficult. Secondly, it shows the importance of the co-creation between experts with diverse types of expertise to bypass this usual suspect, as it is unlikely that mitigation and adaptation experts would have reached that realisation in isolation.

3.3.2 Differences of opinion about what the IPCC should do itself versus leave to others

A usual suspect that is related to the previous one is the discussion of what the IPCC should do itself versus what it should leave to others. Again, reasonable people can have different views on this topic, because of their different experiences and expertise.

> *"Are we asking too much of the IPCC? There are others who can/should fill some of these gaps e.g. on risk assessment or media. Can we set up a formal mechanism for it?"* (**A.3.1.4**)

The means to bypass this usual suspect lie with some of the principles introduced in previous sections: firstly, the 'serious but not literal' principle which judges ideas not on the achievability of the specific mechanism they contain, but on the user need they express and how else those user need could be satisfied; secondly, the activation of a bottom-up response among the community of researchers, focal points and practitioners (see **Section 3.2**). Of particular importance here are people's suggestions for improved collaborations with other organisations. See, for example, suggestions in **A.6.1.6**.

3.3.3 Integration of indigenous knowledge

In the reflection activity at the end of days 1 and 2, the need to better include indigenous knowledge into the IPCC assessment process came up multiple times (**A.3.2.4**). This point is a usual suspect because it is a re-articulation of the broader assessment and actionability challenges of the IPCC. The resolution of this recurring problem is important as it would signal the ability of the IPCC to assess all relevant sources of knowledge. The means to achieve this, however, is not necessarily through a top-down instruction to include indigenous knowledge, but through the bottom-up development of knowledge-integration and assessment methods. In fact, one participant knowledgeable about IPBES expressed surprise at how far behind IPCC practices are in this regard (**A.3.2.4**) and suggested that the IPCC could learn from best practices developed within the context of IPBES (**A.7**).

3.3.4 Use of Artificial Intelligence

In the reflection activity at the end of day 1, the potential for AI technologies to make IPCC reports more actionable was mentioned many times, both on the input (assessment) and output (report writing and presentation) sides (see **A.3.7.1 -A.3.7.3**). These suggestions – when made by people who are not experts in Artificial Intelligence – risk becoming usual suspects about which reasonable people can endlessly disagree because they are a re-articulation of the existing challenges of the IPCC to produce actionable information.

AI technology is rapidly evolving, and the research community is developing its expertise on how to use the new technological tools in e.g. systematic literature review. However, that does not mean that it would be any easier to build an Artificial Intelligence / Machine Learning system to make IPCC outputs more actionable for end users, than it would be to solving the actionability challenge manually.

As with previous usual suspects, the recommendation to bypass this one would be to generate a bottom-up, distributed, community response of relevant experts to develop new

tools and methodologies that, in time, might come to support the IPCC in its assessment, report-writing and communication duties – but not to view the technology as a silver bullet for the IPCC's communication and actionability challenges.

3.3.5 The need for interpersonal and emotional intelligence skills for CLAs

One of the activities of day 2 looked at the skills required by different actors in the IPCC ecosystem to fulfil the responsibilities required by their role.[5]

Many skills suggested for authors (for Coordinating Lead Authors (CLAs) in particular) focused on interpersonal and 'people' skills (**A.5.1.1**). This was accompanied by table discussions that pointed to bruising and even traumatic events that authors had experienced during AR6. However, what makes this a usual suspect is that these negative experiences went in both directions: contributing authors (CAs) and lead authors (LAs) experienced some CLAs as overly authoritarian. CLAs reported negative experiences with some CAs and LAs who they believed not equipped to undertake IPCC-style assessments; or described their dismay at having a complaint lodged against them.

This usual suspect is a rearticulating of the operational challenges that IPCC authors must work under. To a certain degree, it is the stressful context of the volunteer nature of the assessment work that authors need to undertake, of the long and late-night meetings that can create the bruising experiences for chapter teams. Its 'serious but not literal' solutions lie elsewhere than in screening CLAs for certain people qualities. Leaving aside the challenges of how to do this in an author selection process, the combination of soft people skills with subject-matter expertise and management expertise expressed in the skills session make the CLA job spec a really tall order to fulfil.

A serious-but-not-literal search for solutions to bypass this usual suspect would be to provide a better support system for IPCC author teams. Partially this could come through a better HR support system in the IPCC Technical Support Unit (TSU), and partially through better support for CLAs to provide the 'coordinating' aspect of their work. Workshop participants noted the vital importance of expert meeting design and facilitation:

"There is a tendency to ask more and more of authors, certainly CLAs. Important to recognise which of those should sit with TSU. This meeting has been well-facilitated; in many IPCC contexts the authors have to facilitate those meetings themselves. It's important to think about meeting support and meeting design and funding for TSUs to focus on that more."
Participant comment in final plenary (**A.7.15**)

Whereas the suggestion of TSUs providing meeting design and facilitation expertise requires action by the IPCC itself, if this is unfeasible, then it could still be interesting to see how such expertise could be provided in a bottom-up fashion, through equipping of CLAs through various distributed, national initiatives.

[5] The "skills" activity is described in **Section 4.5.6**. The transcribed text from the flipcharts – as written down by participants – is included in **A.5A.5.**

3.4 CONCLUSION AND PRIMARY RECOMMENDATION

The ideas generated in the workshop indicated 3 specific avenues for how to make IPCC reports more actionable for end users: assessing solutions, reconsidering regionalised assessment, and a continued need to include end-user needs into the process.

The ideas that people developed over the course of 2 days presented a trade-off between ideas that require action by the IPCC itself (perhaps requiring a consensus decision by the IPCC Panel) and those ideas that participants could take forward themselves in their own role and professional capacity.

Disagreements often appeared around how realistic it would be to take particular ideas through the formal decision process of the IPCC. However, the workshop also resulted in a realisation among participants that they could do much on their own initiative.

The primary recommendation of this report is therefore to continue to provide opportunities for all stakeholders in the IPCC process to examine the role they could play in making IPCC outputs more actionable for end users.

4. ABOUT THE WORKSHOP

4.1 AIMS AND OBJECTIVES

The aim of the workshop was to **explore how to make IPCC reports more actionable for end users**.

Actionable was defined as *helping someone to understand how to take climate (mitigation and/or adaptation) action*.

End users were defined as all the professional communities who need to make decisions that are impacted by climate change. These include the following:

1) An international policymaker setting international policy (e.g. for the Global Stocktake or the Global Goal on Adaptation)
2) A national policymaker setting national policy
3) A sub-national policymaker devising a local climate action plan
4) A practitioner delivering a climate-related project
5) A financial decision maker (in the public or the private sector) prioritising financial investment on a project-by-project basis
6) An insurance decision maker pricing insurance policy
7) A business decision maker developing climate-resilience business strategies and decarbonisation plans
8) A civil society member deciding what is important for their community

4.1.1 Objectives

Based on preliminary interviews with IPCC authors and end users (see **Section 4.2**), four objectives were identified as potential routes to achieve the aim of the workshop:

Objective 1 Identifying gaps in the evidence base ('research gaps') or gaps in assessment methodologies that can be filled through new peer-reviewed publications in time for the AR7 assessment process.

Objective 2 Creating a scoping and assessment process that starts from end-user information needs, rather than from availability of technical or scientific data.

Objective 3 Creating the right mix of skills and expertise needed to do the assessment for different chapters, working groups (WGs), and cross-cutting issues, as well as skills for other IPCC roles such as Bureau and Technical Support Unit members.

Objective 4 Identifying other improvements to the overall IPCC process.

The workshop had activities to address all objectives (see **Section 4.5**).

4.1.2 'Perspective bridging' objectives

The question of how to create more actionable IPCC reports is one that is best answered in conversation between end users (policymakers, practitioners, communicators) and the expert authors of the reports. Participants on the 'user' side bring their expertise on what makes

information actionable. Those on the 'producer' side are experts in what evidence is feasible to generate, and how to develop robust assessment methodologies.

The workshop therefore sought to create a **dialogue between producers and users** to **bridge their perspectives** and different areas of expertise (see **Section 4.3** for an overview of the professional mix of participants).

This kind of two-way interaction and co-design between users and producers has previously been identified as necessary to make outputs from climate science more useful, useable and used by decision makers[6]. It is needed to overcome the problem of **assumed demand** – the fact that many research organisations make broad assumptions about user needs, without the necessary incentives, resources, relationships or expertise to carry out the user engagement that is needed to understand *actual* demand[7].

4.2 BACKGROUND

Two sources of information were gathered to prepare for and design the workshop:

1. A consultation activity (by means of a survey) with UK civil servants, asking how to make the IPCC reports more policy relevant from their perspective.
2. Semi-structured interviews with 25 IPCC experts. These experts represented all regions globally and played different roles in the IPCC process:
    - **Producers**: Lead Authors (LAs), Coordinating Lead Authors (CLAs), Bureau members, and Technical Support Unit (TSU) members
    - **Users**: IPCC focal points (FP), practitioners, and other end users

4.2.1 'Actionable' - a refinement of 'policy relevant'

The consultation activity identified the need for the reports to become more **actionable**. The IPCC mandate specifies that its assessments need to be policy-relevant without being policy-prescriptive. The request by public servants in the survey to make IPCC outputs more actionable is a more concrete, specific articulation of 'policy relevant'.

'Actionable information' is not simply about providing an assessment of all the available scientific knowledge about climate change, impacts, vulnerability, adaptation, and mitigation. Rather, it is about how the science is reported so that end users know *how* to take action, based on the assessment.

'Actionable' is different from 'policy prescriptive'. The former is about helping someone to understand *how they can implement a certain action if they decide to do so*. The latter is about telling decision makers *what they should do* – and out of bounds for the IPCC.

4.2.2 The gap between 'actionable information' and the AR6 reports

If end users are asking for IPCC outputs to be more actionable, then it means that, in their view, IPCC outputs generated in the 6th Assessment Cycle (AR6) fell short in that regard.

[6] Findlater, K., Webber, S., Kandlikar, M. *et al.* Climate services promise better decisions but mainly focus on better data. *Nat. Clim. Chang.* **11**, 731–737 (2021). https://doi.org/10.1038/s41558-021-01125-3
[7] Ibid.

Preliminary interviews with 25 IPCC experts (ranging from 'producers' to 'users') explored how each of them perceived the gap between 'actionable' and the AR6 outputs.

Each of the 25 conversations was unique. There as a wide diversity in views on how the problem manifested itself, and what the potential solutions were to close the gap. Everyone's unique perspective was based on their own experience of the IPCC process:

1) the chapter or working group (WG) they had been part of as authors or reviewers
2) their role in the Bureau or Technical Support Unit (TSU)
3) their role as IPCC Focal Point (FP)
4) or how they were using IPCC outputs as policymaker or practitioner

4.3 PARTICIPANTS

4.3.1 Geographical representation

Over the course of the two days, approximately **170 participants** from **62 countries** attended – representing all IPCC/WMO regions (Africa; Asia; Europe; Latin America and the Caribbean; Northern America; and Oceania). Ninety-eight participants were from UNFCCC Annex 1 countries (industrialised countries and countries in transition). Sixty-eight participants were from developing countries. An additional ten participants represented an international organisation rather than a country.

Sixty-five attendees were funded to attend by the Climate Services for a Net Zero Resilient World (CS-N0W) programme, to ensure that broad geographical representation was not hindered by access to finance.

4.3.2 Professional diversity

The attendees spanned a broad range of professional roles, as shown in **Table 2**.

Table 2. Number of participants, broken down by professional role. The numbers do not add up to 170 as some participants wore multiple professional hats. For example, a communications expert could also be a focal point for an international organisation.

Professional Role	Number
IPCC Focal Points (national and observer organisations)	24
Policymakers (other than IPCC Focal Points)	37
Practitioners	20
Communication experts	8
Members of funding organisations	15
IPCC Bureau members	16
Academic researchers (other than IPCC Bureau members)	52

4.4 WORKSHOP FORMAT, DESIGN AND FACILITATION

The workshop was designed to be interactive and participatory, to allow co-creation and cross-fertilisation of ideas between users and producers of the IPCC reports. For the most part, participants worked together in small groups, in activities that were designed to speak to the workshop aim and objectives set out in **Section 4.1**.

The following sections introduce useful concepts and principles used by the UCL Climate Action Unit (CAU) in designing participatory, co-creative workshops.

4.4.1 Workshop design and analysis principles

The CAU uses a structured workshop design process based on 3 principles:

1. **Outcomes first, mechanisms second**: Outcomes are the change one wants to achieve. Mechanisms are the tools and methods used to try to realise the outcomes. To avoid selecting a workshop mechanism (a particular activity or facilitation format) that won't deliver the outcome, it is important to start with outcome identification first, before deciding on what workshop mechanism to use.
2. **Big questions usually need to be broken down into task-based activities**: Tackling big questions head-on (like the one at the heart of this workshop "How to make IPCC reports more actionable for end users?") usually leads to differences of opinion about what the best approach is. Those disagreements can be difficult to resolve – even among experts from the same professional community, let alone among experts from different sectors. Conversely, breaking down a big question into a series of task-based activities can generate information that – collectively – gives co-created answers to the big question.
3. **All ideas are taken seriously, but not necessarily literally**: The latter is impossible, because on complex problems (such as the one this workshop tackled), diametrically opposing views are likely to exist. For example, one person might think that a particular IPCC output has been particularly successful with end users, while another might think it hasn't. Instead of taking either of these views literally, or trying to decide whose view is correct, it merits asking the question "What do these opposing views reveal about the problem under consideration?" For example, a viewpoint difference could be the result of differences in expertise, interests, and values of participants.

The preliminary interviews (**Section 4.2.2**) were conducted to identify outcomes, as well as to identify how to break down the main question of the workshop into activities. The 'serious but not literal' principle was used when analysing the ideas from the preliminary interviews, as well as when analysing the written materials produced in the workshop.

4.4.2 Design dimensions and choices

Through the preliminary interviews (**Section 4.2**) three dimensions were identified as relevant to the structure of the activities and the framing of the questions (see **Figure 1**):

- **Design choice 1** was about how to balance looking back at AR6 and looking forward to AR7. The decision taken on this dimension was to focus most activities on looking forward to AR7. If the aim is to make future reports more actionable, then looking back at AR6 is not necessarily the best way to achieve this: it can anchor conversations in

what happened rather than open up an exploration of what *didn't* happen or *could* happen.

- **Design choice 2** was about how to balance the outcomes of the workshop for researchers and policymakers. A workshop designed to optimise outcomes for researchers would focus on presenting the current state of academic research and identifying research gaps. Conversely, a workshop designed to optimise outcomes for policymakers would focus on their decision challenges and information needs. The choice made on this dimension was to create a process that would enable positive outcomes for both groups – but by framing the activities in terms of satisfying end-user needs (the optimal outcomes for policymakers) rather than identifying research gaps (the optimal outcomes for researchers). As explained in **Section 4.1**, the identification of research gaps is one possible route to satisfying end-user needs.
- **Design choice 3** was about whether the focus should be on harvesting ideas in the workshop (to publish them in an academic journal or workshop report) or on equipping participants to think about the role they could play in making IPCC reports more actionable. The decision on this dimension was that the workshop activities should lean towards equipping participants, for the following reasons:
    - **Potential for greater impact**
        - A stimulated and motivated research, FP or funder community can achieve far greater change through their own bottom-up initiatives than a workshop paper or report could on its own.
        - Bureau or TSU members pursuing their own ideas and actions would have more effect than recommendations to these IPCC units.
    - **Logistical reasons**: It would be a logistical challenge to capture and analyse all the conversations among 170 participants.

  To achieve the trade-off between harvesting ideas and equipping, it was decided to create plenty of moments of interaction between participants that would not need to be captured, and to ask everyone at specific moments to write down the key insights that the discussions and activities had generated for them. These key insights have been gathered in a variety of ways (see **Section 4.6**). While the workshop leaned towards equipping participants, this document reports the analysis of the key insights captured by participants. A version will be circulated to participants and published on the CS-N0W page on the gov.uk website.

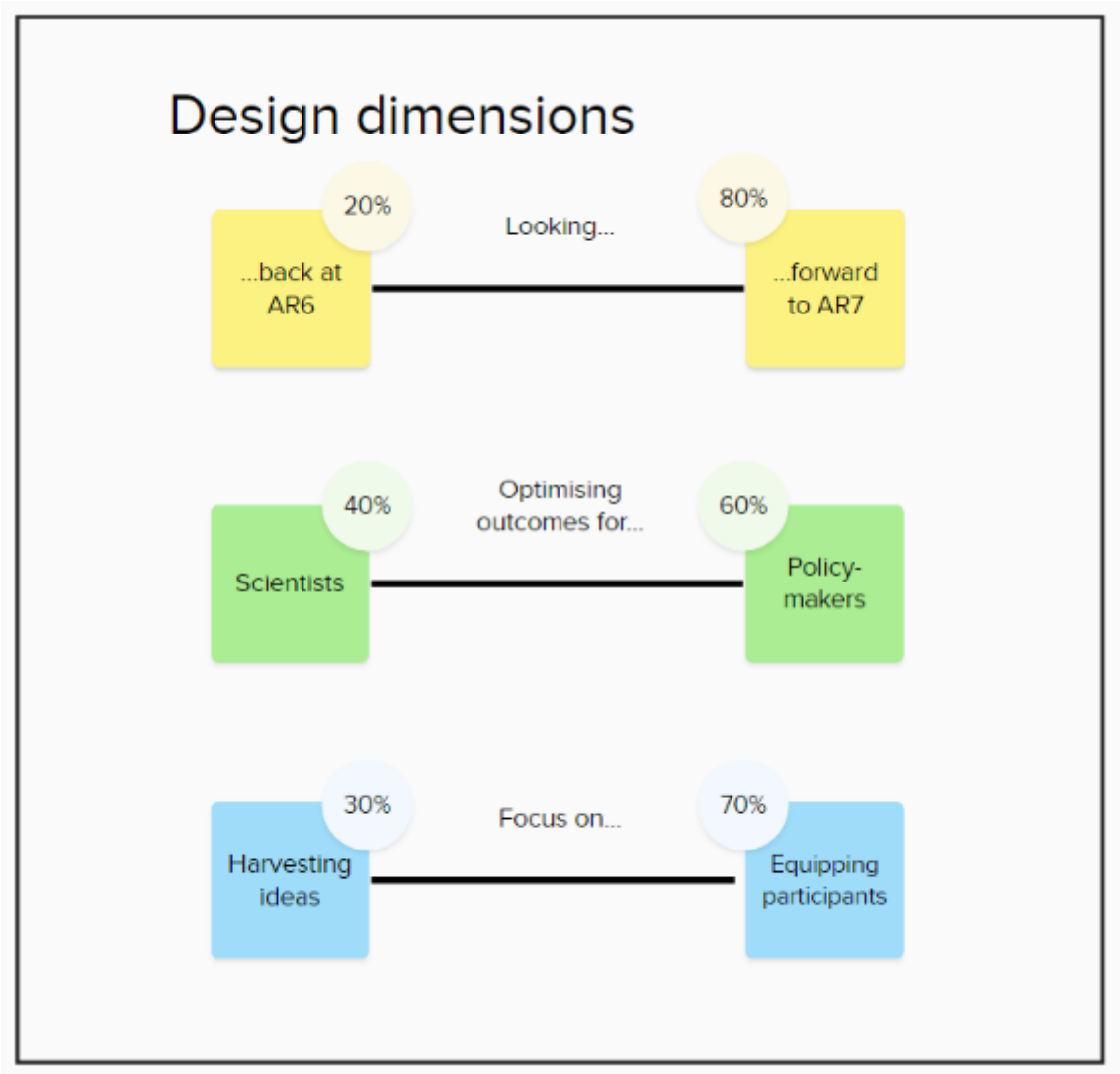

Figure 1. Three dimensions of choice relevant to the design of the workshop activities

4.4.3 Design challenges

The preliminary interviews (**Section 4.2**) also surfaced three design challenges:

- **Design challenge 1**: The interviews had shown that everyone's experience – of what works, what could be improved, and how to improve it – is unique. How could the workshop be designed to speak to that wide variety of experiences?
- **Design challenge 2**: How could the workshop create an experience where at least some, if not most, of the key insights that participants generate could be actioned by them, rather than needing someone else to act?
- **Design challenge 3**: How could the workshop create a situation for the participating end-users to express (in a very concrete way) "This is what we need" without it becoming an indiscriminate ask for more?

These design challenges were addressed specifically by using the design principles from **Section 4.4.1** and the facilitation practices described below.

4.4.4 Facilitation practices

The following facilitation practices were woven into the workshop design:

1) **Allowing individual thinking time before holding a group conversation**: It is useful to give participants time to think on their own and make some notes before opening for group conversation. This maintains the ability of all group members to contribute their expertise. It prevents the first idea that someone shares 'anchoring' the conversation to a particular topic, to the exclusion of other topics.
2) **Using structured ways to share ideas in a group**: Group conversations can be dominated by some voices to the exclusion of others. Using a structured format for how to share ideas can help counter this and make group discussions more efficient and fairer. This workshop used the following two sharing mechanisms:
    a) **Snap sharing**: One group member starts by sharing one idea. If other group members wrote down a similar idea, they call 'snap' and share their idea next. Once all 'snaps' are shared, the group moves on to the next idea. This form of sharing enables quickly sort ideas into related categories.
    b) **Round-the-table sharing**: Every member of the group in turn shares their written-down ideas first before the conversation is opened for reactions.
3) **Select, don't summarise**: Asking for a brief summary of a substantial group conversation often results in a bland, generic account of what the group covered. A selection of the best ideas, however, can convey something interesting about the preceding group conversation. "Reporting back" from a small group to a larger group is therefore framed in terms of asking for reflections on the most interesting points that came up, rather than asking for a summary of the entire conversation.

4.4.5 Sense-making concepts

The CAU uses two concepts to help people make sense of ideas coming up in interactive workshops (for participants during the workshop as well as in the analysis of written materials after the workshop):

- **Golden nuggets** are new insights that can give someone a sense of breakthrough, an insight that makes someone see an old problem in a new light, an 'aha' or penny-drop moment.
- **Usual suspects** are points of conversation that come up again and again in discussions in similar contexts. They are important but difficult to tackle head-on as they are a re-articulation of the wicked nature of climate change. Because they often lead to intractable disagreements about how to deal with them, they can be black holes of time in group discussions.

Golden nuggets and usual suspects are not static concepts – they are time and speaker dependent. When one hears an idea for the first time, it may look like a golden nugget, then turn gradually into a usual suspect as one hears the point again and again, without seemingly any progress being made on resolving it. Conversely, there may be experts working on resolving the problem sitting behind a recurring talking point. For them, giving an account of what they are doing is not a usual suspect – even though the talking point may be a usual suspect for everyone who is not an expert on that topic. Despite this context-dependency of

the concepts, golden nuggets and usual suspects are useful tools to make sense of the ideas that groups of people discuss.

4.4.6 Further workshop format decisions

To speak to everyone's expertise (see **Design challenge 2** in **Section 4.4.3**), it was decided that participants could self-select which of four areas they wanted to focus on:

- WG1 – the physical science basis
- WG2 – impacts, vulnerability, and adaptation
- WG3 – mitigation
- xWG – cross-cutting issues

Across most of the two days of activities, participants would work in small groups on the working area they had selected. To cross-fertilise ideas, there were opportunities to explore how other groups were tackling the activities.

To enable open discussion, the workshop was held under **Chatham House rule**. This means that ideas from the workshop could be freely shared outside of the workshop, but not attributed to a participant. An exception was made for participants who wanted to be identified as the authors of a certain idea; if that was the case, they were asked to label their written materials with their name, such that attribution could be made later. This means that in the Appendix and online materials, where ideas are fully transcribed, some ideas are labelled with a name and sometimes the author's role and institution.

4.5 SESSIONS AND ACTIVITIES

The workshop consisted of eight sessions over the course of two days. **Table 3** contains an overview of the eight sessions. These are further explained in the following pages.

Table 3. Overview of the workshop sessions

Day	Session	Title
1	1	Setting the scene
1	2	Who are the IPCC end users and what do they need?
1	3	How can end user needs be met?
1	4	Cross-table sharing of end-user needs + Day 1 golden nuggets
2	5	Developing ideas to meet end-user needs
2	6	Skills and capabilities needed across the IPCC ecosystem
2	7	Takeaways
2	8	Plenary and workshop close

4.5.1 Day 1 – Session 1 – Setting the scene

The purpose of the first session was to introduce the workshop aim and objectives (**Section 4.1**), background (**Section 4.2**), and some facilitation principles and format decisions (**Section 4.4**). It also introduced useful concepts to the participants:

1) It defined the difference between being 'policy prescriptive' and generating 'actionable information' (**Section 4.2**).
2) It defined the differences between outcomes, outputs, and mechanisms in the context of the workshop's aim to make IPCC reports more actionable:
    a) **Outcomes**: the information needs of IPCC end-users are satisfied
    b) **Outputs**: the reports and other published materials of the IPCC
    c) **Mechanisms**: the content and structure of the reports, as well as all the processes used to produce the reports (from publishing research that provides the material to be assessed, to internal IPCC processes)
3) It introduced the design principle 'outcomes first, mechanisms second' (**Section 4.4.1**) to explain the 'end user' framing of the later activities.
4) It introduced the concepts of golden nuggets and usual suspects (**Section 4.4.5**) to help participants make sense of the ideas that would come up in the group discussions. It encouraged them to keep an eye out for golden nuggets that would get them closer to actionable IPCC reports, and to stay away from usual suspect conversations that could be a sink of time.

Furthermore, the session contained two interactive activities. In the first activity, "**Looking back at AR6"**, participants were asked to reflect on the question: "What do you wish AR6 would have highlighted more?" This was the only one of the workshop activities looking back at AR6 (see **Design choice 1 in Section 4.4.2**). Appendix **A.1** provides a description of the activity and the full verbatim text of the ideas written down by participants. The purpose of this activity was to practice individual thinking and sharing; to generate the first set of ideas and conversations between participants; and to introduce the four working areas (WG1, WG2, WG3 and xWG – see **Section 4.4.6**) for the remainder of the workshop.

Figure 2. Ginger the Dog - (C) The Far Side

The second activity introduced **Ginger the Dog,** a cartoon by the Far Side (see **Figure 2**). It is used in facilitation work by the CAU to give participants a way of calling out differences in understanding of certain words and phrases that can exist across professional silos – to deal more productively in bypassing potential cross-sectoral misunderstandings.

Ginger was introduced with an activity asking participants about their understanding of the phrase 'conservative risk estimate'. The CAU has previously gathered data showing that being 'conservative' or 'cautious' when it comes to reporting risk information has opposing meanings in different professional sectors. It can mean 'focusing on the side of least drama', or it can mean 'focusing on the worst that can happen'. Participants were asked to write down a number on a scale of 1 to 5 that corresponded to their understanding of the phrase (with 1 being 'the side of least drama", 5 being 'the worst that can happen", and numbers 2-4 to capture both meanings in different proportions). The group results across all participants were visualised by show of hands for 1 through to 5. Given that roughly the same number of hands went up with each number, this showed the Ginger effect to participants and gave them a common term to describe the potential for differences in understanding that might arise in the group discussions. Throughout the two days, facilitators could hear participants say things in group discussions like "That was a Ginger moment" or "That was a conservative risk moment". The written materials hold reference to Ginger the Dog too – showing that the activity was useful in fostering cross-sectoral communication.

Following the two activities, participants were asked to self-select which working area they wanted to focus on (see **Section 4.4.6**). Participants were assigned to a table with others with the same interest. It was tried to balance producers and users at each table, though because of the large number of participants in the workshop, this didn't succeed for all tables.

4.5.2 Day 1 - Session 2 - Who are the end users and what do they need?

In this session, participants worked at their assigned table on identifying end users of the IPCC report for their table's working area (WG1, WG2, WG3, or xWG – see **Section 4.4.6**). The activity was introduced step-by-step with the tasks explained in **Table 4**.

Table 4. Breakdown of steps in Session 2.

Task	Type	Purpose and prompt
2.1	Individual: identifying end users	Write down all the different **end-users** that you can think of for the area of the report that your table is focused on.
2.2	Group: sharing end users	Share individually written-down ideas using 'snap sharing' (see **Section 4.4.4**)
2.3	Individual: identifying end-user needs	What are the needs of these different end users? Pick an end user from your group discussion and write down: • What activities and tasks are the user trying to do? • What is the user trying to understand from the report? Repeat this for other end users until time is up.

2.4	Group: sharing end-user needs	Share individually written-down ideas using 'snap sharing'. Note down each identified user need on a group flipchart.

4.5.3 Day 1 - Session 3 - How can end-user needs be met?

In the same groups as in Session 2, participants worked on identifying ways to meet end-user needs. The activity was broken down in the tasks explained in **Table 5**.

Table 5. Breakdown of steps in Session 3.

Task	Type	Purpose and prompt
3.1	Individual: How can we meet end-user needs?	For each end-user need, write down ideas on how to meet that particular need on individual post-it notes. Useful prompts to identify how to meet end-user needs: 1) What research would need to be published? 2) What assessment methods would you need? 3) What would need to get approved in the outline? 4) What other new processes are needed? 5) What cross working-group or cross-chapter connections are needed?
3.2	Group: sorting mechanisms to meet end-user needs	For each end-user need on the flipchart (see Session 2), share all ideas for how to meet that need, sorting the ideas into columns: 1) **Content** – content of the report 2) **Method** – methods used to assess material for inclusion in the report 3) **Structure** – structure within chapters, chapter structure across the report 4) **Other** – anything else (e.g. new processes, cross working group/chapter connections)

4.5.4 Day 1 - Session 4 - Cross-table sharing and golden nuggets for the day

Activity 4.1. Sharing end-user needs across WG tables

The purpose of Session 4 was to give people the opportunity to find out what happened at other tables in the room through a process of 'visiting'.

Each table was asked to nominate one person who would stay at the table as 'host'. All other participants would become 'visitors' of another table. They could choose to visit a table with the same WG focus, or they could choose a table with a different WG focus.

Hosts were asked to avoid giving a general summary of the previous conversations, but rather to select three end-user needs for sharing with the visitors.

Visitors were asked to:

1) Listen to the host's choice of end user needs and ideas on how to meet them.
2) Discuss the following questions:
    a) What connections do you notice with ideas at your table?
    b) What other ideas do you have about meeting those end-user needs?

At the end of the discussions, visitors returned to their original tables to add new ideas to the flipcharts, and to go over ideas that had been added by the visitors at their table.

This process was repeated twice (with a different host) such that everyone had the opportunity to visit at least one other table – while many people visited two tables.

Activity 4.2. Identifying 'golden nuggets' for the day
Returning to the plenary space, participants were asked to write down – individually – their golden nuggets for the first day, and to add them to flipcharts in the room. This was the closing activity for Day 1.

4.5.5 Day 2 - Session 5 - Developing ideas to meet end-user needs

The purpose of this activity was to further develop ideas to meet end-user needs that had been generated in Sessions 2-4 on Day 1. The activity's steps are described in **Table 6**.

Table 6. Breakdown of steps in Session 5.

Task	Type	Purpose and prompt
5.1	Individual: selecting an idea to develop	Looking at the material on your group's flipchart from yesterday, select one idea that you think would be valuable and feasible to implement. This is on your own, so you can pick the idea that you liked most. Write it on a post-it.
5.2	Pairwise: sharing conversation	Find someone at a different table and share your idea with your partner.
5.3	Pairwise: sharing conversation	Find another person and share your idea with your new partner.
5.4	Pairwise: select which idea to develop	In your pairs, select which of the two ideas you will develop together. This selection is needed because of time constraints: there isn't enough time to develop both ideas.
5.5	Pairwise: developing your idea	Develop your chosen idea using the 'Draft' column of the A3 template in **Figure 3**. 1) What is the idea? 2) What user need does it meet? 3) What do you need to make it happen? Think about: a) Who are potential allies/partners? b) Who needs to agree? c) What resources do you need? 4) What challenges or limitations do you foresee?
5.6	Group: obtaining feedback on your idea	Form groups of three pairs at each table. In three rounds, share your ideas and obtain feedback from others. Capture any feedback in the 'Feedback' and 'Next steps' columns of the template in **Figure 3**.
5.7	Plenary: reflection	What useful insights did you gain while developing your ideas?

Ideas Development Template	Draft Title:	Feedback	Next steps
What is the idea?			
What need does it meet?			
What is needed to make it happen?			
What challenges or limitations do you foresee?			

Figure 3. A3 template used during the ideas development activity

4.5.6 Day 2 - Session 6 - Skills and capabilities needed across the IPCC ecosystem

Whereas Session 2-5 had focussed on generating ideas to speak to Objectives 1, 2 and 4 explained in **Section 4.1**, Session 6 focussed specifically on Objective 3 – skills. The purpose of the session was to answer the question: how to equip people who are part of the IPCC ecosystem (in whatever role) with the skills needed to fulfil their responsibilities?

The session was broken down into two parts – separating outcomes from mechanisms:

1. What are the skills they need? (outcome)
2. How can those skills be built? (mechanism)

Table 7. Breakdown of steps in Session 6.

Task	Type	Purpose and prompt
6.1	Individual: what are the skills?	What are the skills needed for people in different roles: • Contributing authors • Lead authors • Coordinating lead authors • Bureau members • TSU members • Focal points • …
6.2	Group: skills sharing	Share individually written-down ideas using 'snap sharing' (see **Section 4.4.4**)
6.3	Group discussion: how can we build those skills?	For each cluster of post-it notes on the flipchart, discuss how to build those skills – capturing your discussion on the flipchart. For mechanisms, think about what has worked for you in the past in terms of: • Training (in person, online, training platform, etc.) • Instruction materials (written, video, etc.) • Mentoring, coaching, peer-to-peer learning, etc. • Anything else
6.4	Group: visiting another table	Participants had the opportunity to visit another table, using the 'visiting' process explained in **Section 4.5.4**.

4.5.7 Day 2 - Session 7 - Takeaways

The purpose of this session was to identify reflections and take-aways on the ideas that participants had been discussing over the two days of the workshop.

Participants were given time to write down their thoughts about:

1. Personal takeaways
    - What can I go and do?
    - What have I discovered?
2. WG- or xWG-level takeaways
    - What is needed at a content, structure (chapter and report), or x-WG level?
3. IPCC-wide level takeaways
    - What are your takeaways about process, expertise, or anything else?

Personal takeaways were shared in two rounds of pairwise conversations. WG-level takeaways were shared in small-group conversations around the table. IPCC-wide takeaways were shared across the whole group in Session 8 (see next section).

4.5.8 Day 2 - Session 8 - Plenary and workshop close

In the first activity of the closing session, participants had the opportunity to share their IPCC-wide reflections from Session 7 in plenary with the whole group.

4.6 SOURCES OF INFORMATION

The information sources used in this report were gathered during the interactive activities in the workshop. **Table 8** provides an overview of these sources.

Table 8. Activities, type of material it generated, and location in the Appendix where the fully transcribed source materials can be found.

Day	Session	Activity	Type	Source material included
1	1	Looking back at AR6	Individual post-it notes	**A.1**
1	2-4	Meeting end-user needs	Group flipcharts	**A.2**
1	4	Golden nuggets from Day 1	Individual post-it notes	**A.3**
2	5	Ideas development	Pairwise A3 templates	**A.4**
2	6	Skills	Group flipcharts	**A.5**
2	7	Takeaways from the workshop (personal, WG-level, IPCC-wide)	Individual written cards	**A.6**
2	8	Notes from the plenary reflections	Facilitator notes	**A.7**

5. COP EVENT

Following the workshop, preliminary findings were tested with producers and end users during a side event at COP28. Three ideas arising from the workshop were presented:

1. A Special Report on Systems Transitions – combining mitigation, impacts and adaptation-relevant information for diverse sectors and systems like food, cities, agriculture, health, transport and industry
2. Cross-Working Group (x-WG) chapters assessing policy-relevant topics such as Carbon Dioxide Removal and Nature-Based Solutions
3. Building a catalogue or database of real-world, implemented adaptation and mitigation options – assessing what they achieve, their barriers and possibilities/opportunities to overcome them

These were presented alongside an additional idea that did not arise at the workshop but had been gaining traction following a survey to IPCC focal points by the IPCC Secretariat on requests for AR7: A Special Report on climate tipping points.

Following the presentations of these ideas, participants were asked to vote on the extent to which these ideas would lead to actionable information for policy end users, and to then discuss their answers in small groups. The results of the poll are presented in the figure below. While there was some support for the special report on tipping points, comments from the audience suggested that this was for specific end users with a particular need for this information. Overall, the ideas generated at the workshop were assessed as providing more actionable information for policy end users.

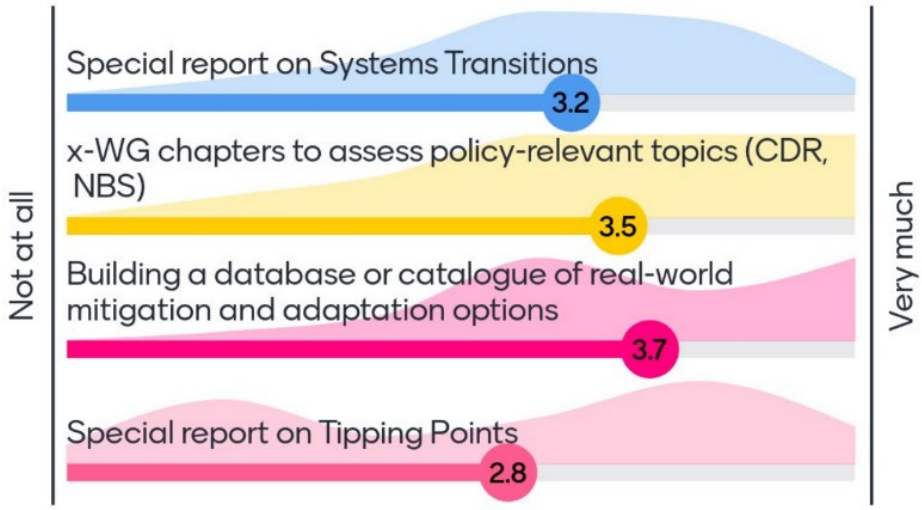

Figure 4. Response to poll at COP28 side event on the extent to which ideas would result in actionable information for policy end users

APPENDICES

A.1 APPENDIX 1 – DAY 1 – SESSION 1 – "LOOKING BACK AT AR6" ACTIVITY

In the opening session of Day 1, participants were asked to write down, individually, on post-it notes, one or two ideas in response to the question:

What do you wish AR6 would have highlighted more?

Participants then had two brief rounds of conversations in pairs about the ideas they wrote down. Following that, they added the post-it notes they wrote to a flipchart with one of the following four IPCC working group (WG)-related themes:

1. WG1 - Physical science basis
2. WG2 - Impacts, adaptation, and vulnerability
3. WG3 - Mitigation
4. xWG - Cross-cutting issues

The WG-specific flipcharts with post-it notes were transcribed word-for-word, and the ideas were sorted into recurring themes in each of the WG categories. The thematic categories are for summary purposes only, and other categorisations would be possible.

The following sections report the ideas per WG category and thematic area. These are the exact text of what participants wrote down, with only occasional spelling mistakes corrected.

The transcribed post-it notes can also be viewed by clicking here.[8]

A.1.1 WG1 HIGHLIGHTS – PHYSICAL SCIENCE BASIS

A.1.1.1 Specific policy-relevant information

1. That global warming will stop when we stop using fossil fuels and extreme events will also stop getting worse. This does not hold for sea level rise and glaciers, which highlights different time scales.
2. Clarity on role of particular technologies.

A.1.1.2 Regional information

1. Information on attribution for small islands (i.e. linking climate trends to anthropogenic influences).
2. More detail about regional information.
3. Highlight more on country-specific information than regional information.
4. Needed scales. Nature of CR flow it can be managed.

[8] The post-it notes have been transcribed on a digital whiteboard. They can be accessed by clicking on the link in the main text, or by typing the following shortened link (http://bit.ly/ar7-appendix1) in a browser window. The materials can be viewed without creating an account by selecting "View as visitor".

A.1.1.3 Uncertainty

1. Generating uncertainty from models as well as observations at regional level - also consider?
2. Making uncertainties and observations regionally relevant and easy for policy makers to understand.
3. How to determine uncertainty in outcomes at local scales.
4. Uncertainty qualification - models, pathways and actions.

A.1.1.4 Extreme and overshoot pathways

1. Plausible high-end outcomes / storylines.
2. Overshoot and return climate behaviour.
3. Tipping points or impacts of overshoots.
4. I would have liked AR6 to present climate scenarios that makes sense of present-day compounding extremes.

A.1.1.5 Need for simplicity

1. AR6 too technical - guidance and interpretation needed.
2. Summary, technical summary, or report should be written in more user-friendly language that policymakers can understand.
3. Clearer (simpler) predictions, projections, and confidence levels.

A.1.1.6 Generic statements

1. IPCC should ensure the availability of data to conduct its work more effectively.
2. It should highlight what will be the consequences for each action that we take.
3. Free access to model outputs.
4. Friendly climate data.

A.1.2 WG2 HIGHLIGHTS – IMPACTS, VULNERABILITY, AND ADAPTATION

A.1.2.1 Process

1. IPCC technical guidelines for assessing climate change impacts and adaptation.
2. Break down topics further - colour code vulnerabilities instead of uncertainties.

A.1.2.2 Asks for policy relevance

1. AR6 could have made a more forceful lead for content that allows policymakers to be able to translate policy into delivery.
2. How to move from the message of the 1.5-degree warning to getting that message to the most vulnerable demographics.
3. Specific climate products to accomplish those outcomes.

A.1.2.3 Miscellaneous asks for information

1. CAVA methodology [Climate and Agriculture Risk Visualization and Assessment]
2. Benefits to ecosystems by achieving 1.5-degree goal
3. Regional info

4. Foresight perspectives of adaptation needs of mountain communities
5. Slow onset events, their likelihood, impact, and vulnerability
6. How climate change will unfold alongside other drivers of change
7. Frame climate risk like social vulnerability as a root cause of climate change risk + adaptive action
8. Patterns of how climate events may unfold in temporal and spatial dimensions
9. Relative costs of impacts and mitigation
10. Consequences of high emission scenarios for humankind
11. Climate tipping points policy and implications

A.1.2.4 Finance information

1. Climate finance mechanisms -?
2. The importance of flexible long-term finance for adaptation

A.1.2.5 Information about near-term climate change

1. Climate adaptation before 1.5 C
2. To pay more attention to current climate - How can we adapt to it and transition to the future climate?
3. I wish AR6 had focused on near term impacts that are more relevant to policy.

A.1.2.6 Overshoot

1. Impacts at temperature increments between 1.5C and 2C

A.1.2.7 Adaptation

2. Adaptation specific chapter for WG2.
3. Adaptation technologies - missing in WG2 report.
4. Greater engagement with what is successful adaptation.
5. Recommendations for adaptation measures.
6. Need more richness on what works and what doesn't in climate resilient development. Rich experimental learning is not being captured.
7. An assessment of grey literature on what does and doesn't work when implementing adaptation actions.
8. AR6 could have highlighted how adaptation policy statements are translated into implementation.
9. Separate chapter on adaptation - integration of disciplines within chapters.
10. Focus on adaptation way forward with framework.
11. I would have liked AR6 to present a set of archetypes of (adaptation) decision types that can be put in practice.

A.1.2.8 Vulnerability

1. Vulnerability diagnostic
2. What methods can be used to understand differential vulnerabilities to climate impacts?
3. More detail on vulnerability indicators
4. Societal drivers of vulnerability and how they interplay with climate change
5. More attention on how to reduce vulnerability of people and infrastructure -?
6. Vulnerability of SIDS

7. More reference of impacts and vulnerabilities of SIDS

A.1.2.9 Loss and damage

1. Loss and damage
2. Loss and damage attributes associated with slow onset events
3. Loss and damage and its impacts on SIDS
4. Information on observed loss and damage in vulnerable countries

A.1.3 WG3 HIGHLIGHTS – MITIGATION

A.1.3.1 Process

1. Definition of Net Zero

A.1.3.2 Solutions focus

1. Concrete sectoral solutions
2. More concrete knowledge about costs and opportunities for each sector
3. Feasibility of technologies at large scale
4. Greater clarity on how global warming can be halted - mechanisms for that
5. The obstacles and opportunities of international governance and cooperation
6. More information on how the private sector can act to reduce emissions

A.1.3.3 More specificity on scenario and pathway-related information

1. 2.5-degree scenarios -?
2. Equity and pathways - socioeconomic implications
3. Stranded assets
4. Broader environmental impacts of mitigation strategies
5. More regional information on mitigation options and challenges

A.1.3.4 More specificity on emissions-related information

1. Unabated emissions - how much?
2. Economic distribution of emissions
3. More explicit emphasis on reaching GHGs especially for FF emissions
4. Interlink impacts over various sectors (go beyond sector specific)
5. Present and future emissions of raw material supply
6. Clearer elaboration of key measurements of mitigation that are beyond scientific doubt
7. WG3 to highlight/use multiple lines of evidence in assessing the trajectory of sectoral emissions pathways. This includes top-down and bottom-up modelling.
8. Assess feasibility/plausibility of future emissions scenarios
9. The futility of scenarios in isolation from an assessment of feasibility
10. Rise of SMEs

A.1.3.5 Carbon capture, reuse, removal, and sequestration

1. CCS and CCU not only CDR
2. CDR - how much for which function
3. Viability of negative emissions technologies
4. CCS - potential feasibility

5. Level of CCS and CCU
6. Limits to land-based mitigation

A.1.3.6 People and public engagement

1. Social science of engaging citizens in the transition
2. Broader social dimensions of mitigation (e.g. social licence public engagement)
3. I would have brought more social science forward like indigenous science
4. The potential and variety of behavioural change actions - how normal peoples' action can make a difference

A.1.3.7 Generic statements

1. The sense of urgency had to be made clearer.
2. Limitations of findings

A.1.4 XWG - CROSS-CUTTING ISSUES

A.1.4.1 Process

1. Design all the outputs from the start of the working group rather than at the end.
2. Mirror chapters between WG 1, 2, 3. What ideas generated in WG1 can influence WG 2, 3?
3. Agility of process, decision-making at plenary.

A.1.4.2 Solutions focus

1. To give more operational recommendations to policymakers on how to build low carbon, resilient transitions.
2. How to simultaneously achieve good outcomes for climate and other issues (e.g. nature, pollution, sustainable development).
3. Content - solutions to addressing climate change.
4. How ideas of just transition can be put into practice in different actions.
5. More specific actions (adaptation and mitigation) to be taken.

A.1.4.3 Barriers to action

1. Barriers to action/implementation
2. The structural issues underpinning climate action (inaction)

A.1.4.4 Links between adaptation and mitigation

1. Cross-cutting effectiveness of adaptation and mitigation
2. Better linkage between adaptation and mitigation
3. Links between adaptation and mitigation across WG2 and 3
4. Adaptation limits and pathways - limits mitigation inaction is placing on adaptation

A.1.4.5 Risk information

1. Near term risks
2. Cascading risk from extreme events
3. Systemic risk - linkages between climate change and management processes.
4. High impact, low probability scenarios, cascading impact

A.1.4.6 Effects of climate change on mitigation

1. Impact of climate extremes on emission scenarios
2. Resilience of mitigation strategies against climate change.
3. Interplay between warming and assumptions in models (mitigation) more clearly expressed e.g. impacts

A.1.4.7 Specific research/assessment asks

1. Social analysis as well as scientific
2. References to nature-based solutions, biodiversity
3. Emissions related to basic needs
4. Effectiveness of vegetarian and vegan diets
5. Not enough focus on unsustainable consumption as a driver
6. Co-benefits of mitigation

A.1.4.8 Regions

1. Central Asia requires more coverage
2. A better understanding of impacts in Africa

A.1.4.9 Generic statements

1. Diverse expertise and knowledge
2. More gender to equity perspectives across chapters
3. Not enough differentiation in action between global north and south
4. Understanding that it is people that will have to change
5. Achieving a common goal requires highly diverse individual action
6. Clearer language across all products
7. Reposition IPCC new function for AR7?
8. More emphasis on grey literature as some have difficulties on publishing scientific papers
9. Public engagement with climate interventions
10. Uncertainties in our understanding of costs and benefits of action
11. More actionable items on inclusion and ethics
12. Greater focus and/or shorter reports
13. Interdisciplinary data areas and questions that still require research and innovation funding

A.2 APPENDIX 2 – DAY 1 – SESSION 2 TO 4 – "END USER NEEDS" ACTIVITIES

Sessions 2 to 4 consisted of several activities to identify end users of IPCC outputs, to think about their decision-making needs, and generate ideas on how to satisfy these needs better.

The full description of these activities can be found in **Sections 4.5.2** to **4.5.4**.

Participants worked in small groups on large flipcharts to which they added information over the course of the day.

These flipcharts were intricate and would be difficult to transcribe into a linear document form. The text of this flipcharts is therefore not included into this document.

The photographs of the flipcharts, however, can be accessed by clicking here.[9]

Each participant's main insights generated by these activities were distilled by participants themselves when they were asked for their "golden nuggets" of the day (see).

[9] The photographs have been placed on a digital whiteboard. They can be accessed by clicking on the link in the main text, or by typing the following shortened link (http://bit.ly/ar7-appendix2) in a browser window. The materials can be viewed without creating an account by selecting "View as visitor".

A.3 APPENDIX 3 – DAY 1 – SESSION 4 – "GOLDEN NUGGET" ACTIVITY

In the closing session of Day 1, participants were asked for their "golden nuggets". These were defined as:

- *a new insight that gives you a sense of breakthrough*
- *an idea that makes you see an old problem in a new light*
- *an 'aha' moment*

A.1 Participants wrote one golden nugget per post-it and added them to flipcharts. The flipcharts were transcribed word-for-word, and the ideas were sorted further into recurring themes. The thematic categories are for summary purposes only; other categorisations would be possible.

The following sections report the golden nuggets, sorted by thematic area. They contain the exact text of what participants wrote down, with only occasional spelling mistakes corrected.

The transcribed post-it notes can also be viewed by clicking here.[10]

A.3.1 PERSONAL DISCOVERY AND PERSPECTIVES

A.3.1.1 Generic

1. Telling people what you know may not help them
2. Good science does not equal bad communication

A.3.1.2 About the participants of the meeting

1. The difference of views of different people (esp. authors) is really surprising
2. The XC groups did have a different perspective

A.3.1.3 About the meeting format and outcomes

1. The new knowledge of organising workshop; the use of hand raising; "Ginger the dog" etc.
2. Work backwards
3. Need to focus on user requirements
4. THINK: WHAT ARE PEOPLE GOING TO DO WITH MY INFORMATION
5. IPCC is co-produced with governments, the primary users. Today we were asked about meeting needs of other users with whom it is not coproduced.
6. The dog that did not bark! Concrete ideas for better integration between WGs 2 and 3

A.3.1.4 About the IPCC

1. IPCC Mandate (perceived limitations)
2. Scoping is key

[10] The post-it notes have been transcribed on a digital whiteboard. They can be accessed by clicking on the link in the main text, or by typing the following shortened link (http://bit.ly/ar7-appendix3) in a browser window. The materials can be viewed without creating an account by selecting "View as visitor".

3. If IPCC "only" synthesise published information, it is necessary to identify the main research gaps to let academia fill them
4. The process & IPCC is chaotic. Choose 2 or 3 issues & push into scoping and author selection
5. How much some small tweaks for author support/representation would go towards better science
6. Manage user expectations. IPCC isn't an egg-laying wool dairy pig
7. Are we asking too much of the IPCC? There are others who can/should fill some of these gaps e.g. on risk assessment or media. Can we set up a formal mechanism for it?
8. Must break down WG2 and WG3 silos

A.3.1.5 About the IPCC reports

1. Report process structure doesn't have to be fixed.
2. What detail is too detailed for the IPCC report?
3. My golden nugget is the insight of having gained how IPCC report is being structured.
4. Reports are too long and too jargon-y. Who uses the TS?
5. Reports are co-produced with governments, but many countries are not ever mentioned in the report, so they don't see its relevance to their needs.

A.3.1.6 Miscellaneous

1. Good ideas exist independently in WG1, WG2, WG3, xWG. They need to be shared.
2. Importance of collaboration and consistency of information across the WGs.
3. All tables that I went to had identified regional needs, so it's a common end user need for all WGs.
4. Granular level assessments are very important for end-users.
5. The differences concerning information needs for different regions are enormous.
6. Do we need to improve our products for different (many) audiences, or shall we make different products for different audiences?
6. The demotivating effect on authors of crediting non-contributing authors and Bureau members on reports. I was not aware of the scale of this problem.
7. A lot of specific reports for specific audiences / businesses exist but nobody knows about them, and IPCC can't / won't acknowledge them because it is out of their mandate.
7. Language hurdles around outputs, the fact that this includes French; lack of local risk assessments; importance of the chapter authors.

A.3.2 IDEAS ABOUT INPUTS INTO THE ASSESSMENT PROCESS

A.3.2.1 Input sources (generic)

1. Using publications in different languages and more materials from the Global South
2. Finding flexibility to incorporate multiple sources of information
3. More emphasis on bottom-up knowledge

A.3.2.2 Input sources (engaging with)

1. Incorporating the lived experiences of people that are often invisible in IPCC assessment (landless, homeless, disabled, IPCS, etc.) to deepen assessment of vulnerability. May require workshops, dialogues, new ways of capturing knowledge.
2. Invite pre-cycle bibliographies from under-represented groups e.g. indigenous slumdweller.
3. Pre-scoping meeting with various stakeholders.
4. Differentiation needed to understand needs. methods and outcomes for different 'type countries' e.g. Global South, Least Developed Countries (LDCs), Global North.
5. Cross-cutting collaboration from different sectors/disciplines to address the challenges of climate change.

A.3.2.3 Input sources (specific)

1. Work on a framework to integrate the most up to date climate data into IPCC reports e.g., work with WMO State of Climate
2. Integration of Sustainable Development Goals (SDGs) across the WG process
3. Need to get access to how decisions are taken in environments where risk information (past & future) is structurally scarce

A.3.2.4 Input sources (indigenous and grey)

1. Greater inclusion of indigenous knowledge and grey material – include in different colour etc. but include
2. Grey literature – not a golden nugget but came up a lot, really important to include, there are methods to do so, important to include everything from International Energy Agency (IEA) to indigenous oral (hi)stories
3. Assessing the future relevance of indigenous and local knowledge, systematic and participatory variable
4. Including/ emphasise local knowledge & indigenous knowledge into the process compared to present assessments
5. All literature has bias. Journal literature and non-journal literature have value, including indigenous & local knowledge
6. Find a mechanism for assessing indigenous + traditional knowledge
7. Commission review papers, synthesising grey and indigenous knowledge well in advance of reports being written
8. Invite organisations outside of the IPCC to produce relevant information (e.g. traditional indigenous knowledge)
9. Need more appropriate self-determined processes / structure for indigenous knowledge + indigenous science for AR7
10. How the incorporation of indigenous, traditional and/or local knowledge is constrained in different parts of the world
11. That the IPCC is so far behind in assessing & including indigenous knowledge.

A.3.2.5 Impacts, vulnerability and adaptation

1. Understand national and local context in adaptation and vulnerability
2. Spatial analysis of literature - adaptation action, policies, impacts

3. Limits of adaptation; transformation adaptation
4. Maladaptation pathways – it is also dynamic
5. Methodological work for impacts and adaptation
6. How to do vulnerability assessment via qualitative means
7. More detection and attribution of observed impacts would focus actions on major causes, whether greenhouse gas emissions or non-climate change factors
8. Extremes + attribution as starting point for diagnosing both L&D AND adaptation progress/deficit

A.3.2.6 Regional

1. Factor in regional observational uncertainties while evaluating model outputs in historical context (and thereby culture
2. Regional clear local data
3. Localised impacts, vulnerability should be there, and it can be a bottom-up method!
4. Try to produce more detail information at regional level
5. Need for regional analyses (e.g. special reports) covering impacts, adaptation and mitigation
6. Regionalisation of the adaptation (climate information –> easy relatability information –> hard); financiation of the adaptation; metrics of regional adaptation

A.3.2.7 Mitigation

1. Vulnerability of mitigation actions
2. Harmonisation of data for sectoral mitigation scenarios
3. Need for a decision on breadth versus depth, particularly for scenario analysis
    - are scenarios plausible
    - their implications

A.3.2.8 Risk

1. Climate risk relates to security
2. Risk to habitability from hazard to vulnerability

A.3.2.9 Geopolitics

1. geopolitics and climate change: points of intersection
2. Understand the intersection of geopolitics/security and prospects for climate action
3. Geopolitical influence of the report; thinking of the storyline when scoping the WG reports.

A.3.2.10 Multiple points

1. Multiple 1
    - Reporting on an assessment of gaps would be useful
    - Assessment of implementation efforts would be useful
    - Assessing scale of impact (spatial and temporal) would be useful
    - Creating a methodology to assess indigenous knowledge important
2. Multiple 2
    - HILL events include climate tipping as storyline
    - Event attribution studies (Small scale, tails, ETCS etc.)

- Mitigations / carbon budget should have chapter in WG1
- Capacity building on climate model + tool)

3. Multiple 3
   - Spatial analysis
   - Transformative change
   - Indigenous comm
4. For the methods
   - Pre scoping before WG activities
   - Bottom-up methods
   - Identifying common themes & commonalities across different users and sectors

A.3.2.11 Research gaps

1. Include a section on research and knowledge gaps (or annex) to guide research
2. Specific and organised information on research gaps for funders

A.3.2.12 Miscellaneous

1. Transparency on scenarios assumptions – include all as Annex or Interactive product similar to WG1 Atlas
2. Development in WG1+3 needs to match WG2
3. Role of communities of practice to bridge local user needs, context and knowledge with the IPCC assessment in support of authors
4. Tipping points consider both physical, nature and social tipping points
5. Provide climate predictions/projects for the next 5-10 years aligned with "election cycles" for tangible climate actions
6. Make WG2 more consistent with GWLs; what should users expect from 1.C/2.8C etc? In every chapter summary

A.3.3 IDEAS ABOUT THE IPCC PROCESS

A.3.3.1 Scoping

1. Start with the synthesis report structure based on user needs i.e. climate change solutions
   - what do WG1, 2, 3 need to deliver
   - then complete synthesis report
2. Earlier start of the IPCC SYR to improve articulated assessment of scenario across the different WGs
3. Start the synthesis report process with the intended outcome in mind – i.e. draft first, identify needs via co-creative process and then set out research/implementation needs/priorities
4. Outlines that specifically address systems and mitigation/adaptation linkages

A.3.3.2 Report structure

1. Doing the WG2 report before the WG1 to define climate-impact drivers (CIDs) bottom-up
2. AR7 needs to work at sub-regional climate level, not (e.g.) Africa, nor Central Asia

3. WG2 restructure to:
   a. vulnerabilities and impacts
   b. adaptation and consequences

A.3.3.3 Task force

1. The plenary must become more decision-friendly to be able to swiftly decide on new & different needs
2. Create IPCC taskforce on impacts and adaptation inventories
3. Taskforce on adaptation metrics

A.3.3.4 Technical support units

1. Permanent TSUs that allow addressing specific topics on demand (IPBES style)
2. TSUs should actively support networking in global south regions
3. The IPCC needs to add more supporting elements to fulfil the various user needs. See the TSUs by IPBES!
4. Need to build capacity to support IPCC
   - more countries
   - more practitioner focused

A.3.3.5 Calls for evidence

1. IPCC calls for evidence
2. Calls for evidence: directed calls by the IPCC on areas where more evidence and analysis are needed
3. IPCC local-scale info supply <-> Stimulate local data gathering and studies

A.3.3.6 Author processes

1. Add language-skill as an additional author selection criteria
2. Add language skills to Contributing Authors selection to better access non-English literature
3. Need to include scientists/authors for the major official languages of every region in order to get a good complement of scientific knowledge available in these regions
4. Actively address non-contributing authors

A.3.3.7 Data availability

1. Make all data that is assessed available (with metadata, assumptions, code) e.g. Interactive Atlas databases etc. that can be used to explore and tailor info

A.3.4 IDEAS ABOUT IPCC PRODUCTS

A.3.4.1 Atlas

1. A cross-WG updatable interactive Atlas
2. IPCC WG2 atlas on e.g. adaptation; draw on WG1 atlas & the Global Environmental Justice atlas
3. Build on WG1 Atlas (not v useful/widely used) with addition of the consequences i.e. from WG2

4. Extend Atlas to WG2 and 3 + different topologies
5. Interactive Atlas for all 3 WGs
6. Need for enhanced WG1 Atlas to include vulnerabilities + Adaptation options

A.3.4.2 Special reports (solutions-focused)

1. Special reports on various sectors such as health (including diets) or industry
2. Special report on each system transition or with a chapter on each AR6 system transition
3. Special reports on system transformations (cities, food, transport ...)
4. Special report on action and solutions
5. "Solution" oriented systems transition/sectoral reports bringing WG together

A.3.4.3 Special reports (other)

1. Need for special report on Adaptation Metrics
2. Special Report on Net-Zero
3. Cross-cutting special report before global stocktake (2027); updates + new topics
4. Convert the style of IPCC report in something actionable for NDCs updating and Global Stocktake updating process
5. Reports/assessment across WGs, tailored e.g. to global stocktake process, to assess e.g. how CRD is implemented in practice, special report during the cycle (faster/frequent/ that helps inform local climate planning action

A.3.5 SOLUTIONS- AND IMPLEMENTATION FOCUS

A.3.5.1 Generic

1. The need for a blended approach to policy making merging a top down with a bottom-up approach
2. Replicable/modifiable but consistent methodologies that can be more widely used
3. Concept of standards of practice that IPCC reports can be used to inform/shape
4. The involvement of further stakeholders in IPCC process (like Courts); the mean-term recommendations are of utmost importance for politicians

A.3.5.2 Assessment of downscaling methodologies

1. To provide methods, guidance for how to downscale / disaggregate global/general results to local/specific especially supporting standards agencies to do this
2. Instructions on how to downscale info for different regions
3. To meet the need for more regional information, the IPCC could teach regions the underlying methodologies used to generate information, figures, etc. thereby empowering them to generate their own regional assessments
4. Provide guidelines on how to interpret mitigative assessment on regional (country, city, region) scale

A.3.5.3 Assessment of implementation methodologies

1. IPCC-endorsed methodologies / frameworks to support implementing action in national / local contexts

2. Focus on reproducible methods for assessments to inform implementation
3. Need to critically review a series of methods for achieving change and recommending how they are used
4. More emphasis on assessing the effectiveness of adaptation and mitigation options. Requires more rigorous assessment of literature e.g. 'grey literature'

A.3.5.4 Case studies

1. Develop case studies that demonstrate the application of adaptation and mitigation so others can adapt and use
2. Case studies of 'what works' and 'what doesn't' + localised data that is accessible to countries that own it
3. Adaptation inter-comparison project; support aggregation of adaptation effort, global goals, communication of adaptation etc.
4. There is a growing number of solutions (adaptation) available. These need signposting, and clustered by (sub)sector and (sub)regional and timescale (5-10 yr./10-30 yr. etc)
5. Need for a case studies database for adaptation and mitigation analogous to the scenarios database
6. For the content
   1) a chapter on contextually specific information solution
   2) giving more case studies, good practices, archetypes
7. Database of mitigation case studies

A.3.5.5 Assessment of risk methodologies

1. Assessment of methodology e.g. risk assessment / assessment of warming levels etc.
2. IPCC setting out how to do a risk assessment
3. Reframe 'risk' narrative towards 'opportunities' to attract government interest / buy-in for solutions
4. Move from a risk narrative to an opportunity narrative
   - climate resilient development
   - evaluation
   - transformation
5. The importance of conveying to decision-makers the compound, inter-connected spillover effects of certain actions / non actions
6. Complex (compound, cascading) risks as a key cross-WG topic
7. Agree one joint risk assessment approach at the very start of the cycle

A.3.5.6 Engagement to understand end-user needs

1. Scoping of cross-chapter boxes involving govts
2. Talk to policymakers during writing how it sits for them
3. Collect data from the people who in the end will make local changes
4. Possibility to create regional networks

A.3.5.7 Miscellaneous

1. AR8 innovation: the cost of inaction versus benefits of action
2. Provide a cost-of-inaction; relevant to politicians

3. CDR scale required to achieve Net Zero and meet carbon budget
4. Produce info that supports difficult decisions
5. WG3 doing multiple lines of evidence; the IPCC can do itself, but also advise practitioners how to combine IPCC assessment with the local evidence that could be based on grey literature.

A.3.6 COMMUNICATION AND ENGAGEMENT

A.3.6.1 Report message and structure

1. Clarity of message, not jargon
2. Summary for all (SPM in easy language or merging FAQs)
3. A concise set of synthesis statements as part of the report would improve effective communication
4. Narrative structure to the SPM with statements at different levels of complexity

A.3.6.2 Communications formats

1. We can communicate our reports differently (not only through reports)
2. Use innovative formats to present outputs and connect audiences
3. We need an Al Gore "Frog in the boiling crate" kind of video or reel to summarise each AR! Lose the words. Use imagery.
4. IPCC having a 'how to understand the report' video in their website to build capacity
5. Have an IPCC "Help Desk" at Bonn and COP where people can ask questions about climate change.

A.3.6.3 Languages

1. Make comms products in more than UN languages
2. Translate to 6 UN languages

A.3.6.4 Engagement with communications experts and media

1. Involve comms experts much earlier in report generation
2. Communicating the reports is too much an afterthought - a nice to have. Comms people should be working it through with IPCC and frame accessible messaging
3. To develop a communication strategy
4. Engage with the media earlier in the process
5. Media reviews of IPCC reports prior to approval (feedback on communication)

A.3.6.5 Audiences

1. How to communicate report / report findings to users who don't even know they need it?
2. It's important to explain (capacity building) how to access to IPCC information because it's complex the first time

A.3.6.6 Skills

1. Formation of authors for communication + understanding of policy

A.3.6.7 Engagement with other organisations

1. We have to promote more conversation between IPCC and Risk Management Convention
2. Be more open to collaborate with other intergovernmental bodies
3. Decide what not to do – restrict IPCC to essentials and focus on handovers to other actors
4. Importance of the legal community, legal researchers, and judiciary as users and producers of IPCC reports. Need to translate science into legal targets.

A.3.7 GENERIC ASKS AND STATEMENTS

A.3.7.1 Artificial Intelligence (generic)

1. Use of AI
2. Could AI help reduce burden to authors?
3. Leveraging AI to optimise IPCC processes while being mindful of its challenges
4. AI is going to be a BIG issue for AR7; A threat to credibility & legitimacy + opportunities
5. As the AR7 evolves, there must be caution on the use of AI for systematic reviews and assessments
6. Multiple roles of AI
    - translation
    - access portal
    - review
    - threat of plagiarism
7. Machine assisted Tools led by IPCC reports and IPCC reports being fed by machine assisted tools (AI)

A.3.7.2 Artificial Intelligence (on the input side)

1. AI to help out chasing grey literature on impacts, vulnerability decisions etc.
2. Using AI / ML to sieve and consolidate findings from literature
3. Using AI to cluster and assess case / bottom-up studies
4. Use AI for a comprehensive literature review

A.3.7.3 Artificial Intelligence (on the output side)

1. Keep reports comprehensive + manageable, use AI to address different users
2. Use of AI to make the IPCC report content easy to search access
3. Golden nugget – the use of AI to make more accessible and comprehensive some points of the AR7
4. Use AI for translating reports into various languages (yes! the entire report!)
5. Use AI (or even a simpler Q+A) to produce tailored (bespoke) report
6. AI-aided summarising of AR based on user need – online, developing case studies
7. Need for AI interface to enable more user-friendly interaction in the report and user tailored graphics
8. AI interface on Atlas to extract info for specific users/stakeholders (specific sector, region, stakeholder type)

9. The potential of making the IPCC products more interactive/customised/virtual - maybe through AI

A.3.7.4 Connection between adaptation and mitigation

1. Importance of the connection between mitigation & adaptation is really importance
2. Need to combine adaptation and mitigation; not fully but there are many interfaces and connections
3. Synergy of adaptation and mitigation together
4. Create special chapter, the overlapping between mitigation and adaptation
5. Special Report 'Cities' provides an opportunity to test out the adaptation / mitigation integration approach for actionable info

A.3.7.5 Access to literature

1. Open access to IPCC - AR - referred literature that is behind paywall
2. To improve access to literature

A.3.7.6 Diversity

1. More gender-equity, diversity & inclusion issue could be integrated across chapters & WGs
2. Gender equity diversity & inclusion across WGs
3. More women across the assessments
4. Can IPCC request its parent organisation to enhance the equity and balance of research. IPCC used by find & build capacity?

A.3.7.7 Requiring mandate change

1. A radical change to the IPCC Assessment Cycle to align with Global Stocktake e.g., light touch updates every 5 years; major reports every 10 years
2. Plan to get rid of WG1, 2 and 3 in time for AR8

A.3.7.8 Miscellaneous

1. Consistency in information; breadth and depth of analysis
2. Mechanisms to support authors with our burden

A.4 APPENDIX 4 – DAY 2 – SESSION 5 – "IDEAS DEVELOPMENT" ACTIVITY

In the first session of Day 2, participants were asked to select one idea to meet end user needs from Day 1 and develop this further.

The ideas development was done in groups of 2 using the template in **Figure 1.** Following an initial round of development done in pairwise conversations, the ideas were then discussed and refined in conversations with several other pairs.

Over the course of these rounds of development and feedback gathering, participants captured important points on an A3 paper template. These templates were transcribed word-for-word, and the ideas were sorted further into recurring themes, which were used in the main text of the report to summarise the ideas.

A total of 59 ideas development templates were completed. A short (verbatim) description of each idea is provided in **Section A.4.1**. It contains the title of the idea, as well as the first 2 boxes of the template ("What is the idea?" and "What need does it meet?"). If authors added their name on the A3 template, then these are included too.

The thematic grouping of the ideas used in the main report is provided in **Section A.4.2**.

The templates (photos and fully transcribed text) can also be viewed by clicking here.[11]

A.4.1 OVERVIEW OF IDEAS

This section provides an overview of all ideas generated by participants.

A.4.1.1 Idea 1 – Assessment of carbon dioxide removal

Contact
Pierre Friedlingstein and Richard Jones

What is the idea?
Full assessment of CDR
WG1: process, efficiency, side effects
WG2: side effects, land competition, social element
WG3: technology, finance, social perception

What need does it meet?
Provide evidence on potential implementation to government, UNFCC etc

A.4.1.2 Idea 2 – Interactive Atlas WGI + II + III

Contact

[11] The photographs and transcribed text have been placed on a digital whiteboard. They can be accessed by clicking on the link in the main text, or by typing the following shortened link (http://bit.ly/ar7-appendix4) in a browser window. The materials can be viewed without creating an account by selecting "View as visitor".

Judy Umumbo and Andrew Ferrone

What is the idea?
Interactive Atlas WG1+2+3 + typologies (e.g. cities, coastal systems, local & indigenous knowledge)

What need does it meet?
Regional information for different sectors, users + communities + general public

A.4.1.3 Idea 3 – System transition special report(s)

Contact
Pamela McElwee and Carl Schleussner

What is the idea?
Special reports on system transitions (health, food etc)
Take chapters out of WG1 + 2 –> shorter ARs

What need does it meet?
Implementable solutions across scales
System thinking, adaptation mitigation co-benefits

A.4.1.4 Idea 4 – Revising & improving utility of the glossary

Contact
Not provided

What is the idea?
Review & revise entire IPCC common glossary to ensure consistency + improve usability and relevance of terms included for end-users in their domains

What need does it meet?
End-users are using IPCC definitions but often without understanding the term or its implications / IPCC chapters/WGs not always consistent

A.4.1.5 Idea 5 – Creating visual content (cross-WG issues)

Contact
Not provided

What is the idea?
Creating of more visual content from (WG1 and 2) based on interactive Atlas from AR6, to improve communication of IPCC findings & increase audience/end-users

What need does it meet?
- Meets needs of broader audience in accessing IPCC information (more accessible format)
- Supports adaptation action
- Easy access to IPCC information

A.4.1.6 Idea 6 – Strengthening the applicability of IPCC concepts in end-user contexts

Contact
Petra Minnerop

What is the idea?
Expert workshop on the applicability of IPCC definitions/concepts in end-user contexts.

What need does it meet?
- Litigation / providing evidence
- Legislation
- Better understanding of the science
- Better understanding of the law to inform scientific research
- (Could there be a special IPCC report on GST)

A.4.1.7 Idea 7 – XWG Chapters

Contact
Siri Eriksen and Raphael Slade

What is the idea?
Cross WG chapters; collaboration that goes beyond a XWG box but not a special report

What need does it meet?
Integration + more actionable, e.g.:
- climate resilient development
- scenarios
- finance

A.4.1.8 Idea 8 – Non-contributing author blacklist

Contact
Not provided

What is the idea?
Need to avoid selecting authors with a track record of non-contribution; speed up process for removing non-contributing authors

What need does it meet?
- Strong motivated authors lead to a better report
- Stops being unfair to authors who do contribute

A.4.1.9 Idea 9 – Specific summaries for different user groups

Contact
Debora Ley

What is the idea?
Develop specific summaries for different user groups (urban, industry, indigenous, bankers)

What need does it meet?

More targeted information for more targeted action, hopefully leading to more ambition

A.4.1.10 Idea 10 – Raise the level of IPCC fund and capacity

Contact
Walid Oueslati and Chandni Singh

What is the idea?
To enhance the capacity of IPCC to deliver reports & communication capacity. It's crucial to increase the (targeted) available funding beyond the existing sources

What need does it meet?
- Increasing capacities
- Deepen analysis (at the regions level) in particular for LDCs
- Target certain users

A.4.1.11 Idea 11 – Integration of secondary users at scoping stage

Contact
Mark Pelling and Robin Webster

What is the idea?
Integration of secondary users (e.g. mayors, water industry) at:
1. scoping stage –> they provide a bibliography
2. the IPCC facilitates secondary users to apply XWG assessment approaches

What need does it meet?
Decision makers / secondary users own and can utilise x-WG methodologies so they can explore relevant findings

A.4.1.12 Idea 12 – Cross working group chapters

Contact
Anand Patwardhan and Zoltan Rakonczay

What is the idea?
Cross-working group chapters on specific topics – NBS, CDR

What need does it meet?
1. Increase coherence, cross-fertilisation & cross-checking/cross-validation necessary for cross-cutting topics.
2. Integral information to policymakers on a topic - better decision-making

A.4.1.13 Idea 13 – GCF case load

Contact
Annela Anger-Kraavi and Bart van den Hurk

What is the idea?
Analyse portfolio of GCF applications of a given type; inventory of what did and didn't work on funding & implementation; aggregate to incorporate in new generation scenario pathways.

What need does it meet?

Realistic, empirical information for funders and implementation agencies about enablers/barriers for a given type of decision context.

A.4.1.14 Idea 14 – Expanding adaptation literature beyond English language

Contact
Not provided

What is the idea?
Expanding adaptation literature beyond English language

What need does it meet?
- Pluralise knowledge sources IPCC draws on
- Make it more inclusive (less colonial)
- Greater dissemination of adaptation knowledge

A.4.1.15 Idea 15 – Catalogue of mitigation options

Contact
Not provided

What is the idea?
Present a catalogue of mitigation options with barriers (long + short term/most obvious) and possibilities/opportunities to overcome them

What need does it meet?
To provide end users with comprehensive information about available mitigation actions and related barriers including 'obvious' and 'not-oblivious' barriers with corresponding recommendations.

A.4.1.16 Idea 16 – Bridging scales: local, community, sub-region to global

Contact
Not provided

What is the idea?
Bridge scales from local, community, regional -> global assessment: user needs, knowledge, data etc

What need does it meet?
Make reports more relevant and actionable for policy makers + users -> globally at sub-regional scales

A.4.1.17 Idea 17 – Dynamic report production

Contact
Not provided

What is the idea?
Tailor this full report to users
- Dynamically generated, maybe used AI tools

Users' inputs:

- Interests, tech, sector, region, finance, time
- Generates shorter, focused

What need does it meet?
Gives much shorter, targeted report to those who don't read full report or who need info across chapters

A.4.1.18 Idea 18 – Meeting the needs of UNFCCC policy makers & the GGA

Contact
Not provided

What is the idea?
Synthetic approaches to move science into action

What need does it meet?
- More capacity
- More translators

A.4.1.19 Idea 19 – Downscaling data for vulnerable communities

Contact
Not provided

What is the idea?
Downscaling climate data for community and affected people

What need does it meet?
- Local understanding and planning
- Empowerment and local climate action
- Facilitate effective adaptation - climate resilience

A.4.1.20 Idea 20 – Realistic & feasible mitigation scenarios knowledge building & localising

Contact
Not provided

What is the idea?
Build feasible and affordable dynamic scenarios (Global South) to be picked up by NDC and global negotiations

What need does it meet?
Knowledge of sub-national / local options

A.4.1.21 Idea 21 – Regional information for adaptation

Contact
Not provided

What is the idea?
The need for IPCC to better capture regional information

What need does it meet?

Feasible and effective adaptation actions and options

A.4.1.22 Idea 22 – Decision support approaches to facilitate local actions

Contact
Not provided

What is the idea?
Develop tools / methods, datasets etc. to enable & facilitate local scale (regional, national) analysis & action planning

What need does it meet?
Providing the tools/methods to provide the analysis in order to support decision making + action planning at national / local level

A.4.1.23 Idea 23 – Multiple lines of evidence for decision making support

Contact
Dr Brynhildur Davíðsdóttir and Alaa Al Khourdajie

What is the idea?
Building on practices by WG1 during AR6, we suggest using an approach of multiple lines of evidence to enable more robust decision making at the local level.

This will help broadening decision making criteria to include wellbeing, health & combine it with conventional top-down and bottom-up analysis

What need does it meet?
- To legitimise and inform decisions that often involve trade-offs
- To create a positive narrative for the transition beyond climate and economic considerations (e.g. co-benefits with SDGs)

A.4.1.24 Idea 24 – Providing detailed information on mitigation options

Contact
Not provided

What is the idea?
Providing detailed information on mitigation options

What need does it meet?
Provide the private sector with information on best available options and the efficiency, effectiveness and efficacy of the options. Also, information on cost savings.

A.4.1.25 Idea 25 – National & local context regarding climate impacts & vulnerabilities

Contact
Not provided

What is the idea?
Understand national & local context regarding climate impacts & vulnerabilities

What need does it meet?

- Contextualised information on national and local climate impacts and vulnerabilities
- Strengthened adaptation strategies and plans

A.4.1.26 Idea 26 – Vulnerability determination to support intervention

Contact
Not provided

What is the idea?
Determine vulnerability to climate change

- conduct interviews
- database for report
- fund capacity to extract information
- systematic reviews

What need does it meet?

- Reduce risk from climate change
- Place adaptation options

A.4.1.27 Idea 27 – Transparency on the input assumptions & socio-economic implications of the selected scenarios

Contact
Not provided

What is the idea?
Transparency on the input assumptions & socio-economic implications of the selected scenarios

What need does it meet?

- For policymakers to better understand the context for making more informed decisions
- For researchers - to make science more widely and regionally accessible
- Advances climate science in general

A.4.1.28 Idea 28 – [DUPLICATE of Idea 11]

This document was photographed and numbered, but upon reading proved to be an earlier, less detailed draft of Idea 11.

A.4.1.29 Idea 29 – Identifying knowledge gaps for funders

Contact
Not provided

What is the idea?
How to identify knowledge gaps for funders which will achieve the greatest/quickest impact

What need does it meet?

- Helps policymakers and funders identify what to fund nationally / internationally in a [multidisciplinary] environment in an equitable manner
- Help avoid duplication of funding

A.4.1.30 Idea 30 – Develop a media engagement plan

Contact
Not provided

What is the idea?
Develop a targeted media engagement plan that treats media as a stakeholder

What need does it meet?
- Lack of clear communication
- Translation of messaging for general public
- Lack of trust between scientists and journalists
- Improve relatability

A.4.1.31 Idea 31 – Insights at the national level

Contact
Not provided

What is the idea?
Increase the granularity of IPCC reports to provide insights at the national level

What need does it meet?
To provide information about vulnerabilities and mitigation options at the national level

A.4.1.32 Idea 32 – Making IPCC accessible via an AI-driven platform

Contact
Not provided

What is the idea?
Making the IPCC more available through an AI-driven platform; making it possible to make customised reports on specific topics; inspired by the Global Atlas

What need does it meet?
Accessibility of technical information

A.4.1.33 Idea 33 – Database of tech mitigation options

Contact
Not provided

What is the idea?
Database of tech mitigation options with costs, co-benefits, barriers, TCO, etc.

What need does it meet?
Lack of information for decision making

A.4.1.34 Idea 34 – Dynamic reporting

Contact
Not provided

What is the idea?

Tailored reports by

- Geography
- institutional type (e.g. city, company)
- (if relevant) sector

Produced dynamically

What need does it meet?
More actionable reports for users

- set in context of full IPCC reporting
- can incorporate latest data
- supports more effective decision making

A.4.1.35 Idea 35 – Integration of country reports on climate change response

Contact
Not provided

What is the idea?
Integrate the country reports ex. NDC to get more precise assumption regarding on the country data

What need does it meet?
To lock the entry condition, focus on the model / data to make to make it more aligned with country structures -> the report will be more helpful for user (country) -> national / local

A.4.1.36 Idea 36 – Local & regional risk planning

Contact
Patrick Gonzalez and Beatriz Fuentealba

What is the idea?
Improving IPCC information for local & regional risk planning

What need does it meet?

- Prioritise risks that require responses
- Adaptation measures that compound risks
- Spatial data layers of risk at the finest spatial resolution, scientifically valid

A.4.1.37 Idea 37 – WG2 CLAs Revolution

Contact
Not provided

What is the idea?
More dialogue (scientists + govts) (scientists + media)

What need does it meet?
Better understanding of science and better communication

A.4.1.38 Idea 38 – Vulnerability & risk assessment at different scales

Contact

Not provided

What is the idea?
Develop vulnerability (& risk) assessment at different scales (including central Asia)

What need does it meet?
For policy, to develop planning (from local to national levels)

A.4.1.39 Idea 39 – Feasible & effective adaptation actions & options

Contact
Not provided

What is the idea?
To provide more guidance to policy makers by using case studies or best practices. Because they have usually general idea but need more specific information to act

What need does it meet?
To apply effective and feasible adaptation options and/or actions for the local contexts to cope with impacts of CC (economic and non-economic)

A.4.1.40 Idea 40 – Open access

Contact
Not provided

What is the idea?
Open access to literature, data, standards, publishing. Increased research funding to vulnerable regions

What need does it meet?
Increased data availability and authorship from vulnerable and underrepresented regions/countries

A.4.1.41 Idea 41 – Adaptation case studies

Contact
Not provided

What is the idea?
Explore feasible & effective adaptation options with lessons learnt from case studies examples

What need does it meet?
Meets the needs of end users to have more / better solution options. Learning from others on how to reduce vulnerability.

A.4.1.42 Idea 42 – Vulnerability & risk assessments of hazards at varying scales (global, regional, national, local & sector specific)

Contact
Not provided

What is the idea?

Vulnerability & risk assessments of hazards at varying scales (global, regional, national, local & sector specific)

What need does it meet?
Better advising of decision makers (politicians, developers, planners) on how to use in risk information

- planning, prioritisation and finance needs
- Research and analysis on what exists, and identify gaps

A.4.1.43 Idea 43 – Contextualising IPCC reports to local realities

Contact
Not provided

What is the idea?
Contextualising the IPCC reports
Downscaling the information from global to local

What need does it meet?

- Greater relevance to nations, communities, livelihood zones etc.
- To tailor local policies to the needs of local realities

A.4.1.44 Idea 44 – WGII - Strengthen the regional content of the report

Contact
Jahin Shams Sakkhar and Mike Morecroft

What is the idea?
Strengthen the regional content of the report

What need does it meet?

1. Meets the need of more localised reports
2. For better integration of local evidence / knowledge

A.4.1.45 Idea 45 – Support for policy & decision-making

Contact
Not provided

What is the idea?
Decision support for challenging decisions by politicians / policy

What need does it meet?

- Movement in implementation
- Follow up on promises
- Improves trust and buy-in

A.4.1.46 Idea 46 – Accessibility of underlying data of the reports

Contact
Not provided

What is the idea?

Enable access to the underlying data of the reports + updates

What need does it meet?

- decision-making at various levels and for various sectors
- address + identify research gaps

A.4.1.47 Idea 47 – How to facilitate climate resilient agriculture on the ground

Contact
Not provided

What is the idea?
Solution for implementation (both adaptation & mitigation)

What need does it meet?
To facilitate the climate action on the ground

A.4.1.48 Idea 48 – Regional evidence networks to build an adaptation options library

Contact
Not provided

What is the idea?
To connect & support networks of academics and practitioners that are able to provide granularity to the data (socioeconomic, environmental) fill gaps (language, grey literature) and compile adaptation options in a library of case studies (existing especially)

What need does it meet?
Build capacity of end users to adapt by providing access to a rich record of contextualised options that work, and explaining how they work.

A.4.1.49 Idea 49 – Reorganisation of regional chapters to homogenous groups

Contact
Not provided

What is the idea?
Reorganisation of regional chapters into more homogenous groups (Africa -> Mediterranean region, Sahel & South Africa) / Ecosystem-based regions

What need does it meet?
Local needs of adaptation in terms of climate information, adaptation solution policies, scalability finance solution, monitoring / evaluation and vulnerability

A.4.1.50 Idea 50 – Visual communication of climate risk/threat

Contact
Not provided

What is the idea?
Visual communication of climate risk/threat

What need does it meet?

Public awareness and sensitization of IPCC report

A.4.1.51 Idea 51 – Observed & projected extreme events

Contact
Not provided

What is the idea?
Integration of non-English literature, better characterisation of extremes

What need does it meet?
Local / regional information

A.4.1.52 Idea 52 – Increasing awareness of policy makers & scientists

Contact
Not provided

What is the idea?
Increasing awareness of policy makers & scientists

What need does it meet?
It improves actions against climate change

A.4.1.53 Idea 53 – Understanding impacts of large-scale adaptation & mitigation response options

Contact
Not provided

What is the idea?
Understanding impacts of large-scale adaptation & mitigation response options

What need does it meet?
Policy planning for net-zero
Understanding NDC planning + feasibility

A.4.1.54 Idea 54 – A structured and unified way to communicate research priorities

Contact
Not provided

What is the idea?
A structured and unified way to communicate research priorities

What need does it meet?
Help funders and researchers prioritise their work

A.4.1.55 Idea 55 – Regional analyses (physical sciences basis)

Contact
Not provided

What is the idea?
Develop more detailed regional analysis in the report (physical sciences basis)

What need does it meet?

- Guidance to countries that do not have the resources
- More useful to policymakers and other stakeholders (business, NGOs etc)
- Building public understanding / support

A.4.1.56 Idea 56 – Regional analysis

Contact
Not provided

What is the idea?
Regional analysis

What need does it meet?
Provide information at the regional level for decision and policymakers and society, including impact studies

A.4.1.57 Idea 57 – Regional observation uncertainties

Contact
Not provided

What is the idea?
Regional observations to be factored in for validation of regional model fidelity and provide guidance for future projections assessments in terms of confidence/uncertainties

What need does it meet?
Climate information from the models at regional levels can be better interpreted due to a better uncertainty methodology

A.4.1.58 Idea 58 – Scoping AR7 Synthesis Report and Special Reports together first with an action focus

Contact
Not provided

What is the idea?
Start AR7 by scoping all reports first, starting with SYR AR7 and Special Reports. Use a solutions and create structure to deliver to different policy decisions

What need does it meet?
Creates a mapping between real world policy decisions and the reports, and integrated adaptation and mitigation at the outset

A.4.1.59 Idea 59 – Regionally specific information

Contact
Not provided

What is the idea?
Regionally specific information

What need does it meet?

IPCC provides info on extreme climatic events at sub-regional scale

1. Tropical cyclones
2. Flood
3. Drought

A.4.1.60 Idea 60 – Identifying + communicating research priorities / needs

Contact
Not provided

What is the idea?
Identifying + communicating research + data gaps

- Prioritisation
- Short + long term
- Who needs to be involved in addressing research needed to increase confidence
- Identifying + communicating prioritised research + data gaps

What need does it meet?

- Better/prioritised use of research funding + resources
- Improve the next report - better uncertainty + confidence statements

A.4.2 THEMATIC GROUPING OF THE DEVELOPED IDEAS

A.4.2.1 Assessing solutions / recipes for implementation

A4.2.1.1 Assessment of mitigation options
Idea 15 – Catalogue of mitigation options
Idea 20 – Realistic & feasible mitigation scenarios knowledge building & localising
Idea 24 – Providing detailed information on mitigation options
Idea 33 – Database of tech mitigation options

A4.2.1.2 Assessment of adaptation options
Idea 26 – Vulnerability determination to support intervention
Idea 39 – Feasible & effective adaptation actions & options
Idea 41 – Adaptation case studies
Idea 48 – Regional evidence networks to build an adaptation options library

A4.2.1.3 Assessment of both mitigation and adaptation options
Idea 53 – Understanding impacts of large-scale adaptation & mitigation response options

A4.2.1.4 Incorporating new sources of information about solutions
Idea 13 – GCF case load
Idea 35 – Integration of country reports on climate change response

A4.2.1.5 Sector-specific ideas
Idea 03 – System transition special report(s)
Idea 47 – How to facilitate climate resilient agriculture on the ground

A4.2.1.6 Cross-WG chapters assessing solutions
Idea 01 – Assessment of Carbon Dioxide Removal

Idea 07 – XWG Chapters (climate resilient development, finance)
Idea 12 – Cross working group chapters (NBS, CDR)

A.4.2.2 Scaling down / providing regional assessment

A4.2.2.1 Physical science

Idea 51 – Observed & projected extreme events (regional)
Idea 55 – Develop more detailed regional analyses in the report (physical sciences basis)
Idea 57 – Regional observation uncertainties
Idea 59 – Regionally specific information

A4.2.2.2 Vulnerability, risk, adaptation

Idea 19 – Downscaling data for vulnerable communities
Idea 21 – Regional information for adaptation
Idea 25 – National & local context regarding climate impacts & vulnerabilities
Idea 31 – Increase the granularity of IPCC reports to provide insights at the national level
Idea 36 – Local & regional risk planning
Idea 38 – Vulnerability & risk assessment at different scales
Idea 42 – Vulnerability & risk assessments of hazards at varying scales (global, regional, national, local & sector specific)
Idea 44 – Strengthen the regional content of the report
Idea 49 – Reorganisation of regional chapters to homogenous groups

A4.2.2.3 Generic / unspecified

Idea 16 – Bridging scales: local, community, sub-region to global
Idea 43 – Contextualising IPCC reports to local realities
Idea 56 – Regional analysis

A.4.2.3 Focus on end users

A4.2.3.1 Specific ideas to meet end-user needs

Idea 04 – Revising & improving utility of the glossary
Idea 06 – Strengthening the applicability of IPCC concepts in end-user contexts (through a workshop)
Idea 11 – Integration of secondary users at scoping stage
Idea 58 – Scoping AR7 Synthesis Report and Special Reports together first with an action focus

A4.2.3.2 Generic emphasis on end users

Idea 18 – Meeting the needs of UNFCCC policy makers & the GGA
Idea 22 – Decision support approaches to facilitate local actions
Idea 23 – Multiple lines of evidence for decision making support
Idea 37 – WG2 CLAs Revolution
Idea 45 – Support for policy & decision-making
Idea 52 – Increasing awareness of policy makers & scientists

A4.2.3.3 Tailoring outputs to end user needs

Idea 17 – Dynamic report production
Idea 34 – Dynamic reporting

Idea 32 – Making IPCC accessible via an AI-driven platform
Idea 09 – Specific summaries for different user groups
Idea 05 – Creating visual content (cross-WG issues)
Idea 50 – Visual communication of climate risk/threat
Idea 02 – Interactive Atlas

A4.2.3.4 Focus on media

Idea 30 – Develop a media engagement plan

A4.2.3.5 Focus on funders

Idea 29 – Identifying knowledge gaps for funders
Idea 54 – A structured and unified way to communicate research priorities
Idea 60 – Identifying + communicating research priorities / needs

A.4.2.4 Miscellaneous

A4.2.4.1 Improving other aspects of the IPCC process

Idea 08 – Non-contributing author BLACKLIST
Idea 10 – Raise the level of IPCC fund and capacity
Idea 14 – Expanding adaptation literature beyond English language

A4.2.4.2 Access and transparency

Idea 27 – Transparency on the input assumptions & socio-economic implications of the selected scenarios
Idea 40 – Open access
Idea 46 – Accessibility of underlying data of the reports

A.5 APPENDIX 5 – DAY 2 – SESSION 6 – "SKILLS" ACTIVITY

In the skills session, participants worked in small groups to identify the skills that various stakeholders in the IPCC process require to fulfil their responsibilities.

The activity was broken into 2 sub-tasks, again separating outcome (the skill needed) from mechanism (how to build that skill).

Participants first individually wrote down the skills needed for people in different roles in the IPCC: authors (coordinating lead authors, lead authors, contributing authors), bureau members, TSU members, and focal points. They then shared these ideas in their groups and added them to flipcharts.

The flipcharts were transcribed word-for-word, and the identified skills were sorted further into recurring themes. The thematic categories are for summary purposes only; other categorisations would be possible.

The following sections report the skills, sorted by thematic area. They contain the exact text of what participants wrote down, with only occasional spelling mistakes corrected.

The flipcharts (photos and transcribed text) can also be viewed by clicking here.[12]

A.5.1 SKILLS FOR AUTHORS

A.5.1.1 Personal, people and leadership skills

A5.1.1.1 Cultural awareness

1. Cultural and geographical understanding/exposure
2. Cultural awareness, mediation and participatory practices
3. Cultural awareness, diplomatic skills to ensure kindness
4. Understanding different cultures and languages

A5.1.1.2 Open mindedness

1. To have a broad view
2. Open mindedness
3. CLAs - open minded to cover more
4. LAs - open minded cover more than their own expertise
5. Embrace diversity of perspectives and coordinate them effectively
6. Intellectual respect
7. Respect for different disciplinary perspectives
8. Ability to connect to diverse expertise
9. Open mindedness

[12] The photographs and transcribed text have been placed on a digital whiteboard. They can be accessed by clicking on the link in the main text, or by typing the following shortened link (http://bit.ly/ar7-appendix5) in a browser window. The materials can be viewed without creating an account by selecting "View as visitor".

A5.1.1.3 'People' qualities

1. Empathy
2. Humbleness
3. Kindness
4. Compassionate
5. Emotionally intelligent
6. Listening
7. Humility, willingness to learn, willingness to adopt the skills they do not have
8. Check your privilege
9. Soft skills - management, interpersonal skills, networking and communication
10. Good coordinating skills among lead and co authors

A5.1.1.4 Other qualities

1. Assertiveness
2. Resilience
3. Ability to see the big picture
4. Contributing authors high level of creativity
5. Authors - accepting guidelines and guidance
6. Review editor - eye for detail
7. Reviewer – scientific + see from different points of view
8. Objectivity and selflessness

A5.1.1.5 Multiple

1. CLAs
    - people management, respectful leadership skills
    - project management skills
    - conflict resolution skills
    - negotiation skills (for x-? + plenary)
2. Needed for CLAs and LAs:
    - people management, interpersonal skills
    - allowing voices to be heard, ideas to emerge
    - to cultivate a structure how people get included
3. CLA:
    - good interpersonal skills
    - disciplined
4. Authors:
    - project and programme management
    - active listening
    - speaking to impact
    - technical understanding
    - ability to multitask
5. CLA
    - equitable /organised
    - leadership skills
    - coordination
    - emotionally intelligent

    - communication
6. Contributing authors:
    - time management
    - tech savvy
    - be able to ? datasets & interpret
7. Co-ordination, organization and technically sound
8. CLA/ LA/CA
    - climate expertise
    - teamwork
    - communication and waiting
    - data management
    - critical thinking
    - time management
    - leadership
9. CLA
    - leadership
    - communication
    - impartial
    - writing skills
    - good scientific understanding
10. independence - ability to look at science dispassionately
11. CLA - safeguard inclusivity in cross/transnational teams

A5.1.1.6 Leadership

1. Leadership, equitable, fair
2. Leadership, organisation
3. Co-ordination and leadership
4. Coordinating authors ability to balance leadership with deferral
5. Leadership and teams' skills
6. CLA
    - leadership and team skills
    - encourage/mentor inspire chapter teams
7. CLAs: leadership skills
8. CLA
    - leadership
    - critical thinking
    - facilitation
9. CLAs need to be able to promote an inclusive atmosphere in their author teams to ensure all voices and perspectives, experiences are heard and able to be integrated to develop comprehensive assessment possible
10. CLAs
    - skills for successfully leading the chapter team
    - skills for motivation and encouraging the chapter team for a successful output
11. Interpersonal and leadership skills

A5.1.1.7 Negotiation

1. CLA: negotiations skills
2. CLAs: negotiation skills - role play in mock plenary
3. LAs
    - negotiation skills
    - people management skills
    - group working skills
4. Diplomacy
5. Diplomacy training - negotiation communication and cultural awareness

A5.1.1.8 Facilitation

1. Facilitation skills to ensure all ideas get heard
2. Facilitation to make sure involvement and listening to everyone in team
3. CLAs: facilitating discussions to give a voice to all & avoid dominant voices dominating content
4. Facilitation
5. I would like CLAs to be able to work across disciplines and cultures to form inclusive and inspiring knowledge processes. Make the process fun, build trust and respect
6. CLA - facilitation skills
7. CLAs - inclusive participatory practices

A.5.1.2 Professional skills

A5.1.2.1 Management

1. Management skills
2. Project management skills
3. Management skills - delegation, honest feedback and secure inclusivity
4. CLAs - management skills
5. Project management
6. Time management
7. CA: time management
8. Dedicated time management

A5.1.2.2 Technical

1. CLAs: tech savvy
2. Lead authors should have skills for using the designated reference manager (Endnote)
3. IT expertise on multiple platforms - Zoom, Microsoft but potentially broader range of tech e.g. AI
4. LAs: how to access literature
5. Reference management software

A5.1.2.3 Data

1. Chapter scientists: data management skills
2. Data management capacity building

A5.1.2.4 Language

1. Language skills to access non-English literature
2. Ability to speak multiple languages

3. Multiple languages
4. Knowledge of multiple languages to facilitate authors from diverse backgrounds

A.5.1.3 Academic / research skills

A5.1.3.1 Interdisciplinary

1. Lead authors: interdisciplinary understanding
2. Interdisciplinary analysis skills
3. Interdisciplinary - systems thinking
4. Interdisciplinary skills
5. Authors? to increase ability to work x-discipline
6. More interdisciplinary lead authors contributing with CLAs - interdisciplinary research
7. CLAs - multidisciplinary knowledge of the subject
8. Respect for interdisciplinarity an how different it is
9. Interdisciplinary perspective, ability to foster diverse and kind working environment
10. CA/LA: Interdisciplinary analysis skills
11. Interdisciplinarity
12. Interdisciplinary understanding and appreciation

A5.1.3.2 x-WG skills

1. CLAs to be able to apply critical thinking across sectors and across WGs
2. LAs/CLAs integrate with other WGs
3. Understanding across WGs
4. Understand diverse knowledge sources
5. willingness to bridge across WGs
6. CLAs - Helicopter view - jump in the detail and out to big picture
7. Interdisciplinary - cross chapter understanding
8. LA - broader sector knowledge

A5.1.3.3 Systems

1. Systems thinking
2. Understanding and communicating complexity - systems thinking
3. Understanding of systems thinking
4. Understanding the limitations of systems thinking

A5.1.3.4 Subject expertise

1. Climate science background
2. Data analysis and modelling skills - to understand climate trends, projecting future scenario, assessing the impact of cc.
3. CAs – a very specific set of expertise identified as a need for the chapter
4. Scientific expertise - expert with knowledge such as climate science, economics, social sciences
5. Specific knowledge but with a wide view to put that knowledge into the global context
6. Experts with regional/country specific knowledge - ESP in global south
7. CLA - proficient in a specific field related to their chapter; ability to guide the chapter team
8. CLA - detailed experts in a field
9. CoA - scientific knowledge

10. CLA - deep subject knowledge; ability to generate ideas; ability to motivate authors
11. Very specific criteria for expertise of contributing authors
12. CA - detailed experts in a field
13. Scientific skills - field solutions, methods and processes and synthesis of knowledge across geographic areas.
14. CA - very specific knowledge but connecting with other bits of knowledge
15. Coordination authors: expertise on focused topics - to respect deadline and page allocations

A5.1.3.5 Misc scientific expertise

1. Understanding of community science (grounding)
2. Ability to connect their discipline to climate science
3. Uncertainty terminology: implement and apply uncertainty guidance
4. Analysis skills to analyse the data
5. Trade-off analysis
6. Lead authors - working beyond personal crusades to review across the chapter and report
7. LAs to be able to evaluate effectiveness of adaptation and mitigation options combine science and practice
8. Knowledge of scientific methods for detection and attribution

A5.1.3.6 Literature review skills

1. Critically assess their biases in literature
2. Broader understanding of literature
3. Consult broader range of literature
4. Ability to understand diverse knowledge sources (academic, grey lit, broad knowledge documents)
5. Ability to identify and synchronise the literature
6. Skills to assess large volumes of literature
7. Literature review
8. Utilizing a wider range of literature - grey literature

A5.1.3.7 Assessment skills

1. CLA - review and prioritize content
2. insights to define what kind of knowledge is relevant
3. capture the scope of the assessment
4. LAs CAs writing skills know how to do assessment
5. Synthesis - ability to synthesise vast amount of info + draw trends
6. ability to synthesise succinctly
7. How to write assessment not a paper
8. Lead authors need training in writing assessment text vs a journal article - 'methods' writing advice needed
9. Ability to access and consider wide range of knowledge and actions
10. Ability to coordinate and synthesise the outputs from contributing authors
11. LA/CLA
    - getting depth fast
    - keeping deadlines

A.5.1.4 Comms and engagement skills

A5.1.4.1 Stakeholder engagement

1. Personal experience working with locals can be helpful
2. Practical experience working with locals or communities
3. Involvement of key stakeholders
4. Capacity for long-term relationship with 2nd users

A5.1.4.2 Understanding user needs

1. Authors to have a clearer understanding of user needs
2. Identify user needs accurately
3. Understanding of audience needs and ability to cater to that
4. CLA - how to support policy and decision-makers
5. Able to understand and listen to user needs/wants
6. Understanding of how users interpret concepts differently
7. I would like lead authors to be able to have greater understanding of how they can support policy and decision makers
8. Ability to define and implement what is relevant for policy makers
9. Identify and visualising end user information and their working environment (context of use)

A5.1.4.3 Understanding policy

1. Ability to translate science into action - translating science into actionable recommendations for policy makers
2. Be able to guide and facilitate report process - what type of data, information is needed for policy makers
3. Understand policy context
4. CLAs - know how policy works
5. CLA/LAs - understand policy
6. Understanding of the policy context and related key concepts
7. Understanding of policy and political ideas into action
8. Understand policy relevance

A5.1.4.4 Writing (technical)

1. Technical writing
2. Scientific and technical communication
3. Authors - writing skills (science and lay public)
4. communicate their confidence in outputs
5. writing editing summarising
6. Writing, synthesizing and reviewing
7. CAs: fast writers, language
8. Authors - brevity
9. Crisp articulation

A5.1.4.5 Communication (all audiences)

1. Communication of complex science to journalists and general public
2. Verbal communication, written e.g. policy briefs, synthesising brief, sharp!
3. LAs - ability to communicate complex ideas to multiple audiences

4. CLAs explain significance of work to journalists / policymakers / communicating to a lay audience
5. Communicate implications of the report - why it matters, what it relates to.
6. Train people to communicate better in their diagrams (as in AR6) and the way they write for a broad audience
7. Communication specific to different target groups e.g. grassroot groups - language use
8. Ability to package and communicate findings to non -experts
9. Ability to explain technical issues in understandable language
10. To communicate effectively
11. Media communication
12. Media training - regional specific, camera training, policy and politic specific, all UN languages accounted for
13. simplify complex thought for communication purposes post report

A5.1.4.6 Data visualisation

1. I would like authors to be able to present results and data in a visually engaging way
2. Data visualization - how to add in figures and appropriately display them
3. All authors - creativity and design skills to create easy to read figures with clear messages/outcome
4. Social/behavioural science training for SPM figure producers
5. Co-development of text and figures with cognitive development + design + communications

A.5.1.5 Miscellaneous skills

A5.1.5.1 Politics of the process

1. Political awareness - to understand political context, anticipate how they will manifest in approval and take into account when writing report
2. SPM authors need communication training 'politics' training on historical sensitive points way in advance of plenary
3. SPM authors: need negotiation training for plenary process
4. Knowledge of politic views and science diplomacy skills

A5.1.5.2 Collaboration

1. Authors - skills for reaching out to science expertise outside the chapter team
2. Integration with IPBES collaborative
3. CLAs need skills in mentoring colleagues

A5.1.5.3 Equality, diversity and inclusion

1. Awareness of practice of EQUALITY, DIVERSITY, INCLUSION
2. Coordinating lead author need to involve researchers from developing countries
3. Diversity and inclusion

A.5.2 SKILLS FOR THE IPCC BUREAU MEMBERS

A.5.2.1 Generic skills

1. Professionalism - Responsiveness

2. operating with complexity (of process and ideas) Chairs/authors
3. IPCC vice chairs
    - innovation
    - inclusion
4. Approachable
5. Bureau members need skills in understanding their own limitations e.g. other fields
6. Foster culture of independence/ openness through independent ombudsman
7. Co-chairs - people management: to set the culture of a report based on listening + respect

A.5.2.2 People skills

1. Co-chairs: respectful listening etc to set culture
2. Diplomacy - understand perspectives of delegates +take on their suggestions diplomatically
3. Diplomacy
4. Negotiation skills
5. Managing 'small politics' between participants / 'soft' people skills
6. Negotiation and diplomacy - training on process and how to engage with delegates: next steps on code of conduct

A.5.2.3 Leadership

1. Leadership - firm and friendly
2. Chair/co-chair
    - inspiration and inclusive leadership
    - role model for all members
    - diplomate
3. Leadership and communication skills
4. Bureau members
    - coordinate communication
    - able to make decision on selecting themes
    - leadership

A.5.2.4 IPCC process (generic)

1. Clear understanding of IPCC methods and process
2. Understanding of process
3. Co-chair: 'orchestrate' the (integrated) scoping process
4. Knowledge of IPCC procedures, skills to understand advances and gaps and expertise for the WGs
5. Critically assess the IPCC process

A.5.2.5 Author selection and guiding

1. balanced author selection
2. Support diverse selection of authors keeping it inclusive
    - gender
    - age

- region

3. Fairly recognise contributions and remove non-contributors
4. Identify non-contributing authors- networking skills with experts

A.5.2.6 Scientific expertise

1. Scientific background and strong negotiation skills to allow timeline decisions during panel sessions
2. Bureau member: ability to connect their discipline to climate science

A.5.2.7 Communication

1. Communication skills - policy and media
2. good translations skills to share the outcome with policymakers
3. coordination, communication
4. Bureau members and TSUs should have good communication skills

A.5.2.8 Shaping inputs into the IPCC

1. Understanding of stakeholder needs
2. Bureau members: facilitate to convey needs/priorities of the area represented
3. Fair and equitable, ability to review content, linking science to policy

A.5.2.9 Policy and Politics

1. Bureau members - knowledge of political views
2. Bureau/co-chair - awareness of political context and sensitivities
3. Bureau - crash course on international political issues that come up in approvals
4. Bureau - understand political context

A.5.2.10 Facilitation

1. Facilitation/ outreach and remove non-contributors
2. Chairs: ability to work with facilitators
3. Co-chairs, TSUs: understanding that facilitation of chapter meetings during LAM is key
4. Independent facilitation to implement decision-making
5. Co-chairs: skill to set up and prepare a lead author meeting; strategic planning

A.5.2.11 Negotiation and mediation

1. Co-chairs need mediation training on how to solve disagreements / come up with solutions
2. Ability to negotiate and facilitate disagreements
3. IPCC help desk - answering questions for negotiators
4. Bureau: facilitation + mediation skills

A.5.3 SKILLS FOR THE IPCC TECHNICAL SUPPORT UNITS

A.5.3.1 Generic skills

1. TSU need attention to detail and stamina
2. TSU - to work as a team not individually

3. TSU - train in ethics and discrimination
4. TSU:
    - Some modelling, data management, analysis skills
    - Time management
    - Ability to work under pressure
    - Knowledge of WG
    - Understanding of IPCC process

A.5.3.2 Specific expertise

1. TSU - set up workflow with other TSUs
2. TSU - ombudsman functions
3. TSU - great capability for synthesis
4. TSU - ability to organize expert networks

A.5.3.3 Communication

1. TSU - clear graphics and storyline guidance
2. TSU - more user-friendly visual interpretations
3. TSU - communication skills

A.5.3.4 Facilitation

1. Facilitation - Bring in professional facilitators (as a role in TSU)

A.5.4 SKILLS FOR THE IPCC FOCAL POINTS

A.5.4.1 Generic skills

1. Focal points - inter/trans disciplinary systems thinking nexus - context
2. In addition to political skills the need to communicate your own challenges

A.5.4.2 Scientific expertise

1. Focal point - strong climate science background
2. Wide knowledge of climate change and ability to communicate
3. Focal point:
    - understanding of climate science
    - communication
    - leadership
    - flexibility
4. Scientific background
5. Focal point - additional role initiate bottom-up data collection
6. Geopolitical savvy

A.5.4.3 Supporting the IPCC process

1. Focal points - Ability to know when to contribute to process, good understanding of process
2. Educating focal points on requirements so they can support process

A.5.4.4 Communication and Engagement

1. Act as a conduit to their country to media and experts etc.
2. To be able to champion IPCC findings in countries
3. Focal points – engagement
4. Engage wide range of stakeholders

A.5.4.5 Input into the IPCC: coordinating experts

1. I would like focal points to open up more channels and increase engagement with local communities and early career researchers
2. Focal points - coordination and organisation to coordinate experts in regions to provide full representation of diverse nominations, diverse gender, expertise career level
3. Focal point - being able to bridge science with the political remits of the country. Having an assumption of the relevant national stakeholders and including them when relevant
4. Focal point. Ability to map sub national stakeholders

A.5.4.6 Input into the IPCC: shaping demand

1. Policy officials setting out the questions that they would like the report to answer
2. Communicate the need of a particular party

A.5.4.7 Output: translating outputs

1. Focal point - able to translate the outputs of the IPCC into language of policymakers and of parliament
2. Able to connect research across all sectors of society in their country - translation research skills
3. Focal point - facilitation skills bridge between department and ministries
4. Good understanding on IPCC repeats cycle process, good communication with IPCC and other regional groups, all to understand and convert information in the IPCC reports into their country
5. Create in country awareness of IPCC process - understand that process

A.5.5 SKILLS FOR COMMUNICATIONS PROFESSIONALS

1. IPCC Communication specialists: ability to produce infographics and small reels particularly for politicians

A.5.6 SKILLS FOR ALL OR MULTIPLE ROLES MENTIONED TOGETHER

A.5.6.1 Generic skills

1. All - inclusivity
2. All - patience
3. I would like CLAs, bureau members and co-chairs to be able to work collaboratively across old turfs to think outside the box, create new processes to respond to the urgent need for action and interdisciplinarity. Be friendly and warm.
4. All - ability to listen and understand different world and cultural views

5. Focal point/CLA HR skills + comms
6. All - detection of harassment or unrespectful behaviour
7. All:
    - Science communication
    - Leadership skills
    - Non-territoriality
    - Political independence
8. All authors + Bureau: inclusive + participatory practice, unconscious bias training

A.5.6.2 Specific expertise

1. IPCC authors bureau members and focal points have to have a minimum level of technical knowledge of all three WGs
2. All IPCC need to have a clear sense of purpose + objective for IPCC
3. CLA / FP / BM: project management

A.5.6.3 Leadership

1. CLAs + Bureau: leadership skills for lead author teams and meeting in an inclusive fair manner

A.5.6.4 Communication

1. All - ability to communicate relevant science in a clear, non-technical way for a range of users
2. Provide multi-level media resources:
    - basic - online for everyone
    - intermediate -?
    - advanced - for bureau members
3. All - sharing best practice in communication

A.5.7 NO ROLE SPECIFIED

A.5.7.1 Generic skills

1. Reflexivity and positionality
2. Ability to see big picture and prioritise
3. Expertise, open discussion, leadership, communication

A.5.7.2 Specific expertise

1. Translation of global ideas into national and local case studies
2. Keeping an active eye of the bigger purpose / role of the IPCC in the global climate policy - area

A.5.7.3 Leadership

1. Leadership and coordination role in mainstreaming CC in sector policies

A.5.7.4 Communication

1. Effective communication (multimedia visualisation, broadcasting)

2. Skills to translate science into accessible language
3. Ability to reach right audiences

A.5.7.5 Policy

1. Policy background

A.6 APPENDIX 6- DAY 2 – SESSION 7 – "TAKEAWAYS" ACTIVITY

In the closing session of Day 2, participants were asked to reflect on their takeaways from the entire workshop. Three levels of takeaways were identified:

1. Personal takeaways
2. WG or xWG-level takeaways
3. IPCC-wide takeaways

Participants wrote their reflections on A6 cards – one card for each level. They then had 3 different ways to share these reflections with other participants (several short pairwise discussions for the personal takeaways; round-the-table group sharing for the WG-level takeaways, and plenary sharing for the IPCC-wide takeaways).

The cards were gathered at the end and were transcribed word-for-word. The ideas were sorted further into recurring themes. The thematic categories are for summary purposes only; other categorisations would be possible.

The following sections report the personal takeaways, sorted by thematic area. They contain the exact text of what participants wrote down, with only spelling mistakes corrected.

The transcribed cards for all levels of takeaways can also be viewed by clicking here.[13]

A.6.1 PERSONAL TAKEAWAYS

A.6.1.1 Discover

A6.1.1.1 About the IPCC

1. I have learnt the importance of IPCC in climate negotiation & project development
2. I have learned much about the AR process and how it can be more robust/and also to look out for bias in some material which can be present
3. I discovered the complexity of IPCC process, in particular the coordination challenge
4. Discovered the roles of the various actors
5. I was surprised to learn that, even in this group, not everybody was fully aware of the way the IPCC operates, and even the way the different WG operate
6. National governments are very much interested in what the IPCC reports for their respective countries
7. There is great enthusiasm (at least here) for change this cycle (but challenges in implementation)
8. There's a whole ecosystem of climate experts whom I never interface with
9. Discovered scientists like to think in schemes and concepts
10. I can learn more about the IPCC process
11. I understand that sometimes stakeholders want the IPCC to do jobs out of its mandate

[13] The transcribed text has been placed on a digital whiteboard. It can be accessed by clicking on the link in the main text, or by typing the following shortened link (http://bit.ly/ar7-appendix6) in a browser window. The materials can be viewed without creating an account by selecting "View as visitor".

12. I have discovered that there is a broad range of perceptions on what the IPCC should be for, even within a group of people highly involved in the process
13. A good reminder for me of the ties/constraints/need for care re: the IPCC mandate for authors, bureau and member states
14. IPCC process/reports are more complex than it is needed in reality
15. Limits of existing IPCC approach
16. How to deal with diversities (discipline, cultural, engagements, background) – Nomination
17. I don't understand the process of the IPCC very well – the organisation politics, mandate
18. I have discovered that different people expect very different things from the IPCC

A6.1.1.2 About end user needs

1. I have discovered more about the gap between what IPCC provide and what national + subnational level users need and/or expect
2. Needs of UNFCCC focal points as IPCC end-users / understanding the findings of the reports that they deem relevant to fulfil their mission
3. Discovered how to differentiate prescriptive from policy relevance
4. I can take away examples of adaptation that I think need to be reflected in IPCC
5. Interaction with FP + end users v. informative, how to make outputs relevant and useable – adaptation
6. Most people are supportive of quite significant top-down guidance to make the report more actionable for decision-makers
7. End-users demand outputs other orgs already/should assess
8. Discovered the need of audiences to receive reports

A6.1.1.3 General observations

1. There are different approaches when trying to achieve a similar target
2. I can continue to learn and stay open to ideas from others
3. Some of my issues are widely shared (but others are not)
4. Discovered: make sure of language diversification

A6.1.1.4 Importance of regional info

1. Information at the local scale is very important
2. Local knowledge is important for adaptation from bottom-up perspective
3. Much more regional info needs
4. Learnt importance of regional detail

A6.1.1.5 Technical issues

1. The inequalities in WP approach & N vs. S
2. Assessment as interdisciplinary
3. WG3 modelling assumptions
4. Mitigation/adaptation link on ecosystems + NBS
5. AI can support the process: translating, meta studies
6. Discovered need of Global South to receive support in assessment
7. There is a summary for all

A6.1.1.6 Wider issues

1. I can learn from other countries approach to climate mitigation
2. Value of international cooperation –> important to sustain & protect
3. IPBES coordination a live issue
4. How can UK push D+I in process?
5. Several researchers raised issues of recognition + reward – amount of work – and institutions have costs covered? Issues of equity globally

A6.1.1.7 Communications

1. I discovered there is less resistance than I expected to the concept (or may be more support) can we leverage "gate keepers" to other communities to help on this?
2. Comms involvement from earlier in process

A6.1.1.8 Funders

1. How we can support any action taken around identifying research needs
2. How funders can support the process

A.6.1.2 Do

A6.1.2.1 Actions to widen participation in the IPCC

1. I will go and contact the scientists engaged in climate change work & tell them importance of connecting with IPCC
2. Help build networks of researchers in countries where I work e.g. Kenya, to expand the IPCC group/network
3. Enhance awareness for new participants
4. Check in with regional science network in Caribbean
5. Gaining broader national stakeholder and bring the idea to the IPCC process
6. Map national scientific community
7. Improve the source of information to IPCC about Peruvian researchers (networking with lead authors)
8. I can encourage diverse Global South colleagues to be contributing authors and reviewers
9. Write and publish about next steps for IPCC to take in order to expand in the existing scientific expertise to include legal expertise
10. Networks for accessing IPCC experts/expertise
11. Network: nomination process
12. I can help junior colleagues at Leeds understand IPCC
13. Develop a concept note for fundraising to support IPCC awareness in Central Africa region, as well support IPCC FP and Experts involvement in IPCC
14. Share experiences as an author to other people, encourage new authors to participate
15. I will try to engage more authors from my country. There are just a few authors from my country

A6.1.2.2 Actions to support IPCC authors

1. Explore support mechanisms for authors e.g. network COP
2. Mentoring
3. Support/i.e. experts or authors

4. Side meetings at November meeting for IPCC needs
5. Talk with authors from my country about facilitation of author teams –> make this issue more considered by my government
6. In my work: can DESNZ support authors better
7. Mentor a CLA in AR7
8. Organise meeting IPCC authors – negotiation BE level

A6.1.2.3 Actions to support IPCC process

1. Volunteer for chairing TG on D&I or support in any way (in helpful way)
2. Keep communication closely with IPCC and other IPCC's partner countries for collaboration
3. Use my relationships with people in IPCC Bureau to push for some ideas around knowledge-systems engagement across WGs
4. More involving in IPCC process
5. Contribute to the special report's preparation
6. Get AR7 scoped in line with IPCC current processes data/infrastructure
7. Coordinate with/liaise between C3S project on the AR6 WG1 Interactive Atlas and the AR7 WG co-chairs bureaux/TSUs etc.
8. Keep in contact - preferably closer - with relevant IPCC colleagues to get a better understanding of what is going on and how we get a good process for AR7

A6.1.2.4 Actions focussing on user needs

1. I can work on the national level user needs and mechanisms to address these needs
2. Consult broadly on user needs
3. Identify what are the country's needs from IPCC reports
4. Reflect on the perception that users have on what & how the IPCC does things
5. Further investigate user needs
6. Better engagement of stakeholders
7. Identify questions for Caribbean important for region for next report
8. Develop products for end users to address climate change
9. Support better the role of the focal point in my country
10. Work closer with other NFPs from my region
11. Analyse further how the IPCC reports (findings) are translated and integrated in national policy context in my country (are they indeed?)
12. Think of the end user of the output
13. I will be more actively engaged to support the IPCC AR7 process so that what comes out of it can influence action
14. I can look again at the range of Intergovernmental forums on climate adaptation and reconsider how targeted IPCC output is to these
15. Engaging policymakers in AR7 scoping process
16. Engage further with colleagues in policy to understand how we can better feed into the IPCC process and provide steer as to what we want from the reports
17. Speak to national counterpart about need for local research on Small Island Developing States

A6.1.2.5 Communication actions

1. Collaborate with others on visual communication of climate change

2. Talk to comms @ IPCC to further explore my idea about engaging media
3. Talk to my Director about the need for a robust communication unit, which would aid in the dissemination and use of the IPCC report data in a user-friendly manner that targets every spectrum of the (?)

A6.1.2.6 Communication and stakeholder engagement actions on IPCC outputs

1. Evaluate on how I as a national focal point can best reach out to other stakeholders/users (e.g. through pro clim / acad)
2. Visit IPCC FP
    - Diverse areas of FP work
    - CPVs
    - CA to be assisted with (?)
    - various mechanisms
    - commonalities of ideas
    - data access
3. Run webinars with key stakeholders on findings by sector or region
4. Coordinating climate action at national levels + mainstreaming climate change in sectoral policy
5. Improve the understanding on IPCC's reports process
6. Work more to socialise the results relevant of ARs of IPCC in national institutions
7. Share publicly more about the IPPC & its process
8. Push for Gov't funding for NFP work
9. Enthusiastically support all IPCC report relevant stakeholders to actively carry out IPCC reports
10. Bring discussions about connections mitigation + adaptation into ministry
11. Build capacity for translation / downscaling IPCC Global Reports at the local level
12. Short courses for access on local level IPCC science with links to what is being experienced at the local level
13. Meeting/workshop of all stakeholders
14. Translating IPCC info for policymakers
15. To communicate the IPCC research findings within
16. Elaborate more the IPCC issues in internal environment – including local expert
17. Work with decision makers to raise awareness
18. I can think about how to work to get IPCC reports more known and spread in my country, especially among my colleagues (researchers)

A6.1.2.7 Actions for funders

1. Research gaps are a bit of a tag-on/afterthought. As a funder, I can consider/review statements with 'least confidence' as a starting point
2. Go back to funders circle
3. Discuss X-UKRI opportunities for IPCC engagement in terms of research programmes & planning
4. Look at German model on developing research calls based on discussions with UK focal point on priorities

A6.1.2.8 Generic

1. Stay in touch with the process through various avenues

2. Call attention to the issues through projects and meetings
3. Create greater awareness of the issues
4. Communicate ideas
5. Use increased knowledge of IPCC process & purpose
6. Follow the UNFCCC/GST process more closely

A6.1.2.9 Personal

1. Try to use more understandable language when talking about IPCC at national level
2. Pay more attention to alternate meanings of key words
3. Be aware of opposite incentives – false positives vs. false negatives
4. Be aware of definitions (& the effect of lack of definitions)
5. Need to explore AR6 report thoroughly, particularly WG2,3
6. Think about how to become a producer than just an end-user
7. Learn more about NBS/CDR
8. Implement some views shared on future works related to data management
9. Look up knowledge/research gaps in AR7 report
10. Make myself available for work on glossary (subject to funding)
11. Maybe I should read more sections of the AR6 report
12. Get my priorities straight
13. Consider what is applicable for IPBES
14. Stay involved in the IPCC process
15. Read more literature outside my main field
16. Understand how AI can help authors read + discuss

A.6.1.3 Facilitation

1. Will use some of the brainstorming techniques from this workshop at an upcoming meeting of new university climate centre
2. Follow up AR6 with co-learning processes with practitioners and policy makers –> follow up how this can be structured
3. Use of some of the techniques of facilitation back to NERC
4. Need for professional facilitation is high
5. Need for facilitators
6. The importance of engaging with stakeholders
7. The process done in this workshop, I'm going to share it to my colleagues and use it in future activities

A.6.1.4 Suggestions for research

1. More climate change related research at the local level
2. Research needs to be presented or published on a more cross-sector basis. To be helpful, it needs to understand and address the decision-making context though this may be thematic, it is rarely involving one sector
3. New products: adaptation solutions/measures recommended
4. Enable national and local level assessments and action to compensate for what IPCC can't do (at those levels)

5. Tools CORDEX derive by CMIP6 will be published next year which can be helpful for research + paper case studies
6. Extreme event attribution
7. Growing emphasis on cross-discipline working needs to be balanced against subject matter experts
8. Undertake review studies on extreme weather & associated risks in African regions
9. Study the local scale variations in my country
10. Research on use of multiple lines of evidence & use of AI
11. Publish lessons learned papers
12. Knowledge gaps search to help future research
13. Prioritise research based on the gaps identified at this workshop
14. Co-benefits methodology
15. Encourage the production of interdisciplinary research that AR7 will need
16. Work with UK Met to workshop urban representation in IPCC Atlas
17. Focus on regional aspects/delivery
18. Need for guidelines for model/ensemble selection
19. Work with GCF etc. to assemble/synthesise grey literature on adaptation planning/implementation to feed into AR7 WG2 report
20. Help aggregate information outside IPCC

A.6.1.5 Suggestions for skills

1. Improve skills to analyse the literature for bringing out the evidence systematically
2. Leadership is required at all levels and these skills are not necessarily prioritised for screening authors
3. Need to widen our participation and expertise – interpersonal skills key as can't be taught
4. Selection and motivation of authors needs to be improved
5. Do some methods training on systematic reviews
6. Specific skills for different tasks - especially management tasks for CLAs (and extent to which their role is overstretched)

A.6.1.6 Suggestions for collaborations

1. Opportunities for the Adaptation Research Alliance and others to support the IPCC to bring in more grounded, inclusive and practitioner perspectives
2. Seek ways to build on networks that I am part of, to help influence IPCC AR7 evidence on practical adaptation solutions
3. Work with local govt on data downscaling and bottom-up planning
4. Look for collaboration with different sectors as meteorological
5. GSCC + NGO involvement
6. Scientist comms needs scoping, support programme
7. Work with adaptation community to scope out MEL assessment (e.g. GAMI)

A.6.1.7 Constraints

1. What can I do? Time! Own interest vs. IPCC requirement
2. Lots of common great ideas on how to improve but it will come to time and funding available
3. Whether or not be involved as an author for AR7
4. Risk of the IPCC/ambition for the IPCC to overreach itself

A.6.1.8 Outcome focus

1. Need for better communication & access to the IPCC findings by specific stakeholders
2. Need for earlier start of the IPCC synthesis report

A.6.1.9 Generic comments

1. Consider whether/what role in next assessment
2. How to better contribute on IPCC work and AR7
3. AR7 will be a very interesting but very challenging process
4. Example of need for context
5. More inclusive process at national level
6. Uncertainty comms
7. Requirement to deliver across WG
8. Good networking

A.7 APPENDIX 7 – DAY 2 – SESSION 8 – NOTES FROM FINAL PLENARY

1. Develop plain language summaries: similar summaries for each of the chapters and the policymaker summary. Reduce the complexity of the text for users and non-specialists.
    a. Media does this already; wouldn't it be better if the IPCC did this ourselves to ensure scientific rigour?
2. Communication needs to not only be text based, but final report (thinking of end-users, not as academically astute as authors) should include videos, infographics and visual representations to help policymakers.
3. Building on regional networks of scientists in underrepresented areas to be represented & approved by IPCC; inform some of the contributing authors that are engaged during the cycle
4. A lot of user needs during discussion, but also thought we need to think of the producer needs. What do the producers need to be able to meet the needs of the users? They need support mechanisms; commitments from authors, institutions – committing a certain amount of time to engage in the process.
    a. Embedding funding into the projects so that their time is accounted for through resources from the institution
    b. Highlighted that they have their day job as well as their IPCC position; support mechanisms needed to help them support the IPCC process
5. Need to get out of the science space and into the policy space for action
6. Is it too much to ask the IPCC itself to fill all of those gaps?
    a. Identify gatekeepers in different communities we want to reach to help to do that. It's normal that IPCC can't communicate to all different users in their language & level, but there are partners to support us to do that
7. Get smarter at telling stories that contextualise important findings from the science for people to understand how urgent/important it is, how it relates to user reality
    a. It's important science, but there's a few layers missing between the science & the user actions
8. We need literature access for all the authors; not simple, it was looked into before – can UNEP library be used etc. But still needs to be resolved
9. When a person comes to the position of focal point, IPCC is alerted who is at the country level. That person might not be technical, but also policy it takes time for them to understand intricacies of IPCC processes. Orientation package: video presentation, onboarding/handovers needed to support these newly appointed focal points. Not just becoming aware, but supporting into that process
10. Central repository for provision/collection of literature + grey literature to be used in assessment process of IPCC. Info might be available in different countries, but no way for it to be shared/submitted to the IPCC for access and inclusion in case studies
11. We've been asking for skills from others / to hire others with skills. Maybe one thing to do is TSU level up scaling.
    a. We know that people are bringing expertise beyond skills, but they're mostly already under-resourced. To compensate for the hours that they're spending on this

12. One aspect of policy relevance is that the information provided shouldn't be outdated. Outputs needed more frequently: waiting until 2030 for next assessment, a lot will happen on policy-side.
    a. Perhaps a technical report hybrid of special reports and full assessments; shorter, more focused, not as much work. Important deadline: Globa Stocktake 2028; an important document in 2027 to support this that would be crosscutting would be essential
13. A number of areas with cross-cutting relevance, e.g., ecosystems. Relevant to adaptation, mitigation and vulnerability; interlinkages are important
    a. For cross-working group working groups should be started. International programme. IPBES.
14. From perspective of national focal point, we have a wish list. IPCC as a whole needs to decide if they are additional functions alongside the assessment function. Similar to IPBES; capacity building, policy support; IPCC needs to decide if it wanted to have those additional functions as part of its core work.
15. There is a tendency to ask more and more of authors, certainly CLAs. Important to recognise which of those should sit with TSU. This meeting has been well-facilitated; in many IPCC contexts the authors have to facilitate those meetings themselves. It's important to think about meeting support and meeting design and funding for TSUs to focus on that more.
    a. Smaller reports with smaller numbers of chapters enable the interdisciplinary focus to be tighter and greater collaboration between the academic community that writes them. Actionable information: we finished AR6 with a list of 6 systems transitions. Working group reports, to be in time for the global stocktake, don't have to be as long. It could be 6 chapters long if things have been dealt with sufficiently.
16. Systems transition as cross-working group. Topic of IPBES: AR7 should work collaboratively with IPBES to improve
17. Author process: experience is exhausting and dreadful. Communications aspect: need to make sure reports can be useful by identifying end-users. Continuing dialogues between scientists and end-users; we could have a lot more of these kinds of workshops – it wouldn't be for nothing; it would create something useful
18. A better connection between WG2-3 is needed. Difficult to find common metric between impacts & mitigation; without it, we will continue to give the wrong message. Have to incorporate the impacts of CC into our equation to show that it's cheapest to invest in mitigation than to leave things as it is
    a. Adaptation and mitigation projects look similar at the project level, perhaps this is a place to connect them
19. Govt perspective: frustrated. When I hear these interesting ideas & wishes, ignores that the IPCC operates in a political context; its integrity comes from being relevant but not prescriptive. It's not a scientific report, its intergovernmental. For me, these ideas here don't always fit in the mandate of the IPCC. It's not true that the IPCC doesn't want to talk about IPBES, it just doesn't have the opportunity because it works differently e.g., approval sessions lined up in a row prevent discussion which incorporates IPBES.

20. WG structure: review process at the end of AR5 – task groups founded & big progress in 2010. Led to having the same WG structure; same at the beginning of this cycle. Hard reality: many countries in IPCC don't want it to be the best organisation you can imagine: the political context means they just block everything.
    a. Ideas here that aren't realistic might damage the reputation of the IPCC. We're not negotiating the science, we're negotiating the process of the IPCC
    b. This discursive process is positive, without the toxic context of the negotiations, but it lacks a realistic perspective
21. Observational uncertainty: when you validate the models, if you want to make it actionable you should be able to address the uncertainty.
22. Support & guidance built on material from previous sessions would be useful
23. Should have special report/technical report, not wait on long lead times. Special report could be on loss & damage; another on attribution of extreme events.
24. We work on different reports, this will be the 7th. Mentoring: between reports to help each other with ideas
25. IPBES: institutional challenges of working together. Next IPBES incorporates attention to climate, so a lot of authorial cross-over. One of the things could improve: not just IPBES & IPCC: national climate assessments, global outlook, G7. We could top up best practices; it would be nice to take the things that work well in one place and apply them elsewhere, e.g., IPBES has taken on and applied learning from indigenous communities
26. There are constraints on what countries can and can't do, but ultimately the credibility and product of the IPCC rests on the policy contributions of authors. If you don't have their goodwill and buy-in you don't have a report, so it doesn't quite matter what countries think on the panel
27. I think it's important for informal groups like this to push the boundaries of what's possible. If we're going to achieve Paris Agreement, it's the space of actors out there who's going to make it happen. There is desire for change, for becoming more relevant and solutions/actions focused. This group can do a lot in pushing the boundaries of what is possible: if we don't, we'll never see what's possible. Ideas of cross WG chapters, more integrated views of issues where 1 issue doesn't belong to 1 WG. Ideas how to integrate users' perspectives are feasible within the boundaries of where we are. There are lots of ideas from this process that can be brought out that are feasible: they may stretch the boundaries a bit, but that's our job.
28. A lot of findings from AR6 that are actionable if we engage in process with national governments and actors. We don't need to wait for AR7 to do this.

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