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**ANY OTHER BUSINESS**

**Working Group Co-Chairs' Perspectives on Lessons Learned from AR6**

(Prepared by the Working Groups Co-Chairs)

(Submitted by the Secretary of the IPCC)

## ANY OTHER BUSINESS

### Working Group Co-Chairs' Perspectives on Lessons Learned from AR6

#### 1. Context

As the IPCC Sixth Assessment Cycle (AR6) draws to a close, this document offers some perspectives from the Working Group Co-Chairs on the challenges which have been faced by Bureau members, Technical Support Units (TSUs) and authors – the scientific contributors to the IPCC. Our purpose is to draw on our experiences, to provide some perspectives that governments may wish to take into account as they start to make preparations for AR7.

This has been the busiest IPCC cycle, with three ambitious Special Reports as well as the three Working Group Reports. A cycle that was intended to take five-seven years will eventually end nearly eight years after the AR6 elections. The intensity and length of the cycle has taken its toll. We have been challenged by the volume of activity, the expanding scientific literature relevant to climate change, expanding procedural and management requirements, enhanced cross-Working Group coordination for the assessment of cross-cutting topics, increased ambition in terms of communication, enhanced policy interest, and, of course the COVID pandemic. We do not dwell on the latter – COVID has extended the AR6 cycle but this was a unique set of conditions.

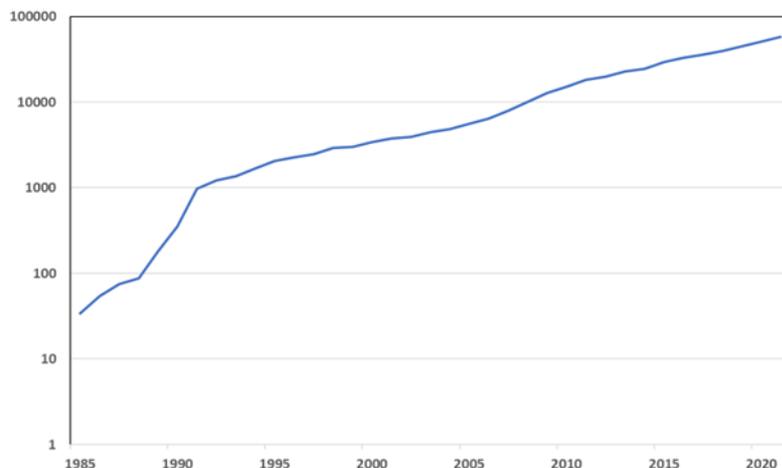
In this document, we summarise the AR6 experience, set out what is required scientifically to produce an IPCC report, including timescales, and draw lessons that could be applied in future cycles.

#### 2. The AR6 Experience

The Working Groups produced six reports in AR6. The three Special Reports were ambitious in character, differing from the more targeted Special Reports produced in AR4. Each involved cross-Working Group collaboration. As a result, Working Groups I and II were involved in the production of four reports during AR6 – their own Working Group reports, the Special Report of Global Warming of 1.5°C (SR1.5), the Special Report on Climate Change and Land (SRCCL), and the Special Report on Oceans and Cryosphere in a Changing Climate (SROCC). Working Group III did not participate in SROCC. Management of the production of each of the Special Reports was taken on by a single Working Group, thus each managed two major reports during the cycle.

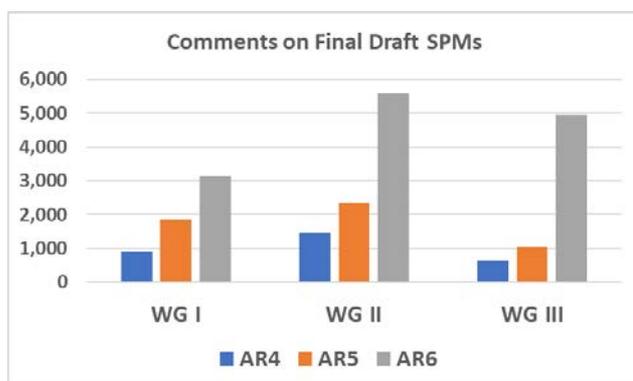
In addition to the heavy workload, the volume of scientific literature has continued to grow exponentially, there has been an expanded policy interest in IPCC's work, and the procedural requirements associated with IPCC products have been growing as IPCC matures as an institution. AR6 was the first cycle in which the reforms of IPCC processes agreed in 2011-12 were fully implemented. These developments, which have added to pressures on Co-Chairs, other Bureau members and TSU staff include the following.

1. The volume of scientific literature relevant to IPCC's work has doubled every five years (Figure 1). In addition, efforts to bring in additional scientific disciplines and practitioners as outlined in the Chairman's Vision Paper at the start of the cycle have brought additional streams of literature.



**Figure 1: Volume of scientific literature on climate change (logarithmic scale)**  
**Source:** Web of Knowledge

- The number of comments on draft reports by experts and governments has grown significantly from one cycle to the next. Figure 2 shows the number of comments received on final drafts of Summaries for Policymakers (SPMs). The expanded number of comments on WG II and WG III reports between AR5 and AR6 is particularly striking.



**Figure 2: Number of comments received on Final Draft SPMs in AR4 Ar5 and AR6**  
**Source:** IPCC website and Working Group records

- Higher levels of external interest in IPCC’s work have increased demands on Co-Chairs, Bureau members and some TSU staff for outreach activities. There have also been increasing demands to “service” UNFCCC processes, including the Periodic Review of the goals of the Convention, and the Global Stocktake under the Paris Agreement.
- The error protocol is now fully implemented. Its implementation takes considerable amount of TSU time.
- Conflict of Interest procedures have to be operated for authors associated for each Working Group Report and Special Report.
- The Executive Committee meets once a month requiring participation from Co-Chairs and heads of TSU.

7. Following the development of an IPCC Communications Strategy as part of the reforms and the Expert Meeting on communication held earlier in the cycle, expectations about the communicability and the production quality of figures have risen. Although each Working Group has recruited communication specialists, this has also increased the amount of author liaison required and cross-WG coordination, e.g., monthly meetings of the Communications Action Team (CAT) with participation from communication specialists and heads of TSU.
8. The establishment of TG-Data and the implementation of the FAIR (Findability, Accessibility, Interoperability and Reuse) principles for data underlying tables and figures in IPCC reports has added to workload as reports are prepared for publication. This has required regular meetings for TSU science/data contacts, and specialist TSU staff to be brought in (internally or externally) where possible.
9. The number of Expert meetings or Workshops convened by Working Groups has fallen off in AR6. This can be attributed to the intense workload associated with producing reports.
10. The increased relevance of IPCC assessments has resulted in requests for co-sponsored meetings. These have resulted in valuable outputs that will continue to inform IPCC assessments, but they have also required intense engagement by Co-Chairs, Bureau members and TSUs. It should also be noted that the procedural requirements for co-sponsored meetings and their products have increased.
11. The management of large and diverse authors teams over multiple years without any human capital/resources support (as one would find in most large organisations) has created an increasingly large people management responsibility for Co-Chairs and TSUs. Managing author expectations and experiences regarding inclusion, conduct and levels of workload is time consuming and has taken mental/emotional tolls on Co-Chairs and TSUs.
12. Responding to requests for increased levels of harmonisation across IPCC products, most notably the development of a common glossary, and efforts to co-ordinate the use of scenarios, and risk and uncertainty concepts, has entailed substantial additional work for Co-Chairs, Working Group Vice-Chairs and TSUs.

The intensity of the AR6 has taken a toll on the scientists who participated. This is partly COVID-related, but the number of planned outputs, the increasing number and complexity of IPCC processes, (and the need for contributors to have a full understanding of these processes) have placed additional demands on TSUs and on Co-ordinating Lead Authors (CLAs) in particular. In general, Co-Chairs, Bureau members and TSU staff have worked hours and days going well beyond trigger points in applicable national labour laws.

### ***TSU staff***

TSU staff have worked extraordinary hours under exceptional stress, especially during the long approval sessions. As the cycle draws to a close, major products have been approved and the end of available funding is in sight, many, especially those without institutional positions to return to, are departing early. Sustained workloads and the work environment are also playing a role. This limits the ability to complete communication and other activities including report production, maintaining the operation of the error protocol, and preparing for a handover to the AR7 TSUs. The fact there is almost no continuity in TSU staff between cycles accentuates the problem that IPCC has with a lack of scientific and institutional memory, apart from the role that the IPCC secretariat plays in information management including the archiving of IPCC reports and material used for their preparation, in accordance with the Principles and Procedures of the IPCC and in co-operation with the Technical Support Units.

It adds an additional burden to hand over processes and resources that have been developed extensively during the cycle.

## **Authors**

Authors have committed time, on a voluntary basis, well beyond initial expectations, with implications for family life and professional obligations outside IPCC. This has differentially affected women, younger academics, and authors from the Global South. Extended processes have led to a drop-off in active participation as the cycle has progressed. Those with better access to resources tend to remain, but new participants face an ever increasing hurdle 'to get up the IPCC learning curve' which reduces the attractiveness of participating in IPCC reports. This has negative consequences for the diversity of perspectives that would ideally underpin reports.

We are getting signals that a significant number of authors (including early career researchers, women, those from the Global South) would not consider, or would not recommend, future participation in IPCC as a result of their experiences in AR6. As a certain level of turnover of author teams, as well as bringing in new expertise, from one cycle to another is healthy, this would be an unfortunate outcome. The role of Co-ordinating Lead Author, in particular, is challenging without prior experience as a Lead Author. The absence of a diverse and motivated pool of experienced authors willing to take on the role of CLA, could impact the quality of future IPCC reports.

## **Chapter Scientists**

Given the increased workloads experienced by authors, considerable pressures have been placed on the Chapter Scientists. We have evidence from surveys of Chapter Scientist experiences that they have been asked to work hours, and perform roles, that were well beyond initial expectations, including the performance of tasks that would normally fall to Contributing and Lead Authors. The Chapter Scientist role is not formally defined within existing IPCC procedures. This requires attention to ensure that the early career researchers who occupy these positions have clear and realistic roles and responsibilities.

## **Co-Chairs**

Co-Chairs have taken longer periods out of their scientific and professional careers than they had originally anticipated. The intensity of the work has affected their capacity to address non-IPCC business. The increasingly ambitious, interdisciplinary cross-Working Group character of IPCC activity has placed additional demands on them which has required additional resources in their TSUs. This has been particularly challenging for Co-Chairs from developing countries, who have more limited support. The level of support for developing country Co-Chairs may need consideration, building on some improvements achieved during this cycle, as compared to AR5.

### **3. How long does it take to produce IPCC reports?**

Plans for AR7 are outside the scope of this document. However, the Co-Chairs are aware of some aspirations for IPCC to deliver AR7 products in time for the second Global Stocktake under the Paris Agreement. This section sets out what has been learned about the timescales required for report production in AR6. This is based on the Strategic Planning Schedule adopted prior to the COVID pandemic and highlights the time required to conduct rigorous scientific assessments. This indicates that choices will need to be made with respect to the kind and number of products conceivable for AR7.

There are multiple stages even before the authors' work begins. These include: inviting nominations for a scoping meeting; selecting participants; convening the meeting; a plenary session to approve the report outline developed at the scoping meeting; a call for author nominations; and author selection. As a result of these steps, each of which requires time, the first Lead Author meeting for Working Group I took place 21 months after the call for scoping meeting nominations. The final Lead Authors meeting was scheduled (prior to COVID) to take place 21 months after the first, and the Approval Plenary 9 months after that. In total, the time period from scoping nominations to WG I approval would have been 4 years and 3 months. With the other two Working Group reports coming at 3 month intervals, the three Working Group reports would have taken 4 years and 9 months to complete. The Synthesis Report would have been 6 months later, 5 years and 3 months after the

start. Table 1 provides an overview of the planned AR6 schedule pre-COVID and a summary of actual work-in-progress during each calendar year.

In AR6, there was also more than a year's gap between the elections to the Bureau and the call for the nominations for the scoping meeting (not shown in Table 1). This was the time taken for planning for the cycle and initiating the Special Reports. In all it would have taken, without COVID, around six years after the elections to produce all three Working Group reports as well as three Special Reports.

#### **4. Lessons learned for future IPCC cycles**

IPCC has decided to produce a Special Report on Cities early in the AR7 cycle and aspirations have been expressed about completing assessment products in time for the Global Stocktake scheduled for 2028 under the Paris Agreement. The time schedules presented in the last section show that reconciling these decisions and aspirations poses major challenges. This section presents some options that governments may wish to consider in initiating AR7 and formulating logistically plausible plans consistent with scientifically rigorous products.

1. Consider supporting processes and tools to retain institutional memory.
2. Consider the number and ambition of planned reports to avoid overlap of work on multiple products and consequent overload.
3. Consider products and activities, other than full Assessment Reports, with shorter timelines. These might include Special Reports, developing Technical Papers which can assess relevant models with their assumptions, and scenarios based on socio-economic assumptions, as they were used to provide information in those IPCC Reports.
4. The greater use of Expert Meetings and Workshops to open up emerging topics could be considered. Expert Meetings and Workshops planned from the start of the cycle could prepare guidance for authors and help coordinate the assessment process.
5. Consider means other than full Assessment Reports to inform the second Global Stocktake.
6. Consider how to best coordinate and liaise with external organisations from the start (e.g. with WMO, UNEP, IPBES, UNFCCC bodies) for the preparation of products and outreach related to the IPCC.

**Table 1: Overview of the time required to produce the AR6 reports.** (a) shows the time required (months) to complete each stage of an AR6 report based on pre-COVID Strategic Planning Schedule, together with an overview of the key dates these stages occurred for all seven reports to which Working Groups contributed in the AR6. (b) shows an indication of the years that were spanned for each report of the AR6 (not including production tasks).

(a) Stage	Approximate time required		Dates for each AR6 report						
	Time elapsed	Interval	SR1.5	SRCCCL	SROCC	WGI	WGII	WGIII	SYR
Calls for scoping nominations			04-05/2016	09/2016	06-07/2016	10-11/2016	10-11/2016	10-11/2016	05/2019
Scoping meeting selection	3	3	06/2016	12/2016	09/2016	01/2017	01/2017	01/2017	07/2019
Scoping meeting	6	3	08/2016	02/2017	12/2016	05/2017	05/2017	05/2017	10/2019
Approval of scope	10	4	10/2016	03/2017	03/2017	09/2017	09/2017	09/2017	02/2020
Call for nominations	11	1	11-12/2016	04-05/2017	04-05/2017	09-10/2017	09-10/2017	09-10/2017	04-06/2020
Author selection	16	5	01/2017	07/2017	07/2017	01/2018	01/2018	01/2018	07/2020
LAM1	21	5	03/2017	10/2017	10/2017	06/2018	01/2019	04/2019	01/2021
LAM2	27	6	06/2017	03/2018	02/2018	01/2019	07/2019	10/2019	08/2022
LAM3	33	6	10/2017	09/2018	07/2018	08/2019	01/2020	04/2020	04/2022
LAM4	42	9	04/2018	02/2019	02/2019	01/2021	03/2021	01/2021	-
Approval	51	9	10/2018	08/2019	09/2019	08/2021	02/2022	03/2022	03/2023
2 WG reports staggered 3 months apart	57	6							
SYR Approval	63	6							

(b)	2016	2017	2018	2019	2020	2021	2022	2023
	SR1.5	SR1.5	SR1.5					
	SRCCCL	SRCCCL	SRCCCL	SRCCCL				
	SROCC	SROCC	SROCC	SROCC				
		WGI	WGI	WGI	WGI	WGI		
		WGII	WGII	WGII	WGII	WGII	WGII	
		WGIII	WGIII	WGIII	WGIII	WGIII	WGIII	
					SYR	SYR	SYR	SYR

7. Ensure that Technical Support Units are structured and sufficiently resourced to:
  - a) allow for intense work schedules associated with working on different products in parallel;
  - b) ensure that staff are co-located with both the developed and developing country Co-Chairs. A start on this was made in AR6;
  - c) manage increasingly interdisciplinary cross-Working Group products;
  - d) manage interdisciplinary author teams across a range of platforms from in person author meetings to virtual meetings including dealing with a code of conduct and inclusion;
  - e) cover the increasing demands of more rigorous IPCC processes (error protocol; COI; FAIR principles, co-sponsorship); and
  - f) cover the full breadth of technical support expected beyond operations and science support, e.g. enhanced graphics, data science, IT resources, and communication support.
8. Recognise that the role of chapter scientist does not define the limit of the contribution that early career researchers can make to IPCC reports. Early career researchers' participation in a chapter scientist role need not exclude them from contributing authorship, or from being considered for nomination to lead authorship, if this is merited by their competence and contribution.

The scientific community and IPCC's elected officers remain committed to producing timely, relevant and scientifically rigorous products to inform the response to climate change. We offer these suggestions in a constructive spirit such that governments can establish goals that are commensurate with available time and resources.