FIFTY-SECOND SESSION OF THE IPCC
Paris, France, 24 – 28 February 2020

IPCC-LII/INF. 4, Rev.1
(28.I.2020)
Agenda Item: 13.1
ENGLISH ONLY

PROGRESS REPORTS

Working Group I contribution to the Sixth Assessment Report

(Prepared by the Co-Chairs of Working Group I)

(Submitted by the Secretary of the IPCC)

PROGRESS REPORTS

Working Group I contribution to the Sixth Assessment Report

1. Expert Review of the First Order Draft (FOD) of the WGI Report

The FOD of the Working Group I (WGI) report as well as the interactive Atlas were on line for Expert review between 29 April and 23 June 2019. 2431 experts registered and 750 provided a total of 23 462 comments. The review process included a review of the scripts underpinning the atlas figures which a new aspect.

2. Third Lead Author Meeting (LAM3)

The LAM3 was held on August 26-30, 2019 in Toulouse, France at the invitation of the French Government through Météo France. About 300 participants attended the meeting (Authors, Review Editors, a delegation of Working Group II (WGII) and Working Group III (WGIII) author representatives, WGI TG data representatives, external consultants for diversity training and information design). The priorities of the week were to analyse the comments made by Experts during the FOD review, consider recent knowledge developments from the scientific literature, including new climate model results, and discuss revisions to the draft building on the outcomes of these comments, and to develop coherency across chapters and across the AR6 (SR15, SROCC, SRCCL, WGII, WGIII). Establishing coordination mechanisms across chapters was another key priority including addressing overlaps, gaps, inconsistencies and coordinating the use of common methodologies, datasets, indices and diagnostics. Daily coordination meetings were held with CLAs and the WGI Bureau and Technical Support Unit (TSU). Two meetings brought together WGI Bureau members and Review Editors. Time was also devoted to discussions on figures, the Glossary, FAQs, cross-WG coordination and various trainings were organized (on technical aspects related to the data and scripts used in the report, on the use of the IPCC calibrated language and on inclusion and diversity). An extra meeting day was scheduled with Coordinating Lead Authors (CLAs) and the WGI Bureau to work on the Summary for Policymakers.

As usual after the meetings it organizes, the TSU developed an online quality survey in order to learn about the participants' views on different aspects of the meeting and to improve/adapt for upcoming events. 101 responses were received covering the quality of the venue, the logistics during the week, the travel issues encountered (especially for Trust Fund travellers), the schedule of the week, the content of the different sessions. The survey also questioned participants' experience in terms of their contribution to the process, in the context of issues addressed through the implementation of the Code of Conduct.

3. Finalisation and compilation of the Second Order Draft (SOD) of the WGI report and preparation of the First Order Draft of the Summary for Policymakers (SPM) and Technical Summary (TS)

The SOD of the WGI main report was delivered by the author teams on 6 January 2020. During two weeks, the TSU compiled the drafts (formatting, science and cross-chapter consistency checks were undertaken). WGI Bureau and TSU also initialised the drafting process for the SPM/TS that was carried out from 20 January to 29 February on the preparation of the first drafts of the SPM and the TS. All the drafts will be released for the Government and Expert Review on 2 March.

4. Coordination of cross-WG topics

Cross-WG coordination discussions are ongoing on topics that are cross-cutting and benefit from an integrated approach across all WGs to ensure a consistent and comprehensive assessment in AR6. Topics include scenarios, risks, regional information, and storylines. Bureau members and TSU

support the coordination of these topics and foster close interactions between authors of different reports and across WGs, also as a key element of integration for the AR6 Synthesis Report.

The cross-WG on scenarios has held a discussion on the labelling and choice of scenarios in SPMs coordinated with recommendations summarised for the Working Group Co-Chairs by the WGI TSU and Bureau coordinators.

5. Internal Review of the Second Order Draft (SOD)

In order to facilitate cross-chapter and cross-WG coordination, an Internal Review of the SOD was organized mid-November. The draft was made available to all the WGI authors and Bureau Members as well as to the WGII and WGIII Bureau Members involved in cross-WG coordination. The WGI Bureau and TSU coordinated an internal review of the draft Executive Summaries.

6. Work on the Executive Summaries (ES) and development of the Summary for Policymakers (SPM) and of the Technical Summary (TS)

The starting point for both documents (SPM and TS) are the Executive Summaries (ES) of the Chapters. WGI TSU and WGI Bureau have developed a guide for Authors on the preparation of the ES describing best practices on form and structure, how to better formalise the conclusions of the assessment, to guarantee traceability and properly use the IPCC calibrated language to present the different levels of confidence and uncertainty. A Traceback Table has been included and endorsed by the WGI Bureau to document the lines of evidence underpinning ES statements.

The work on the SPM started during the first semester of 2019 with the identification of the key messages in consultation with all WGI Authors (25 webinars were organised, facilitated by communications experts, and a synthesis was prepared). The work on the TS started during the summer and a questionnaire was sent to users of this document (IPCC Focal Points, IPCC Observer organisations, passed and current IPCC Authors, Experts, private companies…). 138 responses were received and analysed and a clear message emerged: the TS needs to support the SPM and provide traceability on the conclusions of the assessment, of the uncertainties and of the figures. Online questionnaire : https://www.surveymonkey.com/r/FHYXZPN.

The first draft of both document (SPM and TS) will be released early March 2020 for the Expert and Government Review.

7. Work on the Frequently Asked Questions (FAQs)

A survey was developed early 2019 in order to better know the public's expectations regarding the IPCC FAQs. Over 300 responses from 53 countries were received, allowing the Chapters to better target their FAQs. WGI TSU has supported the drafting of the FAQs, including providing scientific editorial support, graphics support and guidance on making the information as accessible as possible to non-experts. The FAQs are considered in terms of how they support access to each chapter, how they complement FAQs from earlier IPCC reports; and as a stand-alone collection of FAQs on the physical science basis of climate change.

8. Work on the Glossary

In collaboration with WGII, WGIII and the IPCC Secretariat, WGI worked on the development of a new collaborative tool called *Collaborative Online Glossary* (COGS). The objective of the COGS is to develop normalized cross-WG definitions of the common terms. WGI Authors are developing the Glossary using this tool.

9. Work on the figures of the WGI Report

Since the "visual" aspect is becoming increasingly important in science communication, this aspect is part of the priorities for WGI. To accompany the Authors, the WGI TSU has developed a *Visual Style Guide* (lien) at a very early stage of the process, guide that is now very much used in the scientific community. WGI TSU also coordinated the production of colour pallets [lien] to guarantee readable and homogenous figures across the report. In parallel, WGI coordinated discussions between Bureau Members, Authors and a specialist in cognition around the visualisation methods of the *« model agreement »*. Finally, WGI will work with information design and cognitive science specialists implementing a co-design process with Authors, WGI Bureau members and TSU for the development of figures for the SPM and the related underlying information presented in the TS.

10. Development and curation of scripts underlying figures and tables

The development of open access community software that underlies the figures produced by the WGI assessment is encouraged by the WGI Bureau and TSU. The objective is to publish on a public IPCC GitHub repository hosting the scripts and archive at the IPCC Data Distribution Centre data that accompany the report figures once the report is published.

In collaboration with the Task Group on Data Support for Climate Change Assessments (TG-Data) and the Data Distribution Centre (DDC), the data, software, and other relevant information underlying the figures and tables of the Report will be documented. An introductory workshop was organised by WGI TSU and the DDC with chapter scientists on the use of specific tools such as ESMValTool and the Atlas team application Climate4R. All WGI Authors, Chapter Scientists, Bureau and TSU members can now access different high-performance data centres (*Centre for Environmental Data Analysis,* CEDA, UK, *World Data Center Climate*, WDCC, *German Climate Computing Center*, DKRZ, Germany, UDG-TAP server, Spain) to access model, observational and reanalysis data. Computing time is also available for the analysis of large datasets, such as CMIP6, on the H2020 European Project IS-ENES Data Analysis Platform service.

11. WGI contribution to TG-Data

WGI is placing significant emphasis on the treatment of digital information such as data and software, including the innovative development of an online interactive Atlas platform to navigate assessed digital information. WGI has an opportunity to make significant progress within the AR6 in terms of data handling and accessibility of code for producing figures and tables for transparency and traceability and to ensure the accessibility of assessed model and observational data. This is important to build trust in the assessment process as whole, ensure provenance and the subsequent implementation of the error protocol if needed, as well as supporting the work of the broader research community.

Three WGI representatives attended the first TG-Data meeting that was held in Montreal, Canada early November 2019 to present WGI activities and to propose the implementation of *« FAIR »* (Findable, Accessible, Interoperable, Reusable) data principles in the preparation of the WGI Report and across the IPCC more broadly. TG-Data formed a task group for the implementation of the FAIR data principles including WGI-II-III representatives, DDC and TG-Data Experts. This task group is led by Anna Pirani, WGI Head of TSU. The main task of this group is to develop a guidance document introducing the implementation of FAIR data principles in the IPCC, including best practices of development, documentation, curation and citation of scripts.

12. Training on diversity and inclusion in the IPCC

A package of training, dialogue and facilitation of inclusive practices, collaboration and participatory group dynamics has been piloted by WGI since the first WGI Lead Author Meeting (LAM1) to foster an inclusive, welcoming and productive environment that is suitable for the preparation of the WGI

report on the understanding that the most effective assessment will be undertaken with the full participation of all those involved.

The WGI Bureau and TSU has involved external experts for the development of a toolbox of resources that can be used in the preparation of the WGI report and for consultation. Trainings and workshops for CLAs and Authors were organised during LAM1, LAM2 and LAM3 and will be ongoing during LAM4. Lessons learned will be reported to the Plenary at the end of the AR6 cycle and recommendations will be made for the next cycle, with the hope that the implementation of these practices can be broadened within the IPCC, including in the context of the work of the Task Group on Gender.

WGI thanks the generous support of the Governments of Canada and France for enabling the continued support of the Bureau, TSU and Authors by SHIFT Collaborative.

13. Implementation of a discussion group on sustainability

Following informal discussions with participants during WGI LAM3 on different options towards more sustainable meetings and practices, WGI implemented a discussion group to address these questions. The group is led by three authors and a chapter scientist (from N. America, S. America, S. Pacific and Africa) and is coordinated by the Head of TSU. The group includes WGI authors, Bureau and TSU members. A kick-off call was held with the coordinators and a document is being drafted to share with the full group and initiate a broader discussion. The team is proposing to address, on the one hand, sustainability within the IPCC process, including the objective of developing recommendations for the IPCC, and, on the other hand, to foster a forum where participants can share views and practices amongst themselves.

14. Support on the check of the UN language translated versions of the SROCC and SRCCL SPMs

WGI Bureau supported the reading of the translated versions of SROCC and SRCCL, including coordinating joint work from native speaking authors and Focal Points. In order to improve the translation process for the upcoming reports and to make it more transparent, WGI Bureau prepared and has submitted a proposal to the IPCC Secretariat and Executive Committee (ExCom). The document is attached as **Annex 1** of this report.

ANNEX 1
Proposed process for translations of IPCC reports
for the AR6 main assessment reports (2021)

Motivations

- Translations of IPCC products are key for the dissemination and visibility of IPCC products.

- Translations of IPCC products are quoted by media, could be used in litigation cases, and are used for education, teaching and outreach.

- The quality of IPCC translations is thus essential and should include accuracy and readibility.

Roles and responsabilities

- The IPCC Secretariat is responsible for undertaking the translation of IPCC products. This includes coordination between WMO translators and Working Groups TSUs to deliver quality controlled, rigorous, accurate official translations in UN languages, and facilitate unofficial translations in other languages for increased dissemination and visibility of IPCC products.

- The Working Groups/ TFI TSU is responsible for providing to the Secretariat the report glossary (1 month prior approval for the main AR6 reports). This will be the basis of the translation of key terminology used in the reports and will ensure the use of a correct terminology in UN languages during approval sessions.

- After approval, the Working Groups/ TFI TSU are responsible to provide, when copy edited, the SPM and other approved/accepted text for translation to the Secretariat, together with errata corrections[1] implemented following the IPCC procedures.

- The Working Groups/ TFI TSU are responsible to provide to the Secretariat updates on errata corrections implemented following the IPCC procedures between approval and publication[2] to be implemented in the translations. The Secretariat is responsible for coordination so that errata corrections are also implemented in all official translations.

Implementation of a collaborative online platform for translations

- The IPCC Secretariat is responsible for the implementation of a collaborative online platform to facilitate the quality control of translations of IPCC products.

- The review of translations should be conducted on an open and transparent basis.

- An online translation platform with a discussion forum is required to allow multiple IPCC experts (authors, Bureau members, Focal Points) to jointly review the translations. This platform will allow experts to directly compare the original English version and the translated version, to facilitate communication amongst reviewers through a discussion forum, and to record comments and corrections on translations identifying reviewers.

- The online translation system should include an alert system ("identification of an error in the English version") to ensure that such errors are reflected in subsequent translations in all languages.

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[1] Errors identified in the period between when documents are submitted for approval and approval.

[2] Errors identified in the period between approval and publication.

- This online system could be based on the tool developed for citizen translations (*citoyenspourleclimat.org*).

- Such an online system could also be used to develop translations in non-UN languages, without involving WMO translators, but under the supervision of a scientific editor (Bureau member) and proof reading by IPCC experts.

Implementation of translation scientific editors

- The Working Group and TFI Bureau and TSU will identify at least one scientific editor to supervise the review of the translations of all elements of a report (glossary, SPM, TS, FAQs) in each language.

- The scientific editor(s) is a scientist familiar with the use of the corresponding language in the science community and could be identified within the TSU, the IPCC bureau, or the report CLAs, LAs or REs for UN languages.

- For other languages it could also be a governement delegate, or a scientist previously involved in the work of IPCC (e.g. in previous TSUs or author teams).

- The scientific editor is responsible for ensuring that the final say by the best experts of the scientific question in the corresponding language, and that the best coherency with the meaning of the IPCC English text, are implemented, based on multiple review comments and inputs from WMO translators.

Coordination

- The IPCC Secretariat is responsible to implement a coordination mechanism (by email, or using online communication tools, or as part of the collaborative platform) involving TSU and WMO translators and the scientific editor(s) to track progress in the preparation of translations.

- For transparency, the names of all those involved in the preparation and review of the translations will be acknowledged in the translated material.

- WMO translators are responsible for providing the first translation of the Glossary and this translation is proof read by IPCC experts. The terminology defined in the Glossary is used to translate subsequent report documents (e.g. SPM, FAQs, TS) that will also be proof read by IPCC experts.

- The IPCC Secretariat is responsible to develop a timeline, in interaction with WMO translators, for the time needed for the translation in UN official languages. The timeline needs to be flexible as the priority is to ensure the quality of each translation to be faithful to the English IPCC text. This quality can only be achieved by cooperation and coordination between translators and scientists involved in the preparation, supervision and approval of the reports, fluent in the scientific vocabulary in each language.

- The first draft translation provided by WMO translators will be open for review using the online system during 2 weeks for each element (glossary, SPM etc).

  The IPCC Secretariat, Bureau and TSUs are responsible for identifying report authors to be involved in the review of the first draft translation in each UN official language. The IPCC Secretariat is moreover responsible for communicating an open call to review translations using IPCC communication channels (social networks, communication with governements and observing organisations).

- The scientific editor checks all comments and oversees the collaborative work flow seeking consensus (including with WMO translators), using the online collaborative discussion forum. The scientific editor can also identify gaps (parts under-reviewed) and invite experts to register and review specific parts of these translations.

- The online translation platform is used by WMO translators to implement corrections by experts involved in the proof reading of translations.

- WMO translators are responsible for updateding the WMO Reference database, building on the consensus on the translation of key terminology during the proof reading of translations. This ensures a regular update of the WMO Reference database consistent with practice in the IPCC scientific communities in UN languages.

- Printing of brochures in various languages is arranged by WMO Secretariat. Online versions (pdf and epub formats) are provided on the IPCC website and made clearly visible using the "other language" option of the IPCC website to direct readers to material in each UN language.

Acknowledgement

- ISBN numbers will be provided for each official WMO language translation. The names of the science editors will be published in the acknowledgement section of the report together with the list of experts who contributed to the proof reading of the translations (e.g. *The original translation has been produced by WMO. Science Editors (xxx, yyy) have supervised the proof reading with inputs from the following IPCC experts who have proof read the translations: xxx, yyy*).