

2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

Reports of Review Editors Compilation

Note by Technical Support Unit for the IPCC Task Force on National Greenhouse Gas Inventories

As defined in the Procedures for the Preparation, Review, Acceptance, Adoption, Approval and Publication of IPCC Reports, the role of the Review Editors in production of an IPCC Report is, among others, to ensure that all substantive expert and government review comments are afforded appropriate consideration, advise lead authors on how to handle contentious/controversial issues and ensure genuine controversies are reflected adequately in the text of the Report.

This document is a compilation of reports submitted by the Review Editors of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)* in accordance with the IPCC Procedures. The Review Editors' reports are part of the quality control of the review process of the IPCC Report. They are not intended to be additional reviews of the content of the drafts of the *2019 Refinement*.

Report by Review Editors of Overview Chapter of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)

We acted as Review Editors for Overview Chapter of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)*. Over the two rounds of review as mandated by the IPCC principles and procedures, Overview Chapter received 12 comments on the Second Order Draft from governments (2) and expert reviewers (10), and 58 comments on the Final Draft from governments. Also, there were 148 other comments from expert reviewers and 46 other comments from governments that are relevant to the entire *2019 Refinement*¹.

We assisted in the process of handling of comments by the authors of Overview Chapter in order to ensure that all substantive expert and government review comments are given appropriate consideration as well as to advise Lead Authors on handling contentious/controversial issues. We are satisfied that the Lead Authors of Overview Chapter of *2019 Refinement* have given appropriate consideration to all the comments received in the review process to produce a balanced text that reflects the range of views on the topics covered.

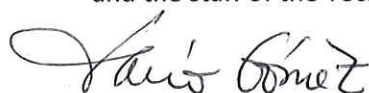
We understand that a table containing all the comments received and proposed responses by the authors will be made available on the IPCC website by the final publication of the Report.

The following are some of the important features of the review comments on Overview Chapter:

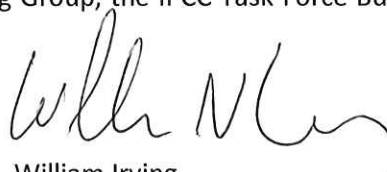
- a) General support for the work of the IPCC in preparing the Second Order and Final drafts of the 2019 Refinement;
- b) Recommendations to clarify and improve the text describing key aspects of the 2019 Refinement, including the types of refinements, the intended uses of the IPCC Guidelines, and the relationship of this methodological report to other international processes;
- c) Specific requests to provide more information summarizing specific developments in the 2019 Refinement within each Volume (see Section 6); and
- d) Identification of paragraphs in the Overview that summarize significant updates to specific Volumes and Chapters, for which certain governments and experts may have divergent views.

The Lead Authors addressed the abovementioned appropriately in the text of the Final Draft of *2019 Refinement*.

The Review Editors of the Overview Chapter would like to recognize the expertise, effort and vision of the entire team producing the 2019 Refinement, including the Task Force Co-Chairs, the Coordinating Lead Authors, Lead Authors, Contributing Authors, the Steering Group, the IPCC Task Force Bureau, and the staff of the Technical Support Unit.



Darío Gómez



William Irving

¹ These review comments include those on Glossary as well as general comments on the entire *2019 Refinement*.

Report by Review Editors of Volume 1 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)

We acted as Review Editors for Volume 1 of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)*. Over the three rounds of review as mandated by the IPCC principles and procedures, this Volume received 1179 comments on the First Order Draft from expert reviewers, 830 comments on the Second Order Draft from governments (265) and expert reviewers (565), and 348 comments on the Final Draft from governments.

We assisted in the process of addressing the comments by the authors of Volume 1 in order to ensure that all substantive expert and government review comments are given appropriate consideration as well as to advise Lead Authors of Volume 1 on handling contentious/controversial issues. We are satisfied that the Coordinating Lead Authors and Lead Authors of Volume 1 have given appropriate consideration to all the comments received in the review process to produce a balanced text that reflects the range of views on the topics covered.

The following are some of the important features of the review comments on Volume 1:

- a) General and specific issues including those on the scope of the 2019 Refinement and its alignment with the agreed Terms of Reference as well as specific features of greenhouse gas inventory preparation at national, sub-national and other levels of disaggregation;
- b) Interest in the tone and details of new guidance on the efficiency of greenhouse gas inventory arrangements, as well as refinements to activity data collection and choice of methods and calculation approaches;
- c) Cross-cutting issues that had relevance to the Overview chapter, Energy, IPPU, AFOLU and Waste volumes of the 2019 Refinement and were addressed through the cooperative efforts of the authors from other volumes concerned;
- d) The treatment of new substances that are also well-mixed greenhouse gases with radiative forcing impacts;
- e) The indirect greenhouse gas inputs to the atmosphere; and
- f) Interest in both the benefits and current limitations of using atmospheric measurements and inverse modelling to provide verification opportunities for certain greenhouse gases and categories of emissions.

Authors addressed the abovementioned appropriately in the text of the Final Draft of Volume 1 of the *2019 Refinement*.

We understand that a table containing all the comments received and responses by the authors will be made available on the IPCC website for the final publication of the Report.

As review editors, we would like to recognize and express our gratitude for the professionalism, expertise, dedication and hard work exhibited by the CLAs and LAs of Volume 1. Their work will make a great contribution to improving greenhouse gas inventories in the future.



Mikhail Gitarskiy



William Irving

Report by Review Editors of Volume 2 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)

We acted as Review Editors for Volume 2 of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)*. Over the three rounds of review as mandated by the IPCC principles and procedures, this Volume received 392 comments on the First Order Draft from expert reviewers, 502 comments on the Second Order Draft from governments (166) and expert reviewers (336), and 130 comments on the Final Draft from governments.

We assisted in the process of addressing the comments by the authors of Volume 2 in order to ensure that all substantive expert and government review comments are given appropriate consideration as well as to advise Lead Authors of Volume 2 on handling contentious/controversial issues. We are satisfied that the Lead Authors of Volume 2 have given appropriate consideration to all the comments received in the review process to produce a balanced text that reflects the range of views on the topics covered.

We understand that a table containing all the comments received and responses by the authors will be made available on the IPCC website for the final publication of the Report.

The following are some of the important features of the review comments on Volume 2:

- a) Additional emission sources: The *2019 Refinement* includes for the energy sector (Volume 2) some additional emission sources. As requested by the comments from the governments and expert reviewers, the authors have been carefully addressing these with extra attention to the definition and language for describing these sources.
- b) New technologies: Technologies evolve and diversify for the distinct countries. Emission factors and uncertainties need sometimes a revision in value or methodology, as pointed out by some experts and governments. Volume 2 has been enriched with country-specific information from local databases and provides a nice asset of updated information on the energy sector, illustrated with new figures and new methodologies.
- c) Clarification to avoid double counting: with the increased use of biofuel, it has become very important to address the biofuel-related emissions sources, which need to be reported under the agriculture, forestry and land use (AFOLU) sector. The Coordinating Lead Authors have been in contact with the AFOLU Coordinating Lead Authors to ensure full coverage without double counting. A similar crosscutting discussion took place with the Coordinating Lead Authors of the Industrial Processes and Product Use (IPPU) sector.

As review editors we appreciated the attention given by the authors to the comments received and the effort that they made to reflect them appropriately in the text of the Final Draft of Volume 2 of the *2019 Refinement*. The authors are to be commended by the enormous work done.



Greet Janssens-Maenhout



Darío Gómez

Report by Review Editors of Volume 3 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)

We acted as Review Editors for Volume 3 of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)*. Over the three rounds of review as mandated by the IPCC principles and procedures, this Volume received 711 comments on the First Order Draft from expert reviewers, 605 comments on the Second Order Draft from governments (147) and expert reviewers (458), and 263 comments on the Final Draft from governments.

We assisted in the process of addressing the comments by the authors of Volume 3 in order to ensure that all substantive expert and government review comments are given appropriate consideration as well as to advise Lead Authors of Volume 3 on handling contentious/controversial issues, including cross-cutting issues primarily with Volume 2, Energy. We are satisfied that the Lead Authors of Volume 3 have given appropriate consideration to all the comments received in the review process to produce a balanced text that reflects the range of views on the topics covered.

We understand that a table containing all the comments received and responses by the authors will be made available on the IPCC website for the final publication of the Report.

The following are some of the important features of the review comments on Volume 3:

- a) Out of the total comments received during the review rounds, around $\frac{3}{4}$ of all comments were editorial in nature, seeking to improve the clarity of the guidelines, ranging from typographical corrections to proposed alternative text, and in some cases more substantial recommendations for re-structuring of the guideline text. The remaining $\frac{1}{4}$ of review comments were to challenge the details of the proposed methodologies, for example to propose alternative methods, identify other data sources for Emission Factors, and identifying errors or inconsistencies in the calculation methods, equations and units.
- b) There were a number of review comments seeking to clarify the guidance where there are cross-cutting methodological relationships between Volume 3 (IPPU) and Volume 2 (Energy), primarily regarding the methods for coke production and hydrogen production. The LAs in both volumes worked together to ensure that there is sufficient information throughout the relevant sections, maintaining the overarching principles from the 2006 Guidelines regarding emission sources from energy use and non-energy use of fuels, and providing schematics, tables and guidance text to clearly present the good practice methodological options.

The Lead Authors addressed the abovementioned appropriately in the text of the Final Draft of Volume 3 of the *2019 Refinement*.



Batouli Said Abdallah



David Glen Thistlethwaite

Report by Review Editors of Volume 4 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)

We acted as Review Editors for Volume 4 of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)*. Over the three rounds of review as mandated by the IPCC principles and procedures, this Volume received 2292 comments on the First Order Draft from expert reviewers, 1612 comments on the Second Order Draft from governments (482) and expert reviewers (1130), and 658 comments on the Final Draft from governments.

We assisted in the process of addressing the comments by the authors of Volume 4 in order to ensure that all substantive expert and government review comments are given appropriate consideration as well as to advise Lead Authors of Volume 4 on handling contentious/controversial issues. We are satisfied that the Lead Authors of Volume 4 have given appropriate consideration to all the comments received in the review process to produce a balanced text that reflects the range of views on the topics covered.

We recognised the high number of comments provided during the process and the efforts made by the authors to handle all these within the given timeframes.

We understand that a table containing all the comments received and responses by the authors will be made available on the IPCC website for the final publication of the Report.

The Lead Authors addressed the abovementioned appropriately in the text of the Final Draft of Volume 4 of the *2019 Refinement*.

With respect to chapter 7, throughout the entire process several experts and governments expressed the concern that the "factoring out" provision in this chapter is inconsistent with the remainder of the IPCC Guidance. Authors acknowledged the potential applicability of "factoring out" to other types of land conversion; however they noted that the mandate to develop "consistent methodologies that take into account factoring out of emissions that would otherwise occur in the absence of the flooded area for estimating CO₂ and CH₄ emissions from flooded lands" (Annex 2 to decision IPCCXLIII-8) indeed only applied to flooded land.




Dominique Blain



Fahmuddin Agus



Marta A. Alfaro



Harry Vreuls

Report by Review Editors of Volume 5 of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)

We acted as Review Editors for Volume 5 of the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)*. Over the three rounds of review as mandated by the IPCC principles and procedures, this Volume received 379 comments on the First Order Draft from expert reviewers, 323 comments on the Second Order Draft from governments (83) and expert reviewers (240), and 97 comments on the Final Draft from governments.

We assisted in the process of addressing the comments by the authors of Volume 5 in order to ensure that all substantive expert and government review comments are given appropriate consideration as well as to advise Lead Authors of Volume 5 on handling contentious/controversial issues. We are satisfied that the Lead Authors of Volume 5 have given appropriate consideration to all the comments received in the review process to produce a balanced text that reflects the range of views on the topics covered. The authors took great care to address each individual comment in the most appropriate way in the final text of the 2019 Refinement. Potential solutions to requests from reviewers were intensively discussed within the team to find the most appropriate way to match the request. Considerable efforts were spent by authors to find and make available additional data or parameters in scientific literature requested by the comments as well as on checking and incorporating additional literature and data proposed by the commenters. The authors were also well aware of cross-cutting issues and of the need to ensure consistency of the guidance throughout the volumes and initiated related discussions with authors of other volumes to achieve consistency, coherence and a common understanding of issues of cross-cutting nature. The authors also paid considerable attention and efforts to improve the clarity and user-friendliness of the text based on the comments received.

We understand that a table containing all the comments received and responses by the authors will be made available on the IPCC website for the final publication of the Report.

The following are some of the important features of the review comments on Volume 5:

- a) Volume 5, Chapter 2: the refinement provides updated data for waste generation rates and waste composition by region and data on carbon, nitrogen and degradable organic carbon (DOC) contents in sludge. Several comments provided additional sources for country-specific data which were checked by authors and incorporated accordingly in the final version.
- b) Volume 5, Chapter 6: CH₄ emissions from wastewater: Comments addressed the clarity of the equations used and the clarity of the discharge pathways and treatment systems to be considered in the inventory. Both areas were improved and clarified in accordance with the comments.
- c) A more complete estimation of CH₄ and N₂O emissions from wastewater was elaborated for emissions after disposal of untreated wastewater or wastewater treatment effluent into aquatic environments when the country has activity data to differentiate the conditions of the waterbody receiving the discharge. The comments received related to this addition and suggested improvements were carefully incorporated in the text of the 2019 refinement.

The Lead Authors addressed the abovementioned appropriately in the text of the Final Draft of Volume 5 of the *2019 Refinement*.

Fatma Betül Demirok



Anke Herold

