



# A GUIDE TO THE IPCC & THE EXPERT REVIEW PROCESS

VIRTUAL EVENT | 8 DECEMBER 2020  
LEARN FROM AND EXCHANGE WITH  
CLIMATE SCIENTISTS AND EXPERTS IN  
THE IPCC ASSESSMENT PROCESS.



[WWW.MOUNTAINRESEARCHINITIATIVE.ORG/EVENTS](http://WWW.MOUNTAINRESEARCHINITIATIVE.ORG/EVENTS)

# A GUIDE TO THE IPCC & THE EXPERT REVIEW PROCESS

## Programme

1. Welcome & Introduction  
**Carolina Adler**, Executive Director MRI (Moderator)
2. Introduction to IPCC WGII AR6 & IPCC Review Process + Q&A  
**Katja Mintenbeck**, IPCC WGII Technical Support Unit
3. Treatment of Uncertainties + Q&A  
**Andreas Fischlin**, IPCC WGII Vice-Chair
4. Panel Q&A with IPCC Lead Authors & WGII Vice-Chairs  
**Anjal Prakash**, Lead Author of IPCC AR6  
**Regine Hock**, Coordinating Lead Author of IPCC Special Report on the Ocean & Cryosphere in a Changing Climate (SROCC)  
**Samuel Morin**, Lead Author of IPCC SROCC  
**Andreas Fischlin**, IPCC WGII Vice-Chair  
**Carlos Méndez**, IPCC WGII Vice-Chair
5. Concluding Remarks  
**Carolina Adler**, Executive Director MRI



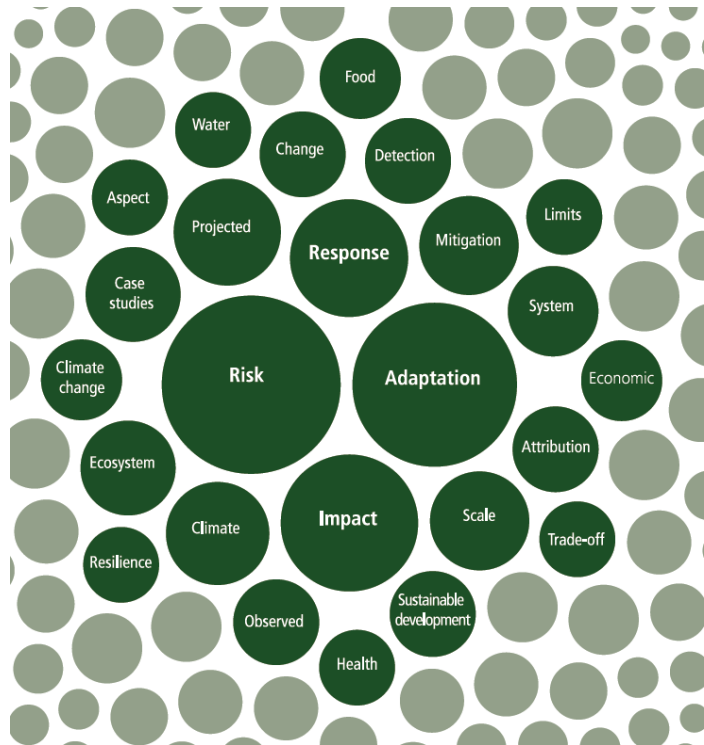
## Introduction to IPCC WGII AR6 & IPCC Review Process + Q&A

**Katja Mintenbeck**  
Director of Science  
IPCC WGII Technical Support Unit



# AR6 Climate Change 2021: Impacts, Adaptation and Vulnerability

The Working Group II Contribution to the IPCC Sixth Assessment Report



## An Introduction to WGII AR6 and the Review Process

Katja Mintenbeck (Event #1)

IPCC WGII TSU, Director of Science

Roberto Sanchez (Event #2)

IPCC WGII Vice-Chair



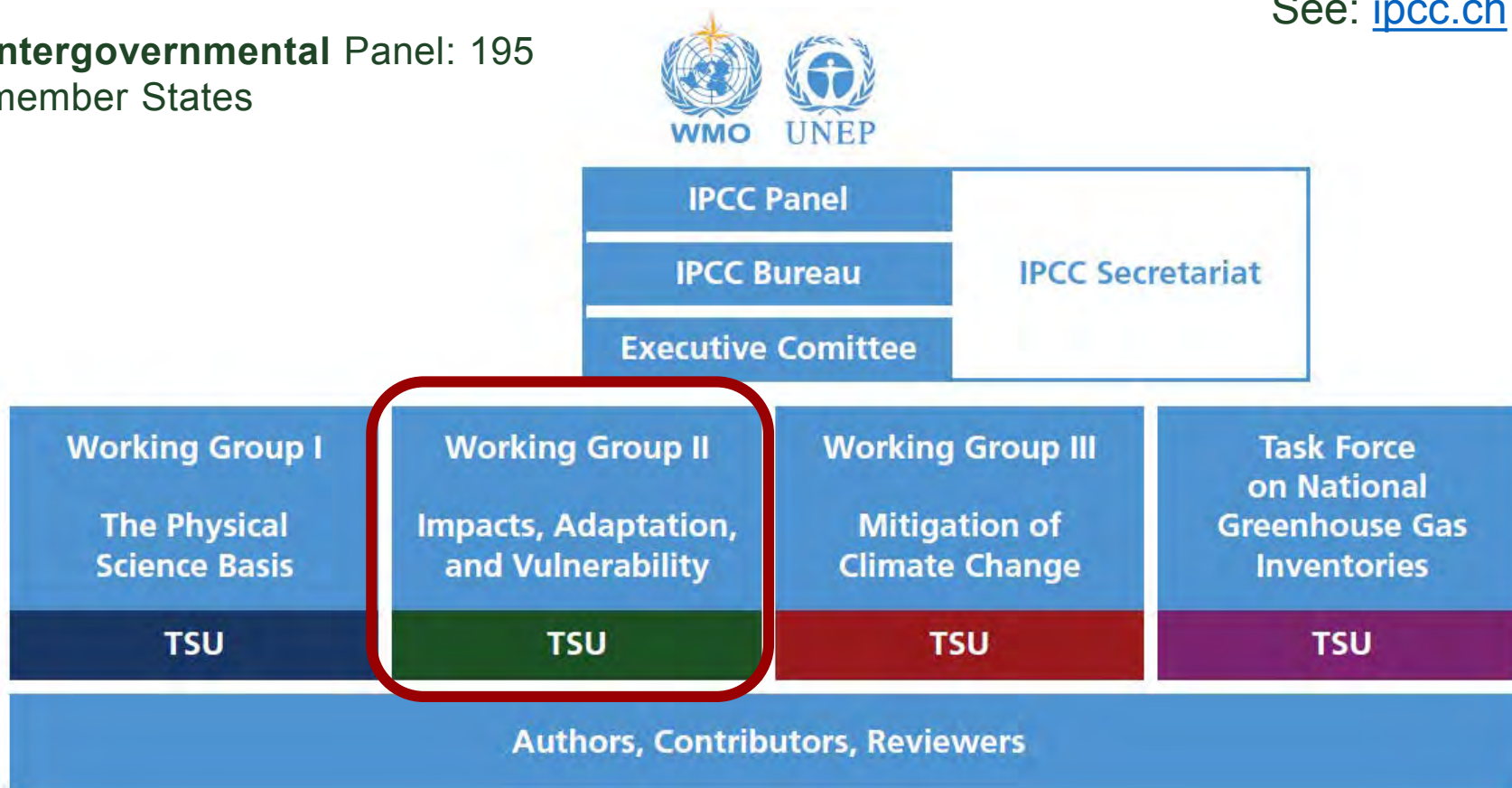
# IPCC Structure & Reports



# IPCC Structure

- **IPCC** – jointly established by **WMO** and **UNEP** in 1988
- **Intergovernmental** Panel: 195 member States

See: [ipcc.ch](http://ipcc.ch)



Hundreds of **scientists and experts from around the world** are involved in the preparation of IPCC reports

# The Role of the IPCC is...

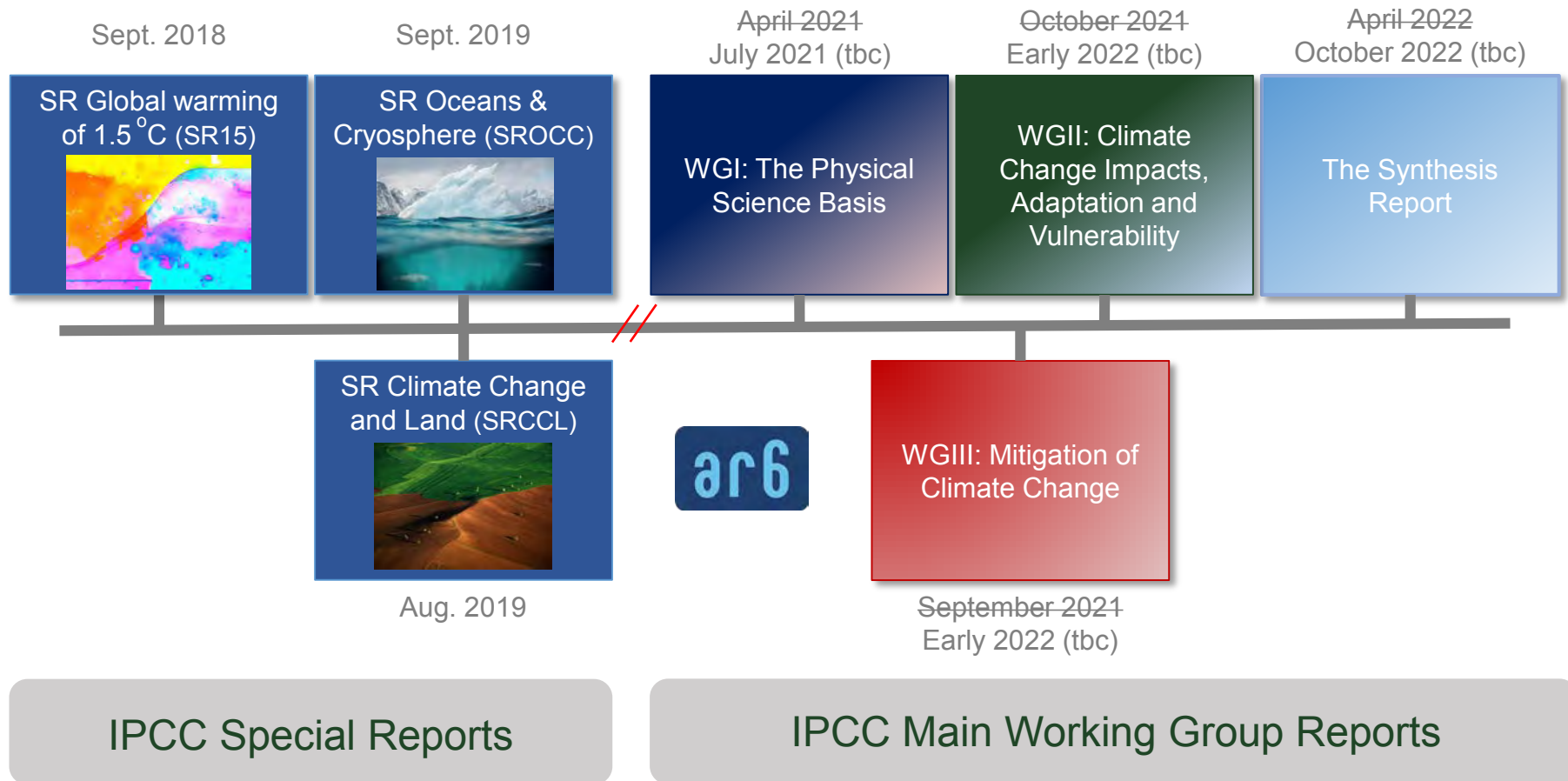
“... to **assess** on a comprehensive, objective, open and transparent basis the **scientific, technical and socio-economic information** relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts and options for adaptation and mitigation.”

“IPCC reports should be **neutral with respect to policy**, although they may need to **deal objectively with scientific, technical and socio-economic factors** relevant to the application of particular policies.”

*Principles Governing IPCC Work, paragraph 2*

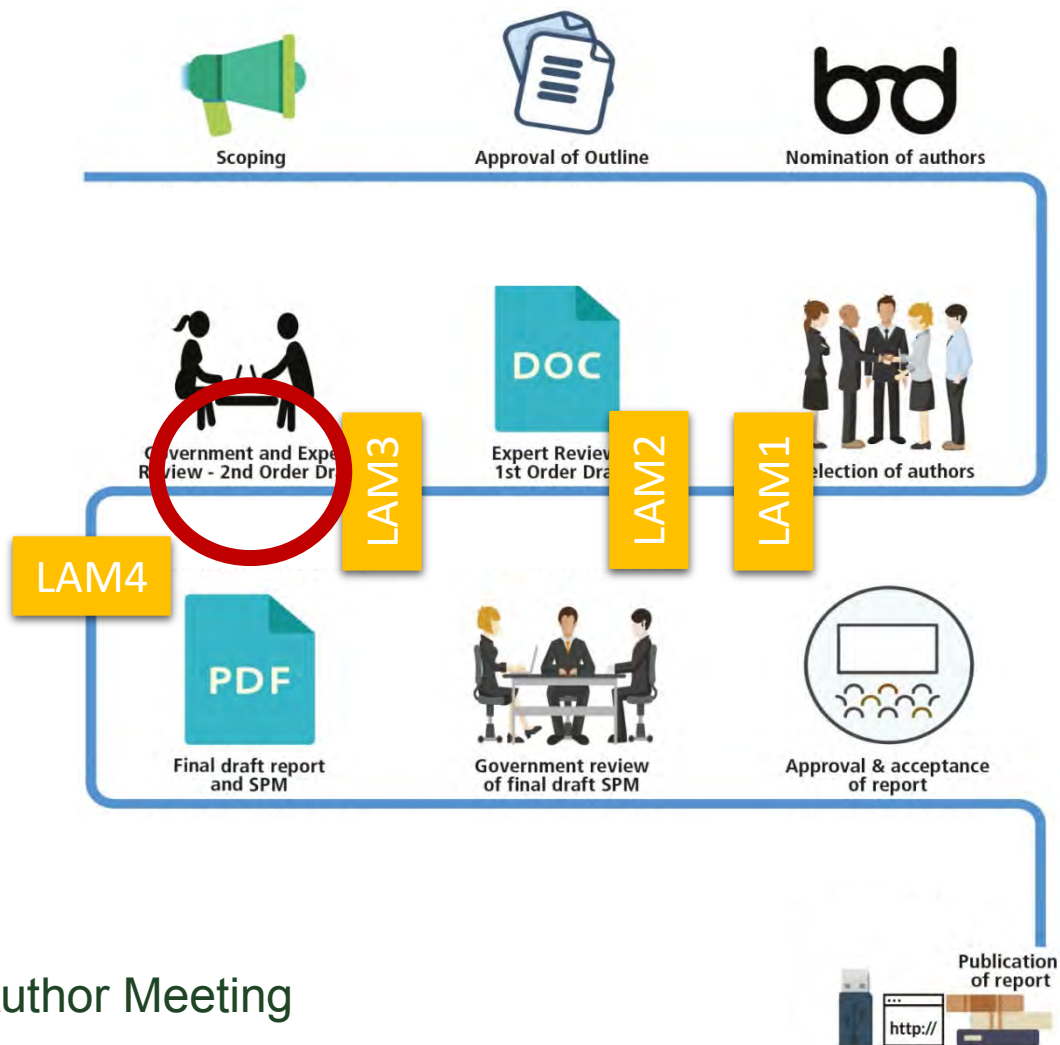
*Source: <http://www.ipcc.ch/pdf/ipcc-principles/ipcc-principles.pdf>*

# IPCC Reports in the Sixth Assessment Cycle



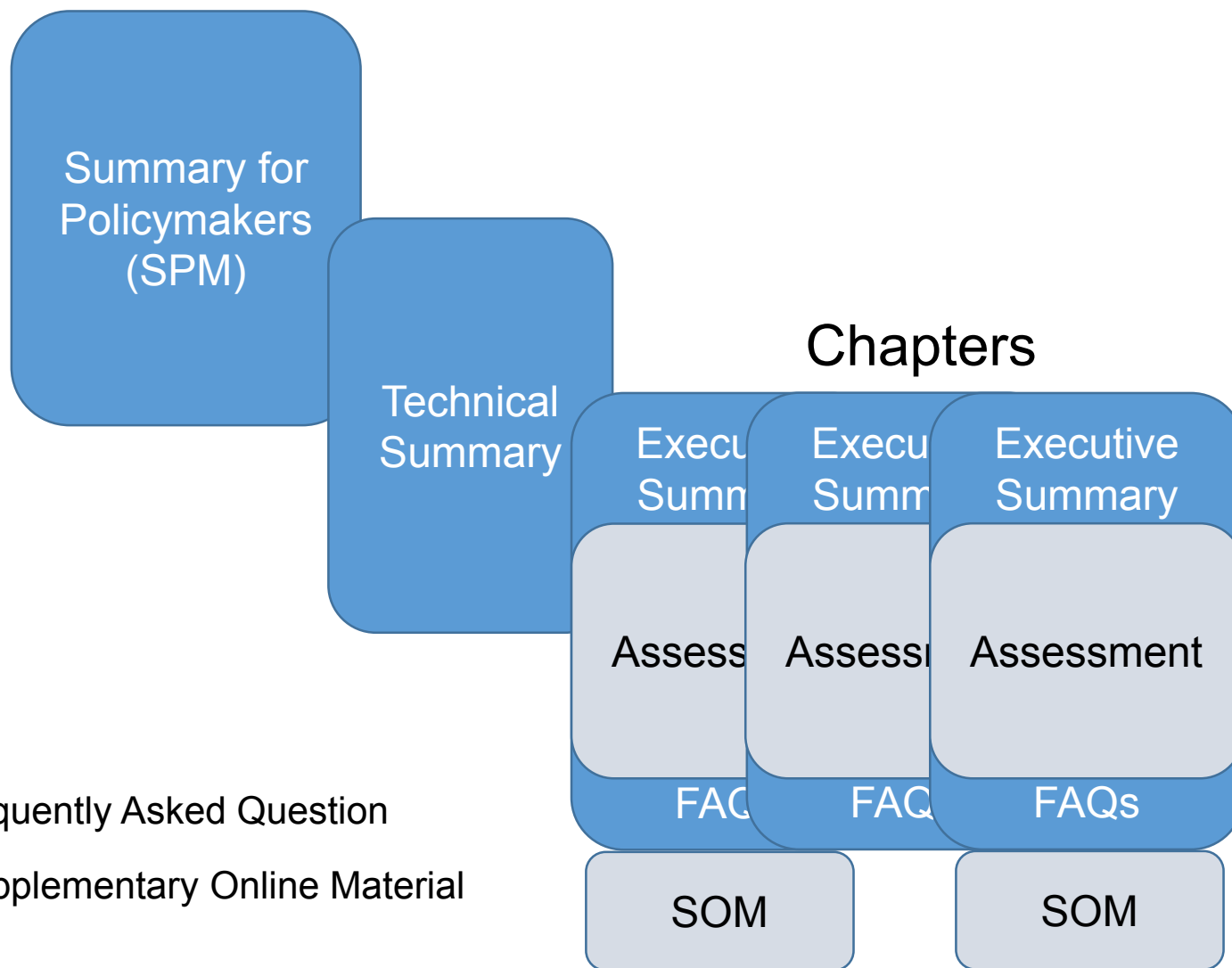


# IPCC Report Production Process



LAM = Lead Author Meeting

# Report Structure and Components



FAQ: Frequently Asked Question

SOM: Supplementary Online Material

# Purpose and Target Audience

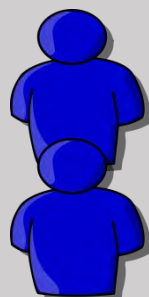
Part	Purpose	Audience
Executive Summary	Key messages of the chapter {link to (sub-)sections}	<ul style="list-style-type: none"> <li>policy advisors with different backgrounds</li> <li>decision-makers</li> <li>Language: understandable for experts from various disciplines</li> </ul>
Assessment <ul style="list-style-type: none"> <li>Text</li> <li>Figures &amp; Tables</li> <li>Chapter Boxes</li> <li>Cross-Chapter Boxes</li> <li>Reference List</li> </ul>	<p>Assessment of the scientific literature including uncertainty; inform international climate policies</p> <p>Chapter Boxes: case studies, concepts, etc Cross-Chapter Boxes: issues relevant for more than one chapter, integrative</p>	<ul style="list-style-type: none"> <li>experts from various disciplines</li> <li>Practitioners, policy advisors</li> <li>Language: understandable for experts from various disciplines</li> </ul>
Frequently Asked Questions (FAQs)	Explain important processes and aspects relevant to the whole report	<ul style="list-style-type: none"> <li>educated members of lay public, non-specialists</li> <li>probably educators, journalists</li> <li>climate science communicators</li> <li>Language: simple, clear, compelling</li> </ul>
Technical Summary	Summary of key messages from all chapters	<ul style="list-style-type: none"> <li>See Executive Summary</li> </ul>
Summary for Policy Makers (SPM)	Present key outcomes of the assessments for high-level decision making	<ul style="list-style-type: none"> <li>decision makers with different backgrounds</li> <li>practitioners</li> <li>Language: non-technical, simple</li> </ul>

# Chapter Teams



# Chapter Teams

**Coordinating Lead  
Authors (CLAs)**  
2-3



**Lead Authors  
(LAs)**  
10-13



**Review Editors  
(REs)**  
2-3



+ Contributing  
Authors (CAs)

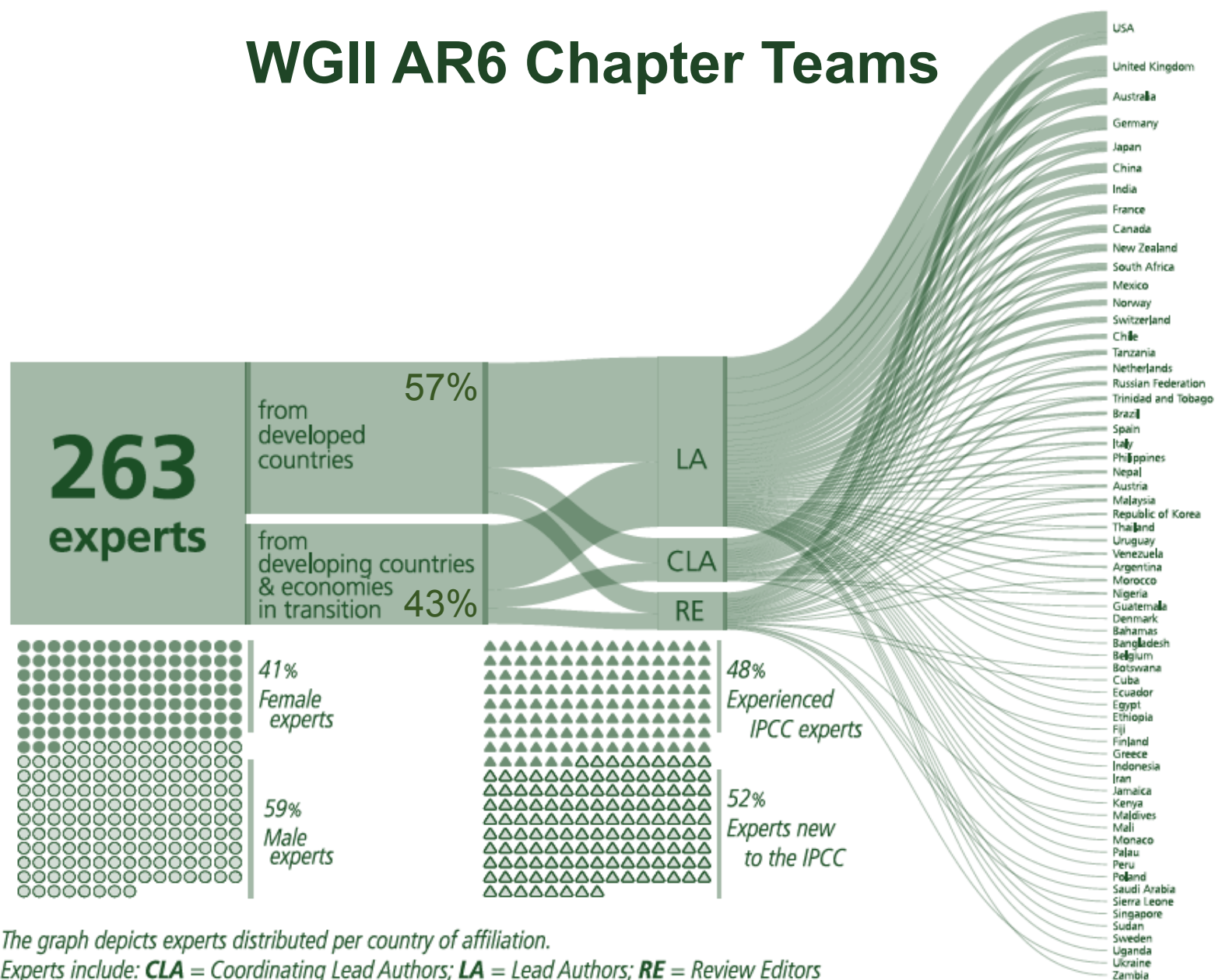


+ Chapter  
Scientist(s)





# WGII AR6 Chapter Teams



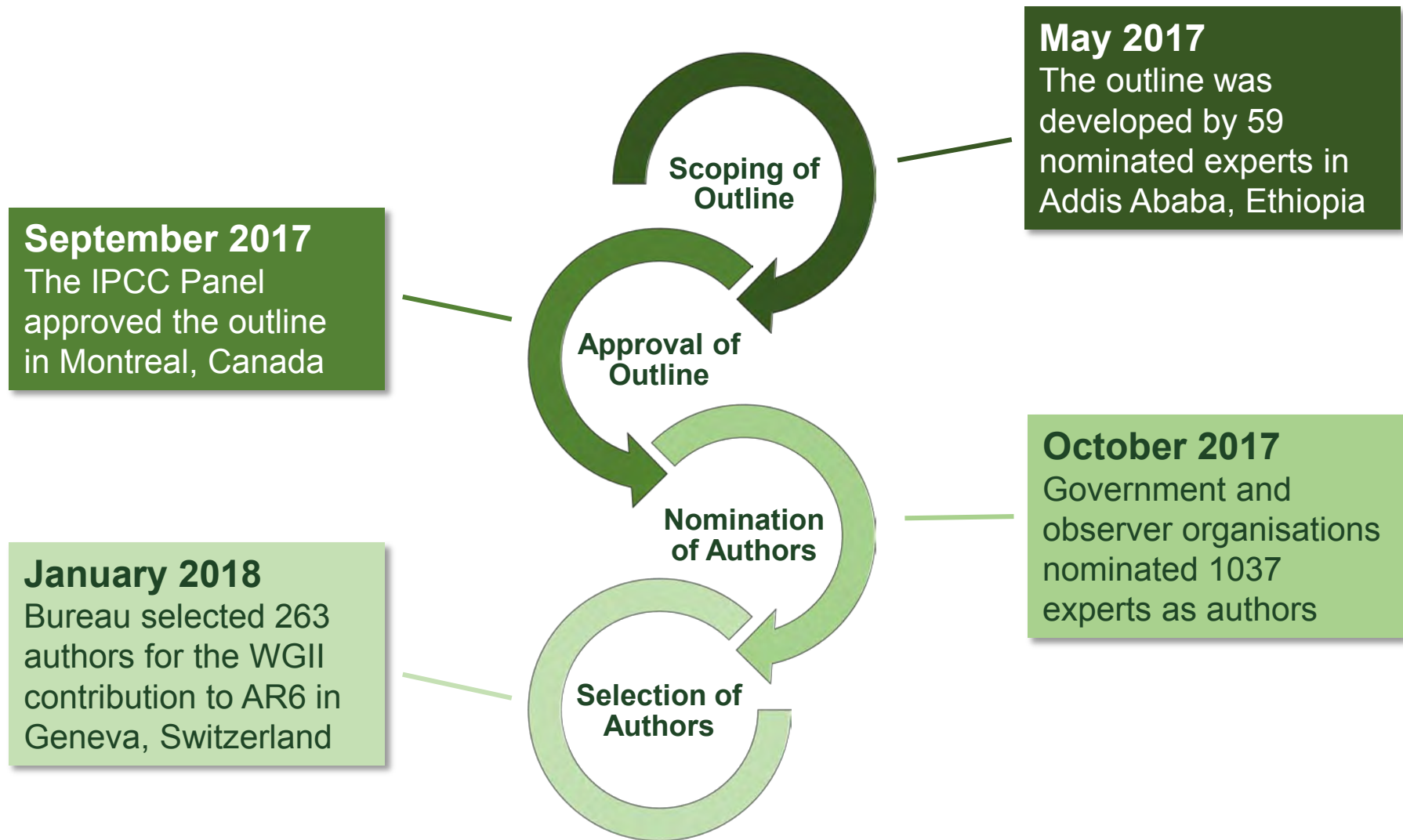
The graph depicts experts distributed per country of affiliation.

Experts include: **CLA** = Coordinating Lead Authors; **LA** = Lead Authors; **RE** = Review Editors

# WGII AR6



# Preparatory Phase of WGII AR6



# WGII Co-Chairs' Overarching Goals

- storyline **from climate to natural systems to human societies**, their response options, the associated feedback potential
- framework that incorporates **risk reduction through adaptation and mitigation**
- wider use of **social sciences for adaptation** (lifestyle choices: decision making, behaviour, consumption, technologies, societal inertia and transformation)
- address **tradeoffs and synergies** between climate change adaptation and mitigation **link to policy goals** (e.g., SDGs, poverty reduction, biodiversity)
- Focus on **solutions**

# WGII AR6 Outline

- SECTION 1: Risks, adaptation and sustainability for systems impacted by climate change
- SECTION 2: Regions
- SECTION 3: Sustainable development pathways: integrating adaptation and mitigation
- CROSS-CHAPTER PAPERS

**IPCC Sixth Assessment  
Report (AR6)**

**WGII Contribution:**

Impacts, Adaptation, and  
Vulnerability

IPCC, 2021



# WGII AR6 Outline

**Chapter 1:** Point of departure and key concepts

***SECTION 1: Risks, adaptation and sustainability for systems impacted by climate change***

**Chapter 2:** Terrestrial and freshwater ecosystems and their services

**Chapter 3:** Ocean and coastal ecosystems and their services

**Chapter 4:** Water

**Chapter 5:** Food, fibre, and other ecosystem products

**Chapter 6:** Cities, settlements and key infrastructure

**Chapter 7:** Health, wellbeing and the changing structure of communities

**Chapter 8:** Poverty, livelihoods and sustainable development

***SECTION 2: Regions***

**Chapter 9:** Africa

**Chapter 10:** Asia

**Chapter 11:** Australasia

**Chapter 12:** Central and South America

**Chapter 13:** Europe

**Chapter 14:** North America

**Chapter 15:** Small Islands

***SECTION 3: Sustainable development pathways: integrating adaptation and mitigation***

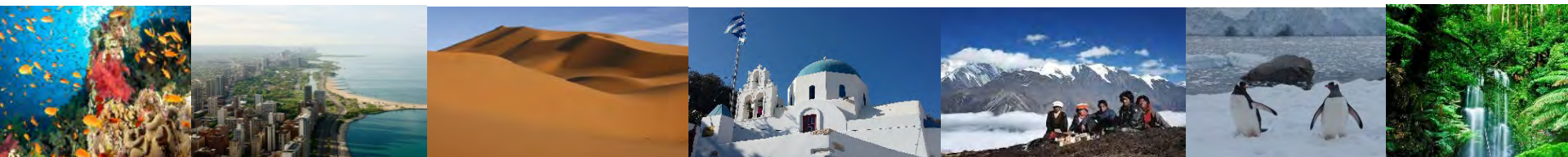
**Chapter 16:** Key risks across sectors and regions

**Chapter 17:** Decision-making options for managing risk

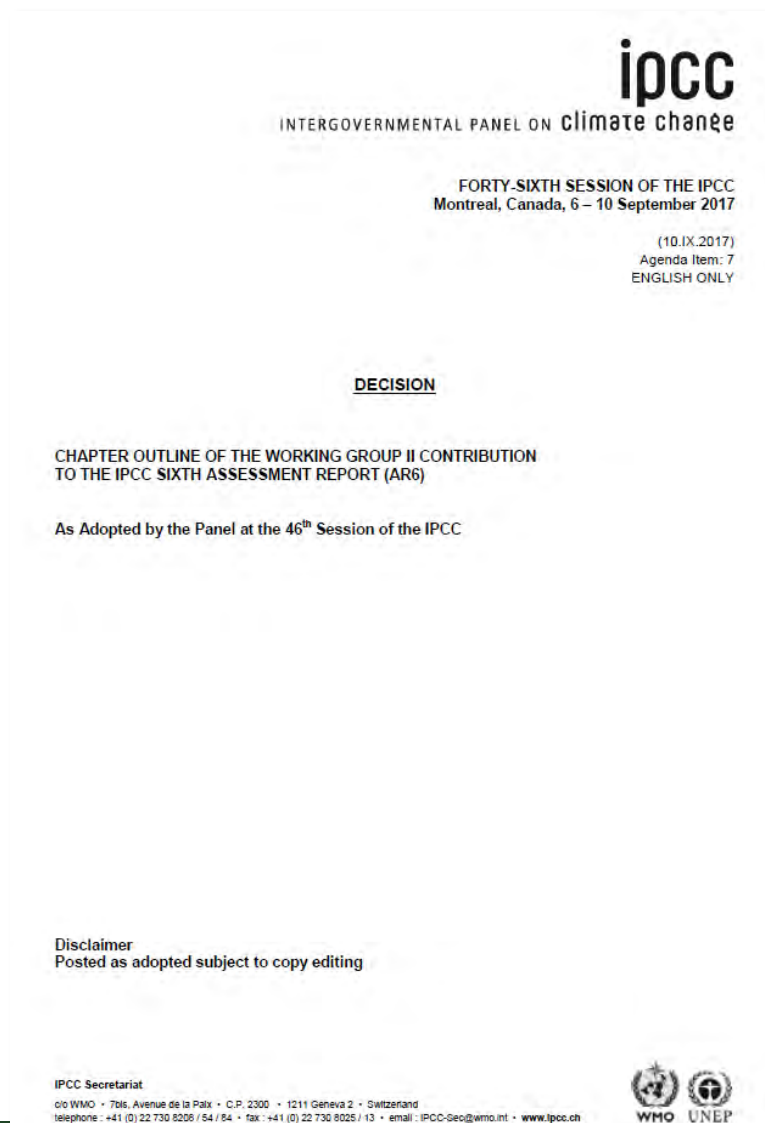
**Chapter 18:** Climate resilient development pathways

# NEW: Cross-Chapter Papers (CCP)

- Biodiversity hotspots (land, coasts and oceans)
- Cities and settlements by the sea
- Deserts, semi-arid areas, and desertification
- Mediterranean region
- Mountains
- Polar regions
- Tropical forests
- Expanded treatment of particular systems or regions
- Integrative across chapters
- Allow updates since the Special Reports
- Follow broad scheme and structure of chapters
- Same audience as chapters
- Need to develop high level policy-relevant messages



# WGII AR6 Outline



<https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/>

# Good to Know



# What is an Assessment?

- IPCC reports are **not reviews** of the literature nor a list of the current scientific knowledge
- Authors, **as a team, critically appraise the evidence** in the scientific, technological and socio-economic literature, and **present a consensus** of their key findings indicating the underlying evidence in the text
- Findings should be presented in a way that is **comprehensive, objective, clear and traceable** to the underlying scientific evidence
- The assessment should provide **rigorous and balanced** scientific information to governments and decision-makers
- Be **policy-relevant** but not policy-prescriptive
- IPCC calibrated language should be used to develop **expert judgements** and for evaluating and communicating the **degree of uncertainty** in findings of the assessment process



# Treatment of Uncertainties

- Calibrated IPCC Uncertainty Language used to indicate the degree of certainty in key findings
- 2 metrics:

**Confidence**  
(qualitative metric)

**Likelihood**  
(quantitative metric)

# Literature for the Assessment

- Statements are to be substantiated by adequate literature
- Priority given to peer-reviewed scientific literature
- Non published/non peer-reviewed literature following IPCC guidelines: Critically assessed by authors, copies with abstract or summary in English to be available for reviewers

## **WGII AR6 Literature cutoff dates**

**In Submission: 1 November 2020**

**Accepted: 1 May 2021 (might be postponed)**

# Get Involved!



- **Get your research accepted** by May 2021  
(date might be postponed)!
- **Register as Expert Reviewer** on [www.ipcc.ch](http://www.ipcc.ch)  
**NOW!**

- The Government and Expert Review of the Second Order Draft of the Working Group II contribution to the IPCC Sixth Assessment Report will run from **04 Dec 2020 to 29 Jan 2021**.
- Registration will be open until **2021-01-22 23:59 (CET)**.

# Expert Review



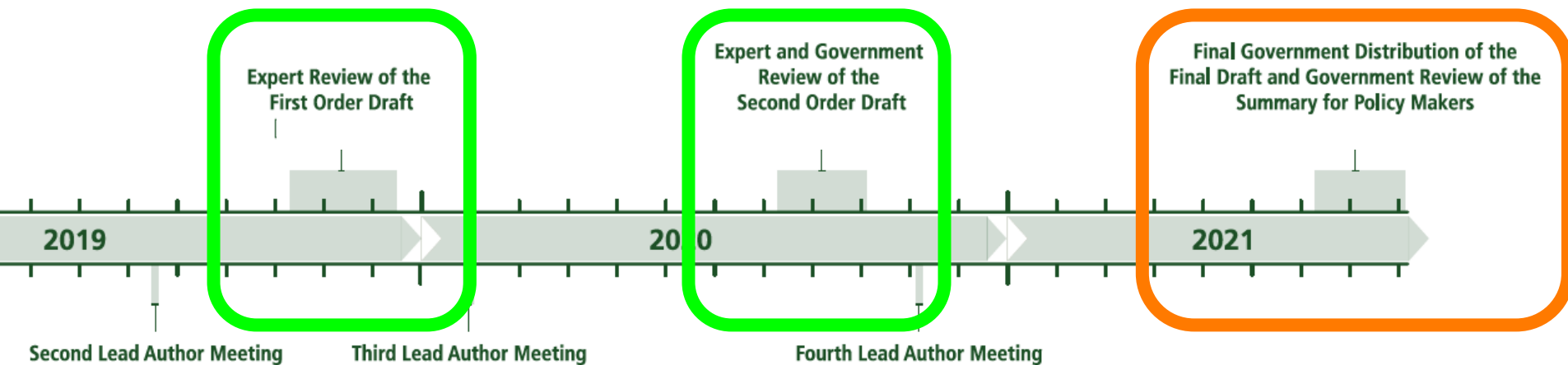
# Expert Reviews

- An essential part of the IPCC process
- Ensures **highest standards** of scientific excellence, clarity and balance
- Encompasses a wide **range of views**, expertise and geographical representation as possible





# Expert Reviews



12th Session of WGII  
and 55th Session of the IPCC:  
**Approval of the Summary for Policymakers,  
acceptance of the underlying Report**

# Expert Reviewers

- Don't have to read the whole report (comment on a paragraph / section / chapter of the report)
- Are extremely important because they **contribute to shaping and content** of the report
- Gain useful **IPCC process experience** and new scientific knowledge, broaden their scope
- Expert Reviewers do not go unnoticed!



# Registration and Comment Submission

- Register as an Expert Reviewer and agree to the confidentiality requirements on <https://apps.ipcc.ch/comments/ar6wg2/sod/register.php>

ipcc WORKING GROUP II CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT – REGISTRATION

**Chapters you are interested in reviewing**

- ☐ Summary For Policymakers
- ☐ Technical Summary
- ☐ Chapter 1: Point of departure and key concepts
- ☐ Chapter 2: Terrestrial and freshwater ecosystems and their services
- ☐ Chapter 3: Ocean and coastal ecosystems and their services
- ☐ Chapter 4: Water
- ☐ Chapter 5: Food, fibre, and other ecosystem products
- ☐ Chapter 6: Cities, settlements and key infrastructure
- ☐ Chapter 7: Health, wellbeing and the changing structure of communities
- ☐ Chapter 8: Poverty, livelihoods and sustainable development
- ☐ Chapter 9: Africa
- ☐ Chapter 10: Asia
- ☐ Chapter 11: Australasia
- ☐ Chapter 12: Central and South America
- ☐ Chapter 13: Europe
- ☐ Chapter 14: North America
- ☐ Chapter 15: Small Islands
- ☐ Chapter 16: Key risks across sectors and regions
- ☐ Chapter 17: Decision-making options for managing risk
- ☐ Chapter 18: Climate resilient development pathways
- ☐ CCP: Biodiversity Hotspots
- ☐ CCP: Cities and Settlements by the Sea
- ☐ CCP: Deserts, Semi-arid Areas, and Desertification
- ☐ CCP: Mediterranean Region
- ☐ CCP: Mountains
- ☐ CCP: Polar Regions
- ☐ CCP: Tropical Forests
- ☐ Entire Report

Working Group II contribution to the IPCC Sixth Assessment Report – Second Order Draft  
Approved for Publication Review of Authors

# Registration and Comment Submission

- Register as an Expert Reviewer and agree to the confidentiality requirements on <https://apps.ipcc.ch/comments/ar6wg2/sod/register.php>

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WORKING GROUP II CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT – REGISTRATION

Chapters you are interested in reviewing

☐ Summary For Policymakers

☐ Technical Summary

☐ Chapter 1: Point of departure and key concepts

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☐ Chapter 4: Water

☐ Chapter 5: Food, fibre, and land use

☐ Chapter 6: Cities, settlements and infrastructure

☐ Chapter 7: Health, wellbeing and vulnerable groups

☐ Chapter 8: Poverty, livelihoods and equity

☐ Chapter 9: Africa

☐ Chapter 10: Asia

☐ Chapter 11: Australasia

☐ Chapter 12: Central and South America

☐ Chapter 13: Europe

☐ Chapter 14: North America

☐ Chapter 15: Small Islands

☐ Chapter 16: Key risks across sectors

☐ Chapter 17: Decision-making and adaptation

☐ Chapter 18: Climate resilience and adaptation

☐ CCP: Biodiversity Hotspots

☐ CCP: Cities and Settlements

☐ CCP: Deserts, Semi-arid and Montane Regions

☐ CCP: Mediterranean Region

☐ CCP: Mountains

☐ CCP: Polar Regions

☐ CCP: Tropical Forests

☐ Entire Report

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WORKING GROUP II CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT - REGISTRATION

Personal Details

Gender \*

Please select gender...

Family Name \*

Family name

First Name \*

First name

Email \*

Valid Email Address

Affiliation \*

(e.g. institution, university, company or other where applicant works)

Country of Residence \*

Please select country of residence...

Citizenship \*

Please select citizenship...

Highest Degree \*

Highest Degree

Field of Study \*

Field of Study

Primary Expertise \*

Primary Expertise

Publications (max 5) - Add Publication

Publication 1

Publication 1 (enter none if no publications)

Working Group II contribution to the IPCC Sixth Assessment Report – Second Order Draft

<https://apps.ipcc.ch/comments/ar6wg2/sod/register.php>

Working Group II (WGII) - Impacts, Adaptation, and Resilience

# Registration and Comment Submission

- Register as an Expert Reviewer and agree to the confidentiality requirements on <https://apps.ipcc.ch/comments/ar6wg2/sod/register.php>

## Chapters you are interested in reviewing

- ☐ Summary For Policymakers
- ☐ Technical Summary
- ☐ Chapter 1: Point of departure and key concepts
- ☐ Chapter 2: Terrestrial and freshwater ecosystems and their services
- ☐ Chapter 3: Ocean and coastal ecosystems and their services
- ☐ Chapter 4: Water
- ☐ Chapter 5: Food, fibre, and land use
- ☐ Chapter 6: Cities, settlements, and infrastructure

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WORKING GROUP II CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT - REGISTRATION

- All registered experts will receive personalised access credentials to enable download of a barcoded copy of a chapter, in accordance with the IPCC confidentiality agreement.**

- ☐ CCP: Cities and Settlements
- ☐ CCP: Deserts, Semi-arid Areas
- ☐ CCP: Mediterranean Region
- ☐ CCP: Mountains
- ☐ CCP: Polar Regions
- ☐ CCP: Tropical Forests
- ☐ Entire Report

Working Group II contribution to the IPCC Sixth Assessment Report - Second Order Draft

Citizenship \*

Please select citizenship...

Highest Degree \*

Highest Degree

Field of Study \*

Field of Study

Primary Expertise \*

Primary Expertise

Publications (max 5) - Add Publication

Publication 1

Publication 1 (enter none if no publications)



# Registration and Comment Submission

## Welcome to the Working Group II contribution to the IPCC Sixth Assessment Report Second Order Draft - Review Page

To get started follow the steps below:

- Select the chapter(s) you wish to review
- ➔ • Download the review [Excel spreadsheet](#)
- Enter your comments in the Excel spreadsheet
- ➔ • Click on the "[Upload New](#)" menu item to upload the comments
- ➔ • Check the "[Instruction](#)" page for more details
- ➔ • [Guidelines](#) for participating in a group review ➔



### Guidelines for Group Reviews of IPCC Working Group II Reports

IPCC reports are comprehensive assessments of the current state of scientific knowledge on climate change. These reports integrate knowledge from several fields of natural sciences, ranging from physical to biological to social and economic sciences and beyond. Group reviews are accepted, if well-coordinated and follow the guidelines and process below.

All materials available from this website, including drafts are confidential and are provided solely for the purpose of this review. The drafts may not be cited, quoted or distributed.

When Draft are downloaded the files are personalised with a bar code that is associated with the reviewer that is accessing the documents.

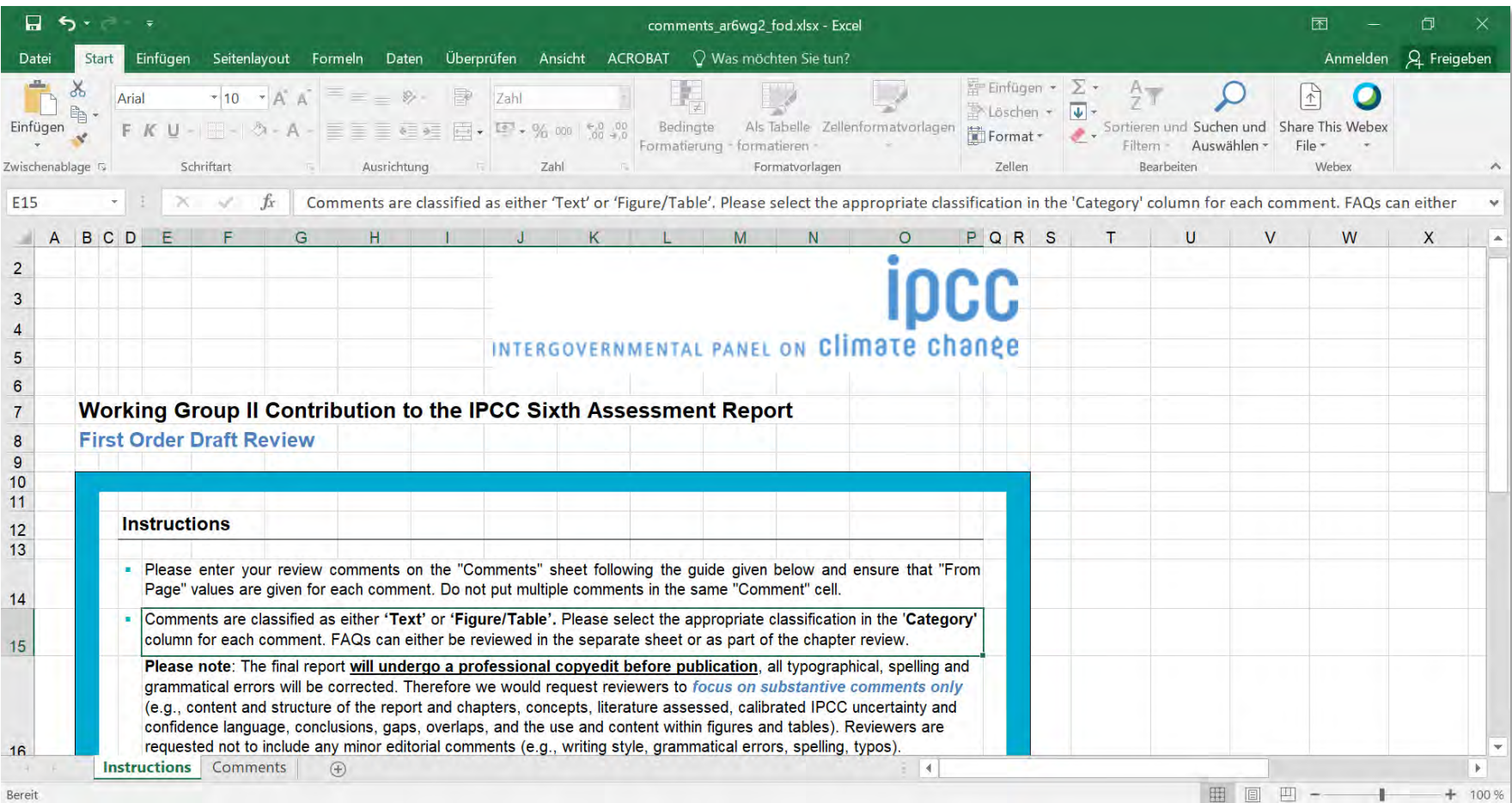
Information about the role and status of the expert reviewers is available [here](#).

Please be advised that the Working Group II contribution to the IPCC Sixth Assessment Report Second Order Draft Government and Expert Review ends on 29 Jan 2021 23:58 (CET).

We thank you for your participation in the Working Group II contribution to the IPCC Sixth Assessment Report Second Order Draft Government and Expert Review.

WGII TSU

# The Comments Spreadsheet



comments\_ar6wg2\_fod.xlsx - Excel

Datei Start Einfügen Seitenlayout Formeln Daten Überprüfen Ansicht ACROBAT Was möchten Sie tun? Anmelden Freigeben

Einfügen Zwischenablage

Schriftart Ausrichtung Zahl

Zahl Bedingte Formatierung Als Tabelle Zellenformatvorlagen

Einfügen Löschen Format Zellen

Sortieren und Filtern Bearbeiten

Suchen und Auswählen Webex

Share This Webex File

E15 Comments are classified as either 'Text' or 'Figure/Table'. Please select the appropriate classification in the 'Category' column for each comment. FAQs can either

A B C D E F G H I J K L M N O P Q R S T U V W X

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7 Working Group II Contribution to the IPCC Sixth Assessment Report

8 First Order Draft Review

9

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Instructions

- Please enter your review comments on the "Comments" sheet following the guide given below and ensure that "From Page" values are given for each comment. Do not put multiple comments in the same "Comment" cell.
- Comments are classified as either 'Text' or 'Figure/Table'. Please select the appropriate classification in the 'Category' column for each comment. FAQs can either be reviewed in the separate sheet or as part of the chapter review.

Please note: The final report will undergo a professional copyedit before publication, all typographical, spelling and grammatical errors will be corrected. Therefore we would request reviewers to *focus on substantive comments only* (e.g., content and structure of the report and chapters, concepts, literature assessed, calibrated IPCC uncertainty and confidence language, conclusions, gaps, overlaps, and the use and content within figures and tables). Reviewers are requested not to include any minor editorial comments (e.g., writing style, grammatical errors, spelling, typos).

Instructions Comments

Bereit

100 %



# The Comments Spreadsheet

comments\_ar6wg2\_fod.xlsx - Excel

Start

E15

Comments are classified as either 'Text' or 'Figure/Table'. Please select the appropriate classification in the 'Category' column for each comment. FAQs can either

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The Informal Review ends on 13 December 2019 23:59 CEST.

Working Group II Contribution to the IPCC Sixth Assessment Report

First Order Draft Review

No	Chapter	From Page	From Line	To Page	To Line	Category	Comments
1							
2	Entire Report						
3	Chapter 1: Point of departure and key concepts						
4	Chapter 2: Terrestrial and freshwater ecosystems and their services						
5	Chapter 3: Ocean and coastal ecosystems and their services						
6	Chapter 4: Water						
7	Chapter 5: Food, fibre, and other ecosystem products						
8	Chapter 6: Cities, settlements and key infrastructure						
9	Chapter 7: Health, wellbeing and the changing structure of communities						
10							

Instructions

Comments

100 %

# The Comments Spreadsheet

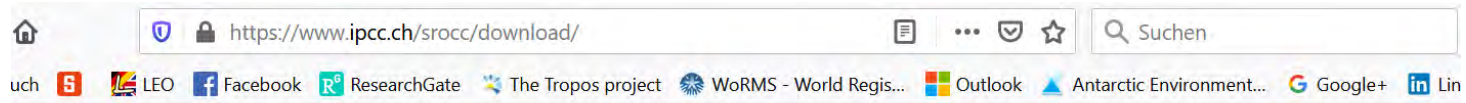
- Please be aware that your comments are not anonymous
- Your full name, affiliation and country is provided to the authors together with your comments

# Issues to Consider in the Review

**IPCC reports are policy relevant but not policy prescriptive!**

- Structure
- Topics indicated in scoped outline
- Gaps, inconsistencies, overlaps throughout the chapter/report
- Self-citation and opinions
- Relevant literature
- Balance of content (section length, use of tables and figures, ...)
- Assessment and assigned confidence statement
- Use of uncertainty language
- Traceability of statements and conclusions back to the literature
- Understandability and appropriateness of figures and tables
- Does the Executive Summary convey the key policy-relevant messages?

# What Happens to the Comments after Publication of the Report?





# What Happens to the Comments after Publication of the Report?

SROCC Second Order Draft Government and Expert Review Comments - Chapter 1							
Comment id	Chapter	From page	From line	To page	To line	Comment	Chapter Team Response
13717	1	3	21	3	21	"temperature targets of the Paris Agreement". Should read "temperature goal of the Paris Agreement". [Government of United Kingdom (of Great Britain and Northern Ireland), United Kingdom (of Great Britain and Northern Ireland)]	Noted, minor edit
30563	1	3	21	3	21	A clearer reference to the Paris Agreement could be made here, including mentioning the 1.5°C and 2°C degrees limits. I would also suggest to omit the "temperature targets" because of its connotation ("limit" has been identified as the more appropriate term). [Hans-Otto Poertner and WGII TSU, Germany]	Noted: we no longer mention the Paris Agreement in the ES
30579	1	3	22	0		specify systems [Hans-Otto Poertner and WGII TSU, Germany]	Noted: this text is no longer in the ES
25873	1	3	22	3	22	Is 'dangerous' the best term here (also elsewhere in the text). what's 'dangerous' impacts? Dangerous for what and who? [Regine Hock, United States of America]	Accepted: "dangerous" has been omitted in most instances, except where it is used in the context of UNFCCC
30581	1	3	24	0	25	Can a figure with overarching risk thresholds, e.g. low to medium, medium to high etc.) be prepared by drawing together information from the diverse chapters to support these general statements? [Hans-Otto Poertner and WGII TSU, Germany]	Rejected: this is the role of the SPM, not of chapter 1
27089	1	3	24	3	24	Would it be better also to include natural systems? [XIAOMING WANG, Australia]	Accepted: we have added "and ecosystems" following human societies.
30583	1	3	27	0	28	This statement is clear and does not really add to the ES [Hans-Otto Poertner and WGII TSU, Germany]	Taken into account: wording has been changed and we now only give with SR1.5 level of current warming within a ES bullet (not a headline statement)
22889	1	3	27	3	28	The statement: "Unequivocal climate warming, that AR5 assessed as extremely likely2 attributable to human-induced greenhouse gas emissions, has so far resulted in global average warming..." is not true. It has not been documented that the climate change /warming) is due to human-induced greenhouse gas emissions alone. Most of the warming is a result of natural variance. [Martin Hovland, Norway]	Rejected: The suggestion that most of the current warming is a result of natural variance is not supported by scientific literature. The statements made here are based on the AR5 assessment, which sets the stage for the context of the SROCC report.
30565	1	3	27	3	30	Suggestion to rephrase: Unequivocal climate warming, attributed extremely likely to human-induced greenhouse gas emissions in AR5, has so far resulted in a likely rise of global average temperatures by 1°C ± 0.2°C since the pre industrial period, accompanied by ongoing and accelerating changes in the ocean and cryosphere. [Hans-Otto Poertner and WGII TSU, Germany]	Taken into account: thank you for the helpful suggestion. The ES wording has been revised extensively.
29017	1	3	27	3	36	In this very excellent and well-written introductory section (more likely to be read by policy	Noted: Arctic amplification is covered in the SPM.

# Are Reviewers Acknowledged?

**AIV**

**Annex IV: Expert  
Reviewers of the  
IPCC Special Report on  
the Oceans and Cryosphere  
in a Changing Climate**

# Are Reviewers Acknowledged?

AIV

## Annex IV: Expert Reviewers of the IPCC the 0 in a C

### Annex IV

ACKERMANN, Thomas  
University of Applied Sciences  
Germany

ADESALU, TAOFIKAT  
University of Lagos  
Nigeria

ADUSUMILLI, Susheel  
Scripps Institution of Oceanography  
USA

ADVANI, Nikhil  
World Wildlife Fund  
USA

AESCHBACH (NÉE VOLLWEILER), Nicole  
Heidelberg University  
Germany

AGGARWAL, Anubha  
Delhi Technological University  
India

AHMADUN, Fakhru'L-Razi  
National Defense University of Malaysia  
Malaysia

ALI, Syed Hammad  
Glacier Monitoring and Research Center  
Water and Power Development Authority  
Pakistan

ALLAN, Richard  
University of Reading  
United Kingdom

ALLEN, Simon  
University of Zurich  
Switzerland

ALLEY, Richard B.  
Pennsylvania State University  
USA

ALPERT, Alice  
US Department of State  
USA

ANDRADE-VELAZQUEZ, Mercedes  
Science and Technology Agency-  
Global Change and Sustainability  
Center in the Southeast  
Mexico

### Reviewers

ARELLANO-TORRES, Elsa  
Universidad Nacional Autónoma de México  
Mexico

ARENSON, Lukas  
BGC Engineering Inc./University of Manitoba  
Canada

ARTHERN, Robert  
British Antarctic Survey  
United Kingdom

ATWOOD, Trisha  
Utah State University  
USA

AYALA, Alvaro  
Centre for Advanced Studies in Arid Zones  
Chile

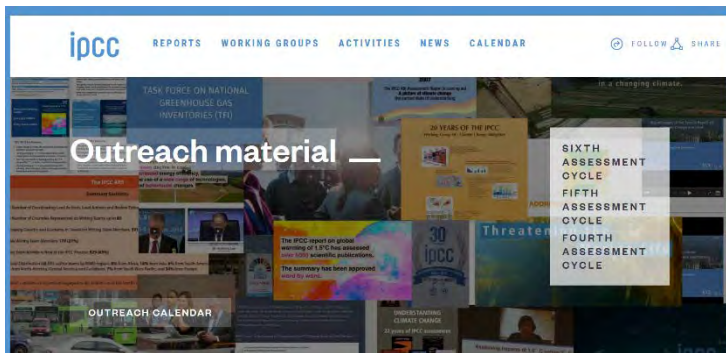
AYYUB, Bilal  
University of Maryland  
USA

AZIZ, Danyal  
Global Change Impact Studies Center  
Pakistan



# More Information

- <https://www.ipcc.ch/2020/12/04/what-is-an-expert-reviewer-of-ipcc-reports/>



- <https://www.ipcc.ch/outreach-material/>



What is an Expert Reviewer of IPCC reports?

## Review in the IPCC process

"Review is an essential part of the IPCC process. Since the IPCC is an intergovernmental body, review of IPCC documents should involve both peer review by experts and review by governments."<sup>1</sup>

Every IPCC report goes through several drafts and reviews to ensure it is as robust, comprehensive and balanced as possible.

The review process is critical for ensuring the assessment is scientifically rigorous, exhaustive, objective and transparent; broad participation in the IPCC review process is one of the core strengths of IPCC assessments.



- <https://www.youtube.com/user/IPCCGeneva>

# Thank You!

## Contact WGII:

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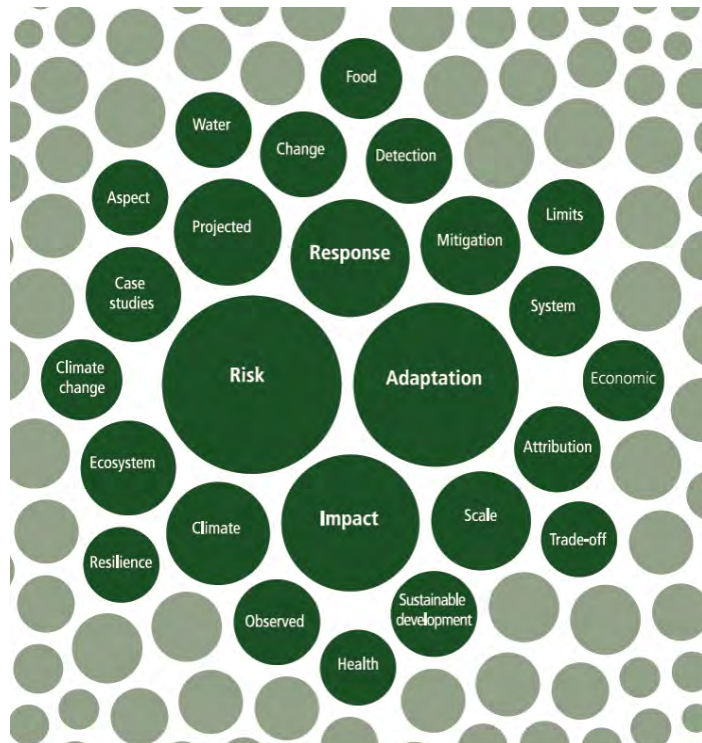
## Treatment of Uncertainties + Q&A

**Andreas Fischlin**  
IPCC WGII Vice-Chair



# AR6 Climate Change 2021: Impacts, Adaptation and Vulnerability

The Working Group II Contribution to the IPCC Sixth Assessment Report



## Treatment of Uncertainties

Introduction for Reviewers

Andreas Fischlin (Event #1)

Carlos Mendez (Events #2)

IPCC WGII Vice-Chairs



# Feelings of a policymaker



# IPCC Uncertainty Language

- It is important to provide the degree of certainty in key findings because:
  - Sound decision making depends on information about full range of consequences and associated probabilities
  - IPCC reports are founded on assessments derived by expert judgement  
(expert judgement needs to be explained by providing a traceable account of steps taken by the authors to arrive at the assessed uncertainty to be fully transparent)

# Examples

- SROCC SPM, B.7.1:

Disaster risks to human settlements and livelihood options in high mountain areas and the Arctic are expected to increase (**medium confidence**), due to future changes in hazards such as floods, fires, landslides, avalanches, unreliable ice and snow conditions, and increased exposure of people and infrastructure (**high confidence**).

- SROCC SPM, A.2:

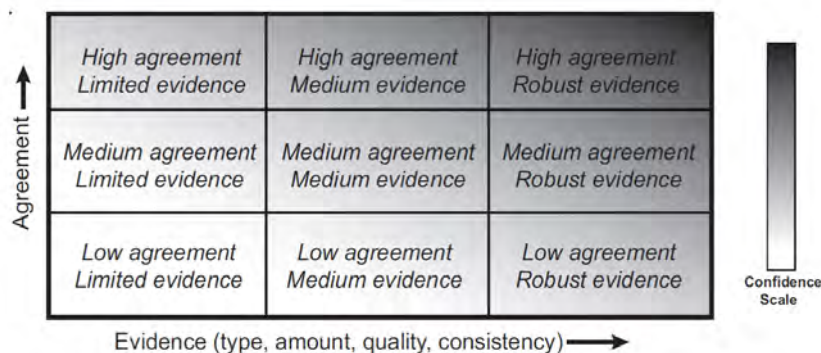
It is **virtually certain** that the global ocean has warmed unabated since 1970 and has taken up more than 90% of the excess heat in the climate system (**high confidence**). Since 1993, the rate of ocean warming has more than doubled (**likely**). Marine heatwaves have **very likely** doubled in frequency since 1982 and are increasing in intensity (**very high confidence**). By absorbing more CO<sub>2</sub>, the ocean has undergone increasing surface acidification (**virtually certain**). A loss of oxygen has occurred from the surface to 1000 m (**medium confidence**).



# Metrics

## Confidence

- **Qualitative** metric
- Based on **evidence** (type, amount, quality, consistency) and **agreement** (consensus)



- Levels of confidence: very low, low, medium, high, very high

## Likelihood

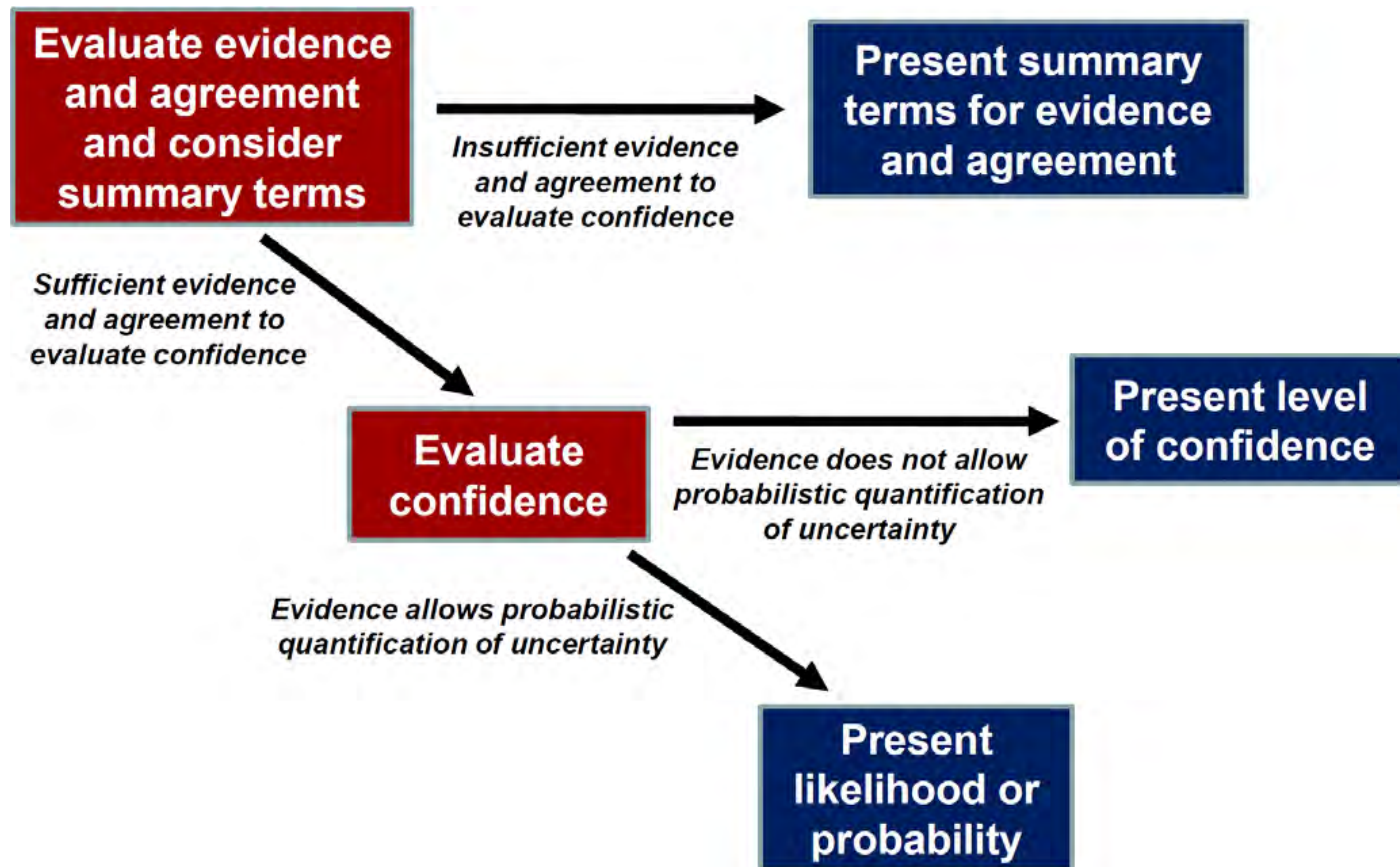
- **Quantitative** metric
- Based on statistical analyses, model results, or expert judgement

**Table 1. Likelihood Scale**

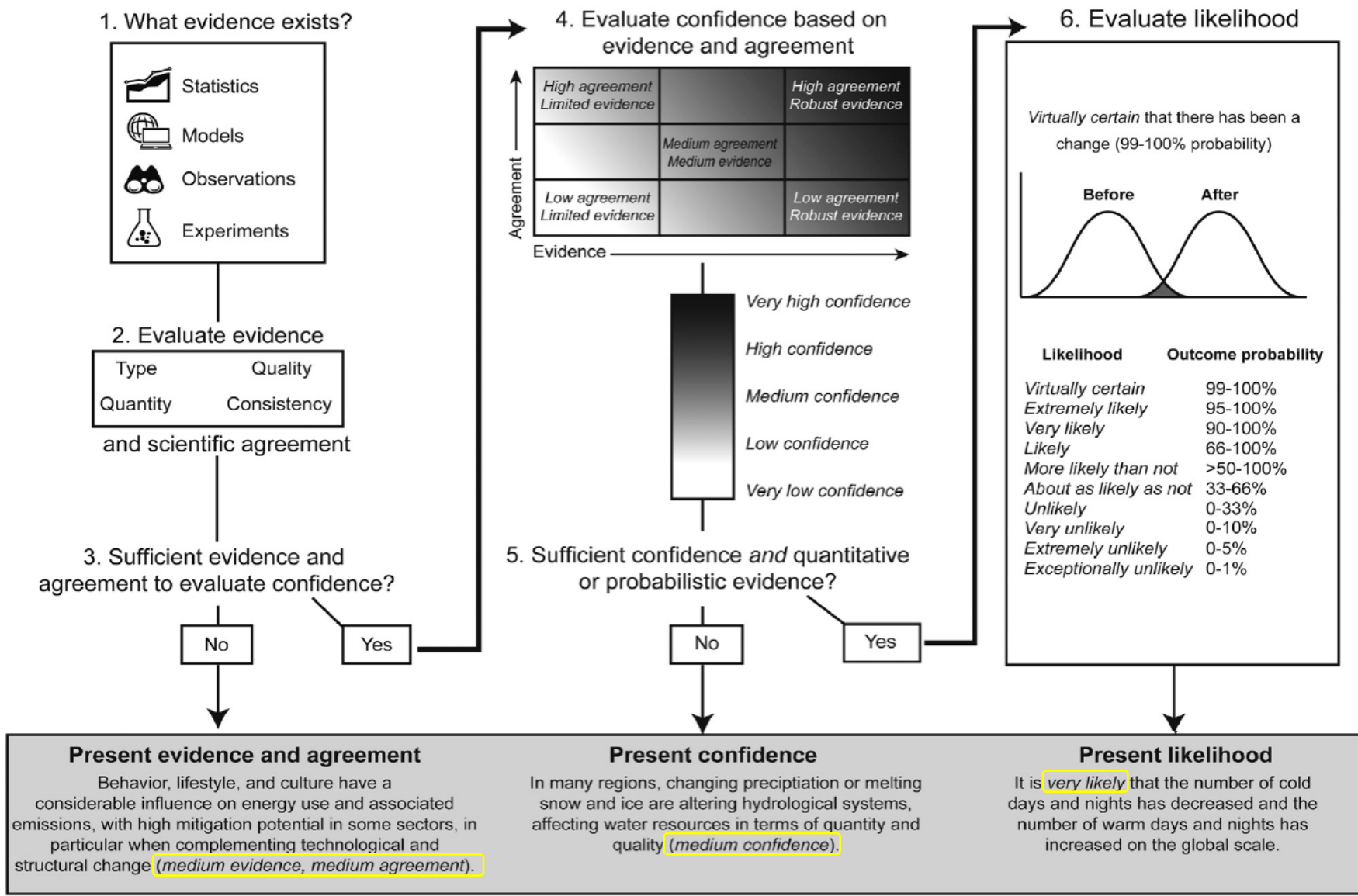
Term*	Likelihood of the Outcome
Virtually certain	99-100% probability
Very likely	90-100% probability
Likely	66-100% probability
About as likely as not	33 to 66% probability
Unlikely	0-33% probability
Very unlikely	0-10% probability
Exceptionally unlikely	0-1% probability

Also: *extremely likely* (95-100% probability), *more likely than not* (>50-100%) and *extremely unlikely* (0-5%)

# Assessment Process



# Assessment Process Summary



# Rules for the Assessment Process

- Calibrated uncertainty language is used to communicate the degree of certainty in **all key findings**
- **Confidence & likelihood** should only be combined when confidence is not high (since likelihood assessment implies normally at least *high confidence*)
- **Statements of fact** do not require uncertainty qualifiers

Human influence on the climate system is clear.

Example from AR5 WGI SPM, page 13

- **Traceable accounts** that describe the evaluation of evidence and agreement are to be provided

# Some Do's and Don'ts

- Observations show general decline in low-elevation snow cover, glaciers and permafrost due to climate change in recent decades (*high confidence*).

**Really correct?**

- Observations show general decline in low-elevation snow cover (*high confidence*), glaciers (*very high confidence*) and permafrost (*high confidence*) due to climate change in recent decades.

**Improved assessment**

From preparation of Hock et al., 2019. High mountain areas. In: Pörtner, H.-O., Roberts, D. C., Masson-Delmotte, V., Zhai, P., Tignor, M., Poloczanska, E., Mintenbeck, K., Nicolai, M., Okem, A., Petzold, J., Rama, B., & Weyer, N. (eds.). IPCC Special Report on the Ocean and Cryosphere in a Changing Climate (SROCC). IPCC, Geneva, Switzerland. In press. <https://www.ipcc.ch/srocc/download-report/>

# Some Do's and Don'ts

- Even as the overall regional water cycle intensifies, including increased precipitation, evapotranspiration, and river discharge to the Arctic Ocean, decreases in snow and permafrost **may** lead to soil drying (*medium confidence*).

**Vague meaning**

- Even as the overall regional water cycle intensifies, including increased precipitation, evapotranspiration, and river discharge to the Arctic Ocean, decreases in snow and permafrost **will** lead to soil drying (*medium confidence*).

**Improved assessment**

IPCC, 2019, SROCC SPM

# Formulation of finding and uncertainty assessment form an inseparable pair

- Human influence on the climate system is clear.

Example from AR5 WGI SPM, page 13

- It is ***extremely likely*** that human influence has been the dominant cause of the observed warming since the mid-20th century.

Example from AR5 WGI SPM, page 15



# Formulation of finding and uncertainty assessment form an inseparable pair

- Human activities have been a clear driver of the observed warming. (AR5 WGI SPM, page 13)
- It is very likely that the observed warming has been caused by the combination of human and natural factors. (AR5 WGI SPM, page 15)

**Uncertainty  
increases with  
precision!**

Example from AR5 WGI SPM, page 15

# Formulation of finding and uncertainty assessment form an inseparable pair (cont.)

- The atmospheric concentrations of the greenhouse gases carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O) have all increased since 1750 due to human activity.

Example from AR5 WGI SPM, page 9

- About half of the anthropogenic CO<sub>2</sub> emissions between 1750 and 2011 have occurred in the last 40 years (**high confidence**).

Example from AR5 SYR SPM, page 4

# Formulation of finding and uncertainty assessment form an inseparable pair (cont.)

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carbo  
(N2O

**Uncertainty  
increases with  
precision!**

- About  
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SPM, page 9

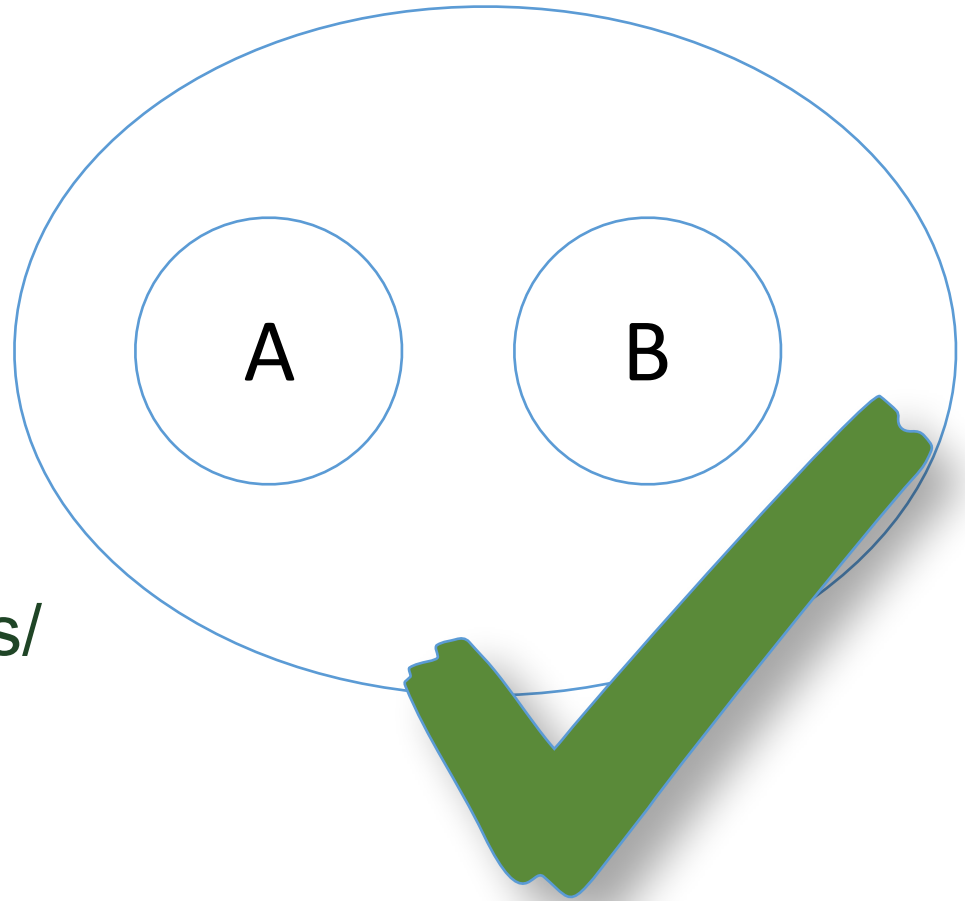
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Example from AR5 SYR SPM, page 4

# Watch out for relationships

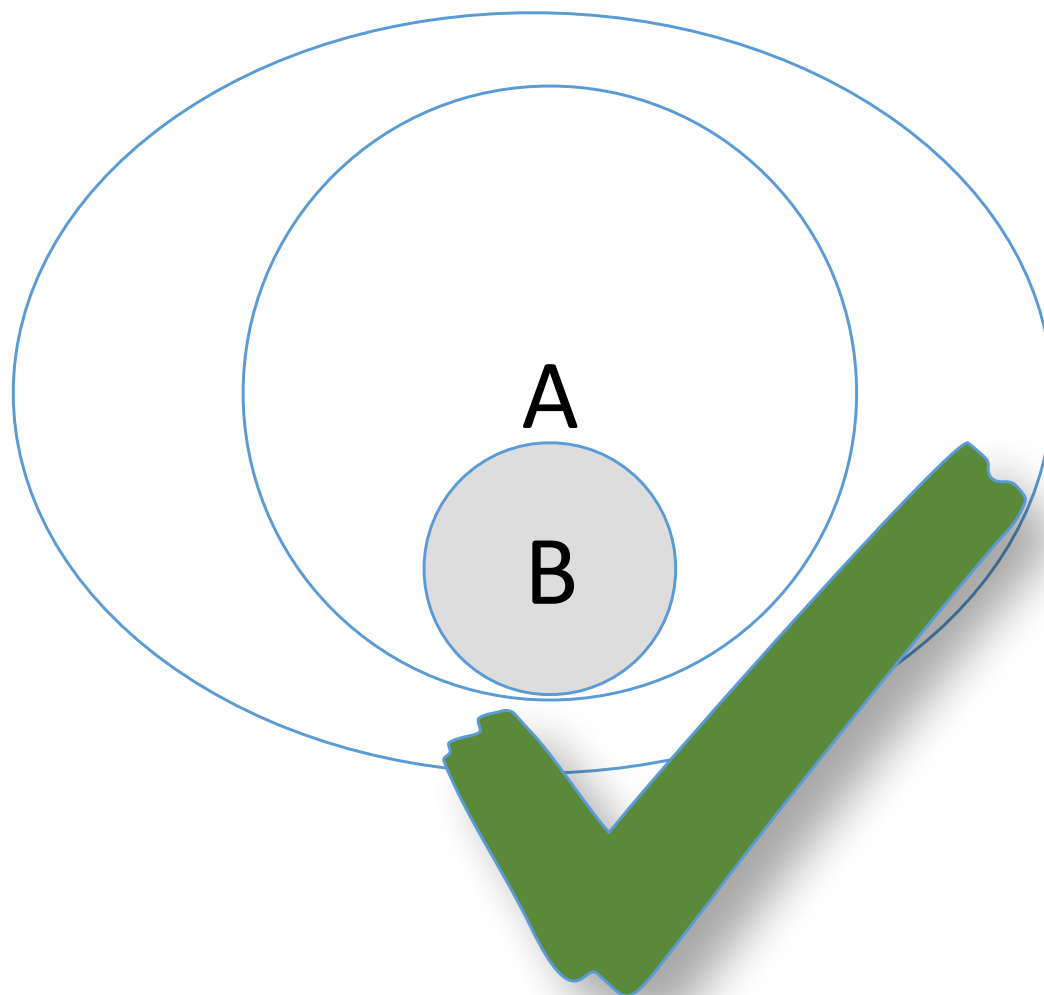
- Independence, e.g. different topics

or same topic and independent aspects/  
dimensions



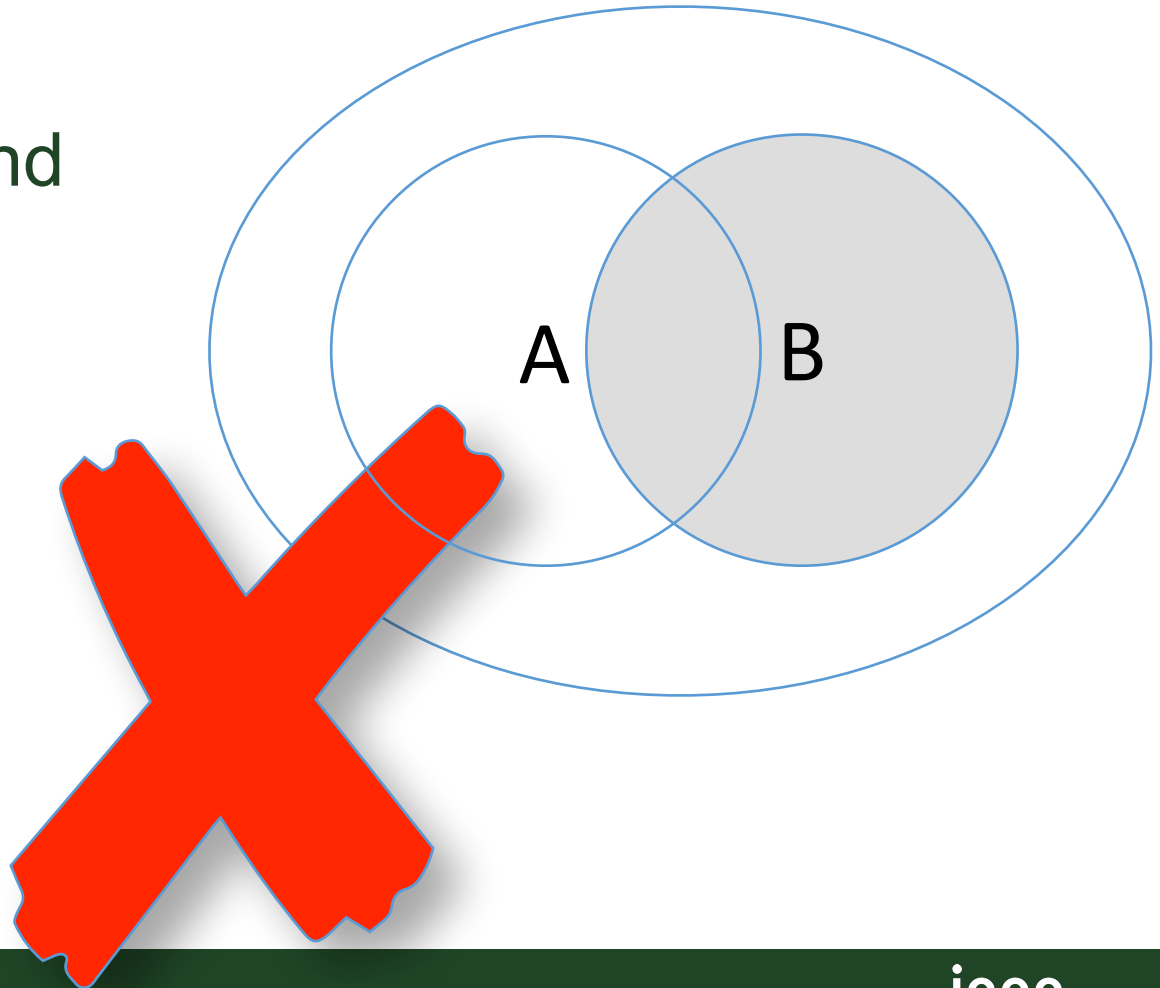
# Watch out for relationships (cont.)

- If same topic and not independent aspects/dimensions, then subset-superset relationship



# Watch out for relationships (cont.)

- However, if same topic and overlapping statements, then uncertainty assessment may become questionable





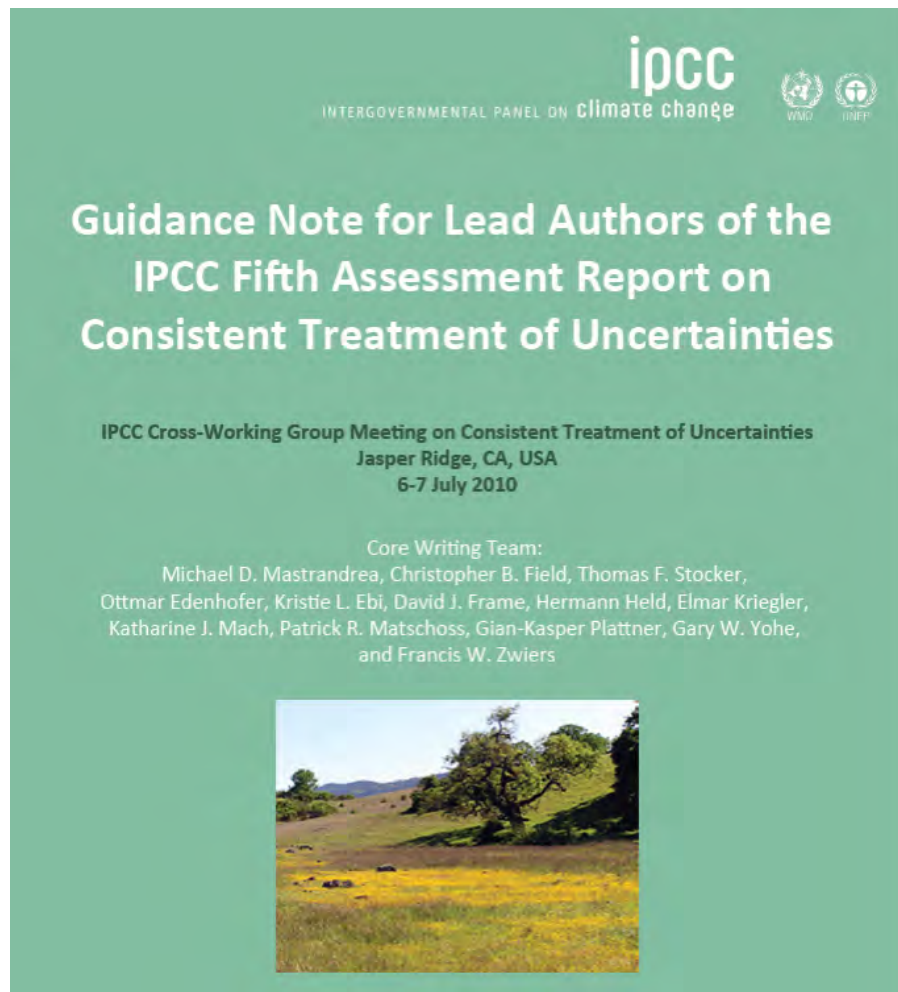
# Traceable Accounts

- Report text must provide a traceable account that substantiates the confidence or likelihood statement!

→ This typically involves a survey of the available literature, a discussion of results of cited papers, the **evidence** they provide, the **agreement**, etc

→ For likelihood statements, the text should clearly indicate how it was arrived at (e.g., **statistical analysis** or quantitative **expert judgement**)

# Guidance Notes



[https://wg1.ipcc.ch/docs/AR5\\_Uncertainty\\_Guidance\\_Note.pdf](https://wg1.ipcc.ch/docs/AR5_Uncertainty_Guidance_Note.pdf)

# Thank You!

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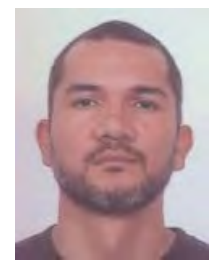
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# A GUIDE TO THE IPCC & THE EXPERT REVIEW PROCESS

## Panel Q&A with IPCC Lead Authors & WGII Vice-Chairs

*What makes for useful and constructive reviewer comments? Your top tip*



### Anjal Prakash

Lead Author of IPCC Special Report on the Ocean & Cryosphere in a Changing Climate (SROCC) and IPCC AR6

### Regine Hock

Coordinating Lead Author of IPCC SROCC

### Samuel Morin

Lead Author of IPCC SROCC

### Andreas Fischlin

IPCC WGII Vice-Chair  
Review Editor for IPCC AR6

### Carlos Méndez

IPCC WGII Vice-Chair  
Review Editor for IPCC AR6

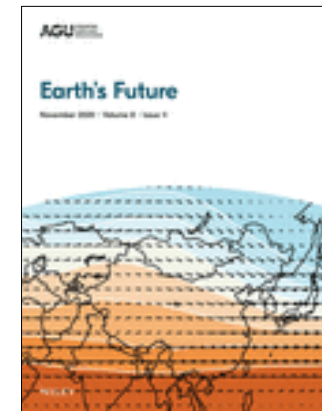
# A GUIDE TO THE IPCC & THE EXPERT REVIEW PROCESS

## Concluding Remarks

*“There is a dire **need for deeper science-policy engagement** to face recent developments such as entering into the Anthropocene ... However, there is a lack of preparedness and training of scientists about what science-policy engagement is and how to get involved ...*

*... engagement in the science-policy system relies on building relationships that last, span thematic spaces, and are **responsive when opportunities arise**”*

([von Schneidemesser](#), et al., 2020)



### Prepare Scientists to Engage in Science-Policy

Erika von Schneidemesser<sup>1</sup>, Megan Melamed<sup>2</sup>, and Julia Schmale<sup>3</sup>

<sup>1</sup>Institute for Advanced Sustainability Studies, Potsdam, Germany, <sup>2</sup>International Global Atmospheric Chemistry (IGAC) Project, University of Colorado/CIRES, Boulder, CO, USA, <sup>3</sup>School of Architecture, Civil and Environmental Engineering, Ecole Polytechnique Fédérale de Lausanne, Switzerland

<https://doi.org/10.1029/2020EF001628>



## Concluding Remarks



1. **Register as an Expert Reviewer** and agree to the confidentiality requirements. Registrations open now until 23:59 22 January 2021 (CET), at:  
<https://apps.ipcc.ch/comments/ar6wg2/sod/register.php>



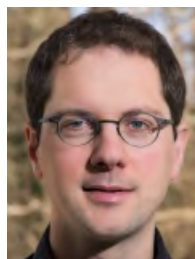
2. **Complete your Expert Review** using the form available upon registration. The review portal is available now until 29 January 2021.





# A GUIDE TO THE IPCC & THE EXPERT REVIEW PROCESS

**Thank you!**



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