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INTERGOVERNMENTAL PANEL ON climate change

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ENGLISH ONLY

DECISION

CHAPTER OUTLINE OF THE WORKING GROUP I CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT (AR6)

As Adopted by the Panel at the 46th Session of the IPCC

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WMO UNEP

CHAPTER OUTLINE OF THE WORKING GROUP I CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT (AR6)

The Intergovernmental Panel on Climate Change decides:

(1) to agree to the outline of the *Working Group I contribution to the IPCC Sixth Assessment Report* as contained in Annex 1 to this document.

(2) that this report assesses relevant literature, especially since the Fifth Assessment Report (AR5), in a manner consistent with the IPCC guidance on the use of literature.

(3) that the bulleted text in Annex 1 to this Decision, that resulted from the scoping process and refined through comments by the Plenary, be considered by authors as indicative.

(4) to invite the Co-Chairs of Working Group I and the Co-Chairs of WGII and WGIII to develop appropriate mechanisms to ensure the effective co-ordination of Working Group contributions to the IPCC Sixth Assessment Report, to oversee the treatment of cross-cutting themes, and to prepare a Glossary common to Working Groups I, II and III.

(5) In order to achieve this, the timetable for the production of the IPCC Working Group I contribution to IPCC Sixth Assessment Report is as follows:

15 September – 27 October 2017	Call for author nominations
29 January – 4 February 2018	Decision on Selection of authors
25 June – 1 July 2018	First Lead Author Meeting
7 – 13 January 2019	Second Lead Author Meeting
29 April – 23 June 2019	Expert Review of the First Order Draft
26 August – 1 September 2019	Third Lead Author Meeting
2 March – 26 April 2020	Expert and Government Review of the Second Order Draft
1 – 7 June 2020	Fourth Lead Author Meeting
7 December 2020 – 31 January 2021	Final Government Distribution of the Final Draft and Final Government Review of the Summary for Policy Makers
12 – 18 April 2021	Submission to the WGI Session for approval of the Summary for Policymakers and acceptance of the underlying Report

(6) that the budget for the production of the Working Group contribution to the IPCC Sixth Assessment Report is as contained in Decision (IPCC/XLVI-1) on the IPCC Trust Fund Programme and Budget.

ANNEX 1

Chapter outline of the Working Group I contribution to the IPCC Sixth Assessment Report (AR6)

Summary for Policy Makers

Technical Summary

Chapter 1:
Framing, context, methods

Executive Summary

- Synthesis of key findings from AR5 and earlier assessment reports, and connections to AR6 Special Reports
- Framing of the physical science information relevant for mitigation, adaptation, and risk assessment in the context of the Global Stocktake
- Assessment approach
- Observational and reanalysis developments since the AR5
- Model and experimental design developments since the AR5
- Emissions and forcing scenarios
- Treatment and evaluation of uncertainty throughout the report

Frequently Asked Questions

Chapter 2:
Changing state of the climate system

Executive Summary

- Multi-millennial context, pre-industrial to present day
- Natural and anthropogenic forcings
- Radiative forcing
- Large-scale indicators of observed change in the atmosphere, ocean, cryosphere, land, and biosphere
- Modes of variability

Frequently Asked Questions

Chapter 3:
Human influence on the climate system

Executive Summary

- Overview of model performance and development since the AR5
- Simulated large-scale indicators of change in the atmosphere, ocean, cryosphere, land, and biosphere
- Simulated modes of variability
- Natural variability versus anthropogenically-forced change
- Attribution of large-scale observed changes

Frequently Asked Questions

Chapter 4:
Future global climate: scenario-based projections and near-term information
Executive Summary

- Projections of global mean surface temperature and other key global indicators
- Evaluation of multi-model ensemble methods
- Large scale patterns of climate change
- Committed climate response, climate targets, overshoot, irreversibility, abrupt change
- Climate response to greenhouse gas removal scenarios
- Climate response to solar radiation management scenarios
- Interplay between internal variability and response to forcings, including short-lived forcers
- Variability and unexpected changes of global mean surface temperature
- Near-term predictability, sources and capabilities
- Synthesis of climate information in the near-term

Frequently Asked Questions

Chapter 5:
Global carbon and other biogeochemical cycles and feedbacks
Executive Summary

- Feedbacks between climate and biogeochemical cycles, including paleoclimate information
- Ocean acidification
- Historical trends and variability of CO_2, CH_4 and N_2O; sources and sinks
- Projections of global biogeochemical cycles from near-term to long-term
- Abrupt change, irreversibility
- Model evaluation, emergent constraints
- Transient climate response to cumulative emissions and remaining carbon budgets for climate targets
- Biogeochemical implications of land and coastal management mitigation options and greenhouse gas removal
- Biogeochemical implications of solar radiation management scenarios

Frequently Asked Questions

Chapter 6:
Short-lived climate forcers
Executive Summary

- Key emissions: global overview, natural, anthropogenic, historical and scenarios
- Observed and reconstructed concentrations and radiative forcing
- Direct and indirect-aerosol forcing
- Implications for greenhouse gas lifetimes
- Implications of different socio-economic and emission pathways, including urbanisation, for radiative forcing
- Connections to air quality and atmospheric composition

Frequently Asked Questions

Chapter 7:
The Earth's energy budget, climate feedbacks, and climate sensitivity
Executive Summary

- Energy budget and its changes through time
- Radiative forcing: definitions, estimates, and its representation in models
- Climate feedbacks
- Sensitivity of the climate system: methods and uncertainty
- Empirical constraints on the sensitivity of the climate system, including paleoclimate
- Global warming potential, global temperature change potential, and other metrics

Frequently Asked Questions

Chapter 8:
Water cycle changes
Executive Summary

- Observations, models, methods and their reliability
- Past, present and projected changes, trends, variability and feedbacks in the physical components of the water cycle
- Circulation, processes and phenomena (e.g. monsoon systems) affecting moisture and precipitation patterns, including extremes
- Cloud-aerosol processes affecting the water cycle
- Changes in seasonality of natural storage and water availability
- Abrupt change
- Confidence in projections

Frequently Asked Questions

Chapter 9:
Ocean, cryosphere, and sea level change
Executive Summary

- Past and future changes in ocean circulation and properties (trends, variability and extremes)
- Past and future changes in marine and terrestrial cryosphere
- Evaluation of models and projection methods
- Detection and attribution
- Past global and regional sea level changes
- Projections of global and regional sea level change
- Abrupt change and long-term commitment
- Extreme water levels (tides, surge and ocean waves)

Frequently Asked Questions

Chapter 10:
Linking global to regional climate change
Executive Summary

- Regional phenomena, drivers, feedbacks and teleconnections
- Regional scale observations and reanalyses
- Interplay between internal variability and forced change at the regional scale, including attribution
- Evaluation of model improvements, methods, including downscaling and bias adjustment and regional specificities
- Confidence in regional climate information, including quantification of uncertainties
- Scale specific methodologies e.g. urban, mountains, coastal, catchments, small islands
- Approaches to synthesizing information from multiple lines of evidence

Frequently Asked Questions

Chapter 11:
Weather and climate extreme events in a changing climate
Executive Summary

- Extreme types, encompassing weather and climate timescales and compound events (including droughts, tropical cyclones)
- Observations for extremes and their limitations, including paleo
- Mechanisms, drivers and feedbacks leading to extremes
- Ability of models to simulate extremes and related processes
- Attribution of changes in extremes and extreme events
- Assessment of projected changes of extremes and potential surprises
- Case studies across timescales

Frequently Asked Questions

Chapter 12:
Climate change information for regional impact and for risk assessment
Executive Summary

- Framing: physical climate system and hazards
- Region-specific integration of information, including confidence
- Information (quantitative and qualitative) on changing hazards: present day, near term and long term
- Region-specific methodologies
- Relationship between changing hazards, global mean temperature change, scenarios and emissions

Frequently Asked Questions

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Options for cross-WG integration including Regional Atlas
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