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INTERGOVERNMENTAL PANEL ON climate change

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PROPOSED CHAPTER OUTLINES OF THE WORKING GROUP II CONTRIBUTION TO THE IPCC FIFTH ASSESSMENT REPORT (AR5)

(Submitted by the Co-Chairs of Working Group II)

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Outline for the Working Group II Contribution to the Fifth Assessment Report IMPACTS, ADAPTATION, AND VULNERABILITY

Please refer to the Background Document WGII-9/INF.1 for information on the conceptual framework underpinning the Working Group II Contribution to the IPCC Fifth Assessment Report

Table of Contents

Summary for Policy Makers Technical Summary

PART A: GLOBAL AND SECTORAL ASPECTS

For each sectoral and regional chapter, there will be a standard set of topics that are referred to as [CONTEXT] in each chapter outline:

- Assessing vulnerability
 - Vulnerability to key drivers (including extremes)
- Assessing risks
 - Observed changes, with detection and attribution
 - Projected climate change impacts, with regional variation by scenario and time slice
 - Economic, social, and environmental context for uncertain futures under alternative development pathways
 - i. Potential vs. residual impacts
 - ii. Planned vs. autonomous adaptation
 - iii. Multiple interacting stresses {including the effects of geoengineering}
 - iv. Uncertainty
- Managing risks
 - Adaptation needs (based on assessed impacts and vulnerabilities)
 - Practical experiences of adaptation, including lessons learned
 - Observed and expected barriers to adaptation
 - Observed and expected limits to adaptation
- Valuation of impacts and adaptation
- Key vulnerabilities, thresholds, and irreversible changes
- Research and data gaps
- Case studies

Context for the AR5

1. Point of departure
 - The setting
 - Major conclusions of WGII AR4
 - Major conclusions of SR on *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*
 - Major conclusions of WGI AR5
2. Foundations for decisionmaking
 - Key concepts
 - Impacts, adaptation, and vulnerability on a range of scales
 - Assessing risk
 - Multi-metric valuation
 - Managing risk
 - Climate-resilient pathways: adaptation and mitigation interactions

Natural and Managed Resources and Ecosystems, and Their Uses

3. Freshwater resources
 - Diversity of world water resources and their sensitivity to climate change
 - Variables affecting the hydrosphere and cryosphere
[CONTEXT]
 - Interactions among water resources, human activities, and the built environment
 - Water management and sustainable development
4. Terrestrial and freshwater ecosystems
 - Diversity of world ecosystems and their sensitivities to climate change
 - Intensively managed systems
 - Protected and conservation areas
[CONTEXT] {for each ecosystem}
 - Ecosystem services
 - Interactions among ecosystems, human activities, and the built environment
 - Vulnerability of carbon pools, bioenergy implications, and carbon management potentials
 - Threats to human activities, infrastructure, and biodiversity
5. Coastal ecosystems and low-lying areas
 - Diversity of world ecosystems and their sensitivities to climate change
[CONTEXT] {for each ecosystem}
 - Ecosystem services
 - Interactions among ecosystems, human activities, and the built environment
 - Sea-level rise and threats to human activities, infrastructure, and biodiversity
6. Ocean ecosystems
 - Diversity of world ecosystems and their sensitivities to climate change
[CONTEXT] {for each ecosystem}
 - Ecosystem services
 - Ocean acidification
 - Interactions between ecosystems and human activities
 - Threats to human activities and biodiversity
7. Food systems and food security
[CONTEXT]
 - Diversity of world food production and its sensitivities to climate change
[CONTEXT] {for each food production system, including cropping, grazing, and fisheries}
 - Food systems
 - Food security and the means to achieve it

Human Settlements, Industry, and Infrastructure

8. Urban Areas
[CONTEXT]
 - Urbanization processes and climate risks
 - Urban micro-climates
 - Civic services and infrastructure
 - Housing
 - Informal settlements
 - Economic base

- Development plans and development pathways
- Governance
- Landscape and regional interconnections

9. Rural Areas

[CONTEXT]

- Landscape and regional interconnections {including migration}
- Housing
- Economic base and livelihoods
- Infrastructure
- Social capital and resilience

10. Key economic sectors and services

[CONTEXT]

- Networked infrastructure
- Industry and manufacturing
- Tourism
- Social and other economic services

Human Health, Well-Being, and Security

11. Human health

[CONTEXT]

- Determinants of health: current and future trends
- Health outcomes and their sensitivity to climate change
 - Extreme events
 - Air quality
 - Food- and waterborne diseases
 - Vector-borne and zoonotic diseases
 - Malnutrition
 - Water quality and availability
- Child health
- Health inequalities

12. Human security

[CONTEXT]

- Social and economic impacts
- Inequalities, gender, and marginalized populations
- Culture, values, and society
- Indigenous peoples
- Local and traditional knowledge
- Migration and population displacement
- Conflict
- Community resilience

13. Livelihoods and poverty

[CONTEXT]

- Chronic and transient poverty
- Effects of climate change responses on poverty
- Interactions between climate change and poverty-reduction initiatives

Adaptation and Development

14. Adaptation needs and options

- Synthesis of adaptation needs and options
- National Adaptation Programmes of Action (NAPAs) and other national and sectoral assessments
- Addressing maladaptation
- Measuring adaptation
- [Case studies of Least Developed Countries and other vulnerable countries and groups]

15. Adaptation planning and implementation

- Local, national, regional, and global strategies, policies, and initiatives
- Technology development, transfer, and diffusion
- Financing for adaptation
- Insurance and social protection
- Knowledge sharing, learning, and capacity building
- Institutional arrangements: public- and private-sector stakeholders and priorities
- Links between adaptation and development

16. Adaptation opportunities, constraints, and limits

- Cross-sectoral synthesis
- Limits to adaptation, including ethical dimensions
- Interactions among limits
- Effects of alternative mitigation pathways on adaptation
- Ancillary social and ecological effects of adaptation

17. Economics of adaptation

- Adaptation costs and benefits at global, national, sectoral, and local levels
- Inter-relationships between adaptation costs and residual damage
- Economic instruments to provide incentives
- Challenges of using market-based approaches for adaptation decisionmaking
- Ancillary economic effects

Multi-Sector Impacts, Risks, Vulnerabilities, and Opportunities

18. Detection and attribution of observed impacts

- Integration of observed impacts across sectors and regions
- Attribution of observed impacts across sectors and regions

19. Emergent and key risks and vulnerabilities

- Multiple interacting systems and stresses
- Indirect, trans-boundary, and long distance impacts
- Key vulnerabilities, aggregate impacts, thresholds, irreversible changes, and reasons for concern

20. Climate-resilient pathways: adaptation, mitigation, and sustainable development

- Multi-metric valuation
- Ecosystem services and biodiversity threats
- Consumption, lifestyles, behavior, culture, and education
- Human well-being
- Adaptation, mitigation, and sustainable development

PART B: REGIONAL ASPECTS

21. Regional context

- Introduction
- Observed climate and non-climate information
- Regional projections
- Similarities in systems across regions

Regional Chapters

- 22. Africa
- 23. Europe
- 24. Asia
- 25. Australasia
- 26. North America
- 27. Central and South America
- 28. Polar Regions
- 29. Small Islands
- 30. International Waters

These chapters will be subdivided into sub-regions to provide the detailed information requested by Plenary taking into account the availability of regional information.

Chapter structure (22-30)

- Introduction
- Major conclusions from previous assessments
- *[CONTEXT]* at the sub-regional level
- Integrated analysis of adaptation and mitigation
- Inter- and intra-regional impacts
- Multi-sector synthesis

Annex I: Glossary

Annex II: Acronyms

Annex III: Contributors to the IPCC Working Group II Fifth Assessment Report

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