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**CHAPTER OUTLINES OF THE WORKING GROUP CONTRIBUTION TO THE IPCC SEVENTH ASSESSMENT REPORT (AR7)**

**Proposed Chapter Outlines of the Working Group II contribution to the IPCC Seventh Assessment Report**

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

# CHAPTER OUTLINES OF THE WORKING GROUP CONTRIBUTION TO THE IPCC SEVENTH ASSESSMENT REPORT (AR7)

## Proposed Chapter outlines of the Working Group II contribution to the IPCC Seventh Assessment Report

**Title: Climate Change 202X: Impacts, Adaptation and Vulnerability**

**Summary for Policymakers**

**Technical Summary**

### **Chapter 1: Point of departure, framing and key concepts**

- Facing accelerating climate change and adapting to compounding threats in a poly-crisis world
- Setting the stage: evolving climate policy and knowledge landscapes in a changing world
- Key concepts such as adaptation, sustainable development, climate resilient development, losses and damages, responses to losses and damages, equity and justice
- Introducing Global, Regional and Thematic Assessments
- Updating the Technical Guidelines on Assessing Climate Change Impacts and Adaptation
- From assessment to effective implementation: prioritizing and enabling climate action

### **Global Assessment Chapters**

#### **Chapter 2: Vulnerabilities, impacts and risks**

- Multiple dimensions of vulnerability across temporal and spatial scales
- Synthesis of observed and projected impacts, including economic and non-economic losses and damages, building on both slow onset and extreme Climatic-Impact Drivers, including detection and attribution
- Key risks including complex, compound, cascading, residual risks, and risks under a range of climate and development scenarios, including overshoot and different adaptation pathways
- Risks from responses
- Reversible and irreversible impacts and risks under a range of climate and development scenarios, including overshoot and different adaptation pathways
- Reasons for Concern across scales
- Lessons from other approaches to risk assessment across scales

### **Chapter 3: Current adaptation progress, effectiveness and adequacy**

- Adaptation progress, gaps, limits and barriers
- Indicators and metrics to measure adaptation against goals
- Adequacy and effectiveness of support for adaptation and risk management
- Adaptation costs, trade-offs, benefits and co-benefits
- Evidence of effectiveness and adequacy of state and non-state actions at various scales

### **Chapter 4: Adaptation options and conditions for accelerating action**

- Effectiveness and feasibility of adaptation options considering current barriers, preconditions, path dependencies, and a range of climate and development scenarios and/or different time scales
- Approaches for adaptive and continuous monitoring, evaluation, and learning to design better policies, options and actions, and to enhance implementation
- Drivers, enablers and conditions for accelerated adaptation action, including means of implementation
- Ways of adaptation decision making and planning under uncertainty and constraining conditions
- Enhancing agency and capacity of stakeholders and empowering Indigenous Knowledge and Local Knowledge holders
- Approaches to manage risks arising from adaptation, and addressing synergies and trade-offs with Disaster Risk Reduction, mitigation and sustainable development

### **Chapter 5: Responses to losses and damages**

- Types of responses by diversity of actors at various scales and their interactions
- Policies, institutional arrangements and legal aspects for responding to losses and damages at various scales
- Drivers of decision-making including values, perceptions, differential power and influence, behaviour, incentives, and capacities
- Approaches of categorizations and metrics to assess losses and damages
- Existing and potential responses to losses and damages including effectiveness and feasibility under a range of climate and development scenarios including overshoot and adaptation pathways
- Needs, gaps, barriers and enablers in responses to losses and damages

## Chapter 6: Finance

- Background considerations, including broader macroeconomic context, international financial architecture, and reforms, geopolitics, other international commitments, barriers and enablers to finance
- Climate finance for adaptation – overview of financing needs, current flows, instruments and gaps, effectiveness and access, and methodologies for tracking finance flows
- Climate finance for responses to losses and damages – overview of financing needs, current finance flows, instruments and gaps, effectiveness and access, and methodologies for tracking finance flows
- Public and private investments for climate action: finance flows at domestic and international levels
- Equitable financial systems and schemes including those related to financial stability, sustainability and financial risk management
- Approaches to accelerate finance flows, including the diversity of instruments, schemes and approaches, and their appropriateness
- Consistency of finance flows with a pathway towards climate resilient development

## Regional Assessment Chapters

### **Common Bullets to all Regional Assessment Chapters**

- Consider regional setting, including intra-regional variabilities, areas of special concerns, such as hotspots and geographies, socio-political contexts, and the thematic assessment chapters
- Multiple dimensions of vulnerability across temporal and spatial scales
- Observed and projected impacts, including economic and non-economic losses and damages, building on both slow onset and extreme Climatic-Impact Drivers
- Key risks including complex, compound, cascading, transboundary, residual risks, and risks under a range of climate and development scenarios, including overshoot and different adaptation pathways
- Adaptation progress, gaps, limits and barriers
- Context-specific adaptation options and responses to losses and damages, means of implementation, limits to action, and costs and benefits, effectiveness and feasibility of different options
- Barriers and enablers to climate action, including finance, capacity building, education, technology development and transfer
- Perception, beliefs, values, behavioural aspects and cultural practices of adaptation, including locally led adaptation and community-based responses

- Distributional nature of effects, including consideration of human rights, equity, and justice, Indigenous Peoples, gender, disability, informality and intergenerational justice
- Policies, governance, legislation and institutions critical to planning and implementation, including considerations of political ecology and political economy
- Role of diverse knowledge systems including Indigenous Knowledge, Local Knowledge and experiential learning
- Linkages with sustainable development and climate resilient development, including co-benefits, synergies, trade-offs, and opportunities for innovation and transformation
- Regional, transboundary and local case studies, such as polar, dryland and mountain regions

### **Chapter 7: Africa**

### **Chapter 8: Asia**

### **Chapter 9: Australasia**

### **Chapter 10: Central and South America**

### **Chapter 11: Europe**

### **Chapter 12: North America**

### **Chapter 13: Small Islands**

### **Thematic Assessment Chapters**

#### **Common bullets to all thematic assessment chapters**

- Observed and projected impacts, including economic and non-economic losses and damages, building on both slow onset and extreme Climatic-Impact Drivers
- Multiple dimensions of vulnerability across temporal and spatial scales
- Key risks including complex, compound, cascading, transboundary, residual risks, and risks under a range of climate and development scenarios, including overshoot and different adaptation pathways
- Perceptions, beliefs, values, behavioural aspects and cultural practices of adaptation, including locally led adaptation and community-based responses

- Context-specific adaptation options and responses to losses and damages, means of implementation, including barriers, gaps, enablers and limits to action, and costs and benefits, effectiveness and feasibility of different options
- Distributional nature of effects including consideration of human rights, equity and justice, Indigenous Peoples, gender, disability, informality and intergenerational justice
- Policies, governance, legislation and institutions critical to planning and implementation, including considerations of political ecology and political economy
- Role of diverse knowledge systems including Indigenous Knowledge and Local Knowledge
- Linkages with sustainable development and climate resilient development, including co-benefits, synergies, trade-offs, and opportunities for innovation and transformation
- Case studies of implementation

#### **Chapter 14: Terrestrial, freshwater and cryospheric biodiversity, ecosystems and their services**

- Considering distinct geographies and biomes, including cryosphere, polar, forests, grasslands, mountains, deserts and drylands
- Vulnerability and resilience of biodiversity, ecosystem structure and functions, under a range of plausible futures including climate extremes, emergence of novel communities, and the implication for their services
- Emerging threats and management of risk to critical biodiversity, ecosystems, rare species and related cultural heritage
- Enablers, limits and barriers to natural adaptation

#### **Chapter 15: Ocean, coastal and cryospheric biodiversity, ecosystems and their services**

- Vulnerability and resilience of biodiversity, ecosystem structure and functions, under a range of plausible futures including climate extremes, emergence of novel communities, and the implication for their services
- Emerging threats and management of risk to critical biodiversity, ecosystems, rare species and related cultural heritage
- Enablers, limits and barriers to natural adaptation

## **Chapter 16: Water**

- Water security addressing the issues of too little, too much, and polluted water in the context of climate change to meet the needs of people, food production and ecosystems
- Water use and budgeting including virtual water, water footprints, water-related nexus
- Transboundary and national and subnational water management including non-economic and cultural values of water
- Risks from response options, including water cooperation and competition

## **Chapter 17: Agriculture, food, fibre and fisheries**

- Adaptation options for food supply chains and food, nutrition, and livelihood security, considering affordability, dietary diversity, accessibility, agency and sustainability
- Competition for land and ocean use in the context of adaptation and mitigation
- Livelihood security, risks to cultural heritage and adaptation options for key vulnerable groups such as smallholder farmers, pastoralists and artisanal fishing communities
- Transboundary impacts and responses, including fisheries and aquaculture, and impacts and responses in areas beyond national jurisdiction
- Impacts of climate change on trade and trade implications for adaptation and mitigation

## **Chapter 18: Energy, industry, infrastructure and human settlements**

- Supply chain risk, business risk, cascading impacts, path dependencies and infrastructure lock-in, risks of failure of infrastructure systems, and risks to cultural heritage
- Adapting infrastructure, industry, energy systems and human settlements to reduce risk and build response capacity at multiple levels
- Developing and utilizing climate resilient infrastructure to build adaptive capacity and support sustainable development at multiple levels
- Solutions including new technologies, methods of construction, materials and innovations, green and grey and natural infrastructure, social and behavioural change, considering mitigation and just transition goals
- Relevant updates to Special Report on Climate Change and Cities

## **Chapter 19: Health and well-being**

- Observed impacts and projected risks to health and well-being due to multi-scale climate changes, extremes, compound and cascading events
- Intersectionality of drivers of vulnerability and exposure to climate hazards within populations and communities
- Adapting health systems, and health prevention and promotion activities to reduce risk and build capacity at multiple levels
- Nexus between climate change, health and wellbeing, and other health determining sectors
- Innovative and collaborative partnerships involving private sector and others

## **Chapter 20: Poverty, livelihoods, mobility and fragility**

- Livelihood options, households with low-income and social deprivations in rural and urban contexts, Indigenous Peoples, informal settlements, contexts of fragility, displaced, mobile and immobile populations
- Interaction of climate change and development with poverty, vulnerability and livelihoods
- Human mobility in the context of climate change, including internal and cross boundary
- Risks and adaptation in fragile contexts, and in contexts of social unrest and armed conflict
- Integrating adaptation and resilience into efforts towards poverty eradication, livelihood enhancement, formal and informal social protection mechanisms
- Differentiated capabilities and responsibilities, and asymmetric access to information, finance and decision-making fora

## **Annex I: Atlas**

- Context-specific mapping of hazards, vulnerability, exposure, impacts, risks, adaptation, and responses to losses and damages

## **Annex II: Linkage to TGIA: Overview of Technical Guidelines on Impacts and Adaptation**

## **Annex III: Glossary**

## **Annex IV: Acronyms**

## **Annex V: List of Contributors**

## **Annex VI: List of Reviewers**



# Proposed Outline of the Update to the 1994 IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations

## Section 1: Introduction

- Rationale for updating the Technical Guidelines
- Framing and purpose for the Technical Guidelines

## Section 2: Adaptation in practice

- Key principles and concepts for the Technical Guidelines, such as effective and adequate adaptation; equity and justice; co-development, flexibility and adaptive planning; systems thinking and consideration of planning as a systems approach; synergies and trade-offs
- Considering multiple levels of governance and levels of assessment and adaptation action
- Adaptation in relation to societal development needs and values, and adaptation as both a stand-alone and continuous, mainstreamed activity

## Section 3: Technical Guidelines

- **Scoping and goal setting** (analysis of current risk management capacities; and analysis of impact of adaptation measures on equity and justice outcomes; identification of risk distribution and risk tolerance across communities, regions and time scales; assessment of sectoral and development policies, data and knowledge sources, resources, enablers and barriers; identifying and addressing information gaps)
- **Impact, vulnerability and risk assessment** (analysis of climate impacts, including economic and non-economic losses and damages; assessment of climate risks, considering climatic and non-climatic risk drivers; identification of new and emerging risks; analysis of tolerance of residual risk; demand for adaptation; assessing uncertainty)
- **Planning** (identifying entry points for adaptation; participatory and inclusive planning processes; mainstreaming adaptation in existing policies, regulations and practices; costs and benefits, and budgeting of adaptation; identifying, appraising and prioritising adaptation options using criteria such as effectiveness, adequacy, feasibility, equity, human rights, synergies and trade-offs; iterative planning)
- **Implementation** (identifying roles, responsibilities and accountability mechanisms; identifying and mobilizing resources; development of workflow and institutional collaboration mechanisms; development of communication channels with relevant stakeholders)
- **Monitoring, evaluation and learning** (definition of impact and adaptation metrics and indicators to monitor and track progress, uptake and performance; systematic tracking of lessons and feedback from implementation for continuous learning and adaptive management; ex-post evaluations including equity and justice outcomes)

## Section 4: Enablers

- Systematic exploration of methodologies and tools for assessing impacts, risks, vulnerabilities and adaptation, including adaptation options, prioritization and costing

- Co-development principles and practices (stakeholder engagement; locally-led approaches; gender-responsive and rights-based approaches; mutual learning with marginalized communities, Indigenous Peoples, non-governmental organizations, and technical and scientific communities; communication and outreach)
- Services and data to support adaptation planning (climate information services; geophysical, environmental and socioeconomic information)
- Financing adaptation and mobilising resources for managing adaptation programs, and identification of funding mechanisms
- Policy, legal and regulatory enablers (frameworks to accelerate implementation of adaptation; identifying approaches for integrating adaptation into national and sectoral policies, laws and regulations; frameworks for adaptive management)