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**CHAPTER OUTLINE OF THE WORKING GROUP II CONTRIBUTION  
TO THE IPCC FIFTH ASSESSMENT REPORT (AR5)**

**Revised version of WG-II: 9<sup>th</sup> /Doc.2 adopted by the Ninth Session  
of Working Group II**

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

**Outline of the Working Group II Contribution to the Fifth Assessment Report  
Climate Change 2014:  
Impacts, Adaptation, and Vulnerability**

**Table of Contents**

**Summary for Policymakers  
Technical Summary**

*Each sectoral and regional chapter will include a standard set of topics that are referred to as [CONTEXT] in each chapter outline:*

- Observed impacts, with detection and attribution
- Projected integrated climate change impacts, with regional variation by scenario and time slice
- Assessing impacts, vulnerabilities, and risks
  - Vulnerabilities to key drivers (including extremes)
  - Economic, social, and environmental context for uncertain futures under alternative development pathways
  - Multiple interacting stresses
  - Uncertainty
  - Valuation of impacts and adaptation
  - Key vulnerabilities
- Adaptation and managing risks
  - Adaptation needs and gaps (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
  - Facilitating adaptation and avoiding maladaptation
  - Planned and autonomous adaptation
  - Potential and residual impacts
  - Thresholds and irreversible changes
- Case studies
- Research and data gaps

*Each chapter will include an executive summary, FAQs, and references*

**PART A: GLOBAL AND SECTORAL ASPECTS**

**Context for the AR5**

1. Point of departure
  - The setting
  - Major conclusions of WGII AR4
  - Major conclusions of Special Report 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 vulnerabilities on a range of scales
- Assessing impacts, vulnerabilities, and risks
  - Multi-metric valuation
  - Treatment of uncertainty
  - Key vulnerabilities
- Managing risks
- Climate-resilient pathways: adaptation, mitigation, and sustainable development interactions

## **Natural and Managed Resources and Systems, and Their Uses**

### 3. Freshwater resources

- Diversity of world water resources and their sensitivity to climate change  
*[CONTEXT]*
- Cryosphere
- Interactions among water resources, human activities, and the built environment
- Water management, water security, and sustainable development

### 4. Terrestrial and inland water systems

- Diversity of world ecosystems and their sensitivities to climate change: from the mountains to the coast, from the tropics to the poles
  - Intensively managed systems: forestry, fiber, and fuel production
  - Wildlands and extensively managed systems
  - Protected and conservation areas  
*[CONTEXT] {for each ecosystem}*
- Ecosystem services
- Interactions among ecosystems; land use, land-use change and forestry; and other human activities
- Vulnerability of carbon pools, bio-energy implications, and carbon management potentials
- Threats to human activities, infrastructure, and biodiversity

### 5. Coastal systems 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, changes in coastal dynamics, and threats to human activities, infrastructure, agriculture, and biodiversity

### 6. Ocean systems

- Diversity of world ecosystems and their sensitivities to climate change  
*[CONTEXT] {for each ecosystem}*
- Ecosystem services
- Water property changes, including temperature and ocean acidification
- Interactions between ecosystems and human activities
- Threats to human activities and biodiversity

### 7. Food production systems and food security

- Food production: farming, livestock, and fisheries and their sensitivities to climate change  
*[CONTEXT]*
- Food systems: processing, distribution, and access
- Food security and the means to achieve it

## **Human Settlements, Industry, and Infrastructure**

### 8. Urban Areas

*[CONTEXT]*

- Urbanization processes, sustainable habitats, and climate change risks
- Urban micro-climates, including urban heat islands
- Civic services and infrastructure
- Housing and settlements
- Economic base
- Development plans and development pathways, including social capital
- Urban planning, management, and governance
- Landscape and regional interconnections

### 9. Rural Areas

*[CONTEXT]*

- Landscape and regional interconnections (including migration)
- Housing and settlements
- Economic base and livelihoods
- Infrastructure
- Social capital and resilience

### 10. Key economic sectors and services

*[CONTEXT]*

- Networked infrastructure, including transportation, energy, water, and sanitation
- Industry and manufacturing
- Tourism
- Social and other economic services
- Market impacts (supply chains, systemic risks, and insurance)  
*{Food production, building on Chapter 7}*

## **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
  - Foodborne and waterborne diseases
  - Vectorborne and zoonotic diseases
  - Malnutrition
- Water quality, availability, and sanitation
- Children and other vulnerable populations
- Health inequalities, gender, and marginalized populations

12. Human security

*[CONTEXT]*

- Social and economic activities, including employment
- Education
- Inequalities, gender, and marginalized populations
- Culture, values, and society
- Indigenous peoples
- Local communities
- 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
- Inequalities, gender, and marginalized populations

**Adaptation**

14. Adaptation needs and options

- Synthesis of adaptation needs and options
- International, national, and sectoral assessments, including National Adaptation Programmes of Action (NAPAs)
- Measuring adaptation
- Addressing maladaptation

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
- Decision support tools and methods
- Adaptation status and indicators

16. Adaptation opportunities, constraints, and limits

- Cross-sectoral synthesis
- Limits to adaptation, including ethical dimensions and resources
- 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
- Using market-based approaches for adaptation decisionmaking
- Ancillary economic effects

*Chapters 14-17 will include case studies of, e.g., Least Developed Countries, indigenous peoples, and other vulnerable countries and groups*

### **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 risks and key vulnerabilities
  - Multiple interacting systems and stresses
  - Indirect impacts, transboundary impacts, and impacts over longer distances
  - 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 patterns, lifestyles, behavior, culture, education, and awareness
  - Human well-being
  - Adaptation, mitigation, and sustainable development, including tradeoffs and co-benefits

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## **PART B: REGIONAL ASPECTS**

*{Subtitle: Contribution of IPCC WGII Incorporating Inputs from IPCC Working Group I “The Physical Science Basis” and Working Group III “Mitigation of Climate Change”}*

*This part will include analyses of consistently defined sub-regions and cross-regional hotspots (e.g., Mediterranean, megadeltas), based on the availability of regional information.*

### 21. Regional context

- Introduction
- Information on observed climate changes and relevant non-climate factors
- Regional projections: added value and limitations
- Similarities and pertinent differences in systems across regions
- Cross-regional hotspots

### **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. Open Oceans

### Chapter structure (22-30)

- Introduction
- Major conclusions from previous assessments  
*[CONTEXT] {with sub-regional information}*
- Adaptation and mitigation interactions
- Inter- and intra-regional impacts
- Multi-sector synthesis

**Appendix I: Glossary**

**Appendix II: Acronyms**

**Appendix III: Contributors to the IPCC WGII Fifth Assessment Report**

**Appendix IV: Reviewers of the IPCC WGII Fifth Assessment Report**

**Index**