

**THIRTY-FIRST SESSION OF THE IPCC  
Bali, 26-29 October 2009**

IPCC-XXXI/Doc. 20, Rev.1  
(28.X.2009)  
Agenda Item: 3  
ENGLISH ONLY

**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 2013:  
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**

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