

**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: 9th /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

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