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

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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
  o Multi-metric valuation
  o Treatment of uncertainty
  o 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
   o Intensively managed systems: forestry, fiber, and fuel production
   o Wildlands and extensively managed systems
   o 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  
  o Extreme events  
  o Air quality  
  o Foodborne and waterborne diseases  
  o Vectorborne and zoonotic diseases  
  o 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
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