IPCC Sixth Assessment Cycle: post–SR15 research agenda – pointers to WGII

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AR6 WGII Co-Chairs' overarching goals

- storyline from climate to natural systems to human societies, their response options, the associated feedback potential
- framework that incorporates risk reduction through adaptation and mitigation
- wider use of social sciences for adaptation (lifestyle choices: decision making, behaviour, consumption, technologies, societal inertia and transformation)
- address tradeoffs and synergies between climate change adaptation and mitigation link to policy goals (e.g., SDGs, poverty reduction, biodiversity)
- Focus on solutions

Sixth Assessment Report: Working Group II Outline

Chapter 1: Point of departure and key concepts

SECTION 1: RISKS, ADAPTATION AND SUSTAINABILITY FOR SYSTEMS IMPACTED BY CLIMATE CHANGE

Chapter 2: Terrestrial and freshwater ecosystems and the changing structure and their services
Chapter 3: Ocean and coastal ecosystems and their services
Chapter 4: Water
Chapter 5: Food, fibre, and other ecosystem products
Chapter 6: Cities, settlements and key infrastructure
Chapter 7: Health, wellbeing of communities
Chapter 8: Poverty, livelihoods and sustainable development

Sixth Assessment Report: Working Group II Outline (cont'

SECTION 2: REGIONS

Chapter 9: Africa
Chapter 10: Asia
Chapter 11: Australasia
Chapter 12: Central and South America
Chapter 13: Europe
Chapter 14: North America
Chapter 15: Small Islands

AR6 WGII – highlight: Regional Chapters

Common elements

- Regional/subregional climate
- WGI/WGII information, combined with risk assessment
- Detection and attribution
- Sectoral climate risk (land, coast, regional oceans)
- Cultural and psychological dimensions
- Observed impacts, projected risks (including residual risks and developing pathways)
- Adaptation options (incremental/transformational; adaptive capacity, enabliers/barriers, …)
- Governance, economic aspects (legal, financial, institutional, …)
- Cross-sectoral, intra-/inter-regional issues (including time scale)
- Interaction of risk and responses with sustainable

Sixth Assessment Report: Working Group II Outline (cont'

SECTION 3: SUSTAINABLE DEVELOPMENT PATHWAYS: INTEGRATING ADAPTATION AND MITIGATION

Chapter 16: Key risks across sectors and regions
Chapter 17: Decision-making options for managing risk
Chapter 18: Climate resilient development pathways

Sixth Assessment Report: Working Group II Outline (cont'd)

CROSS CHAPTER PAPERS

Biodiversity hotspots (land, coasts and oceans)
Cities and settlements by the sea
Deserts, semi-arid areas, and desertification
Mediterranean region
Mountains
Polar regions
Tropical forests

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INTERGOVERNMENTAL PANEL ON climate change

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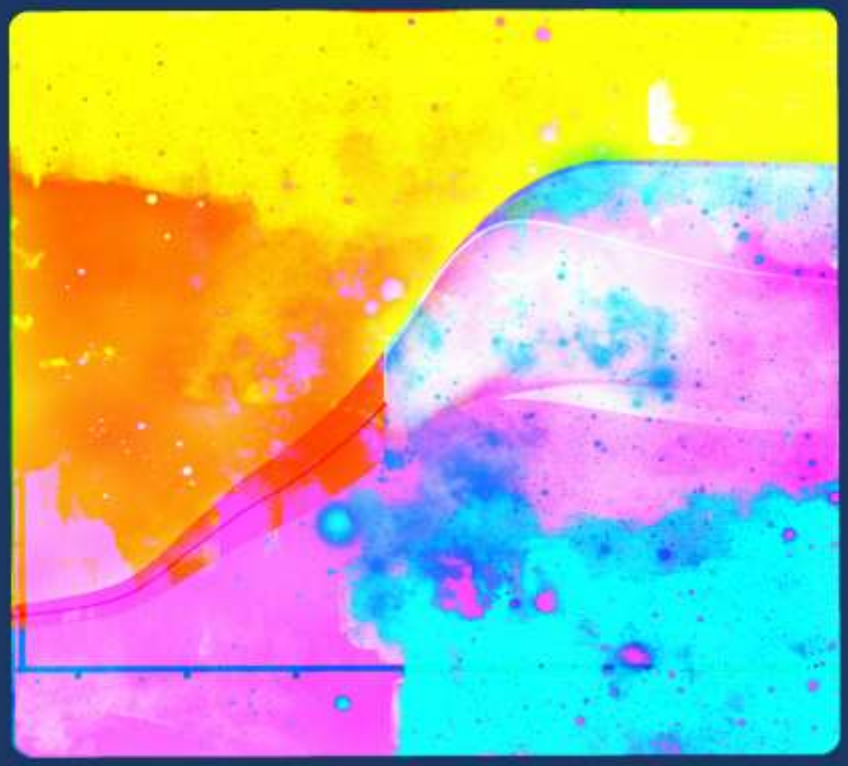
Global Warming of 1.5°C

An IPCC special report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.



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SR1.5 pointers to AR6 WGII

2018: Global Warming of 1.5°C

- Impacts on natural and human systems (Ch. 3)
- Strengthening and implementing the global response (including adaptation and mitigation trade-offs) (Ch. 4)
- Sustainable development, poverty eradication, reducing inequalities (Ch. 5)

- Regional impacts and adaptation at 1.5, 2°C and higher levels of warming
- Projections of risks under a range of climate and development pathways
- More complex and integrated socio-economic models for predicting the response of terrestrial ecosystems to climate
- Tools for informing local and regional decision-making

SR1.5 pointers to AR6 WGII

Overarching challenges

- Transformative adaptation and adaptation pathways
- Governance mechanisms across scales; barriers and enablers for adaptation
- Involvement of Indigenous and local communities and their knowledge in adaptation
- Regional information on adaptation options; monitoring and evaluating progress of adaptation
- Avoiding maladaptation; socio-cultural perspectives on impacts of adaptation options (e.g., conservation agriculture, coastal protection, agroforestry, biodiversity management)

SR1.5 pointers to AR6 WGII

Complexity aspects

- Cumulative effects of multiple stresses and risks, e.g., increased storm intensity interacting with sea level rise and the effect on coastal people; feedback on wetlands due to climate change and human activities
- Synergies and trade-offs with adaptation, mitigation and sustainable development, e.g., energy and water sectors, food production systems, carbon dioxide removal (CDR), biodiversity conservation, poverty alleviation, competition for land

AR6 WGII – highlight: Cities & Climate Change

Urban areas:

- ~70% global fossil fuel CO_2 emissions
- contain 54% world population (2014)
- Asian and African cities to contain 60% world population by 2050
- are key in understanding and managing global climate impacts and risk
- New Urban Agenda – Habitat III conference 2016
- focus theme in WGII AR6, including cities chapter and cross-chapter paper

Balancing AR6 with Upcoming Special Reports

2019: Ocean and Cryosphere

- High mountain areas (Ch. 2), Polar regions (Ch. 3)
- Sea level rise; implications for low-lying islands, coasts, communities (Ch. 4; CC-Box)
- Changing ocean, marine ecosystems, dependent communities (Ch. 5)
- Extremes, abrupt changes, managing risks (Ch. 6)

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2019: Land

- **Desertification (Ch. 3), Land degradation (Ch. 4), Food security (land) (Ch. 5)**
- **Risk management, decision making with respect to sustainable development (incl. institutions, governance) (Ch. 6)**

Q & A

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INTERGOVERNMENTAL PANEL ON climate change

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Scenarios

- common set of scenarios across WGs
- consistent set of indicators to use across WGs
- guidance document on scenarios and their uses

Regional aspects

- Attributes of climate information (variables and processed derivatives, resolution in time and space) need to be determined by characteristics of impacted systems and regions
- Provide transparent assessment of robustness of information/observations as a team, including assessment of the principles and approaches to interpretation
- Align/harmonize information from WGI with assessment of regional literature by WGII
- Distinguish more clearly between attribution to human influence on climate and attribution to observed climate change (the former applies to climate variables while the latter applies to impacts)
- Define extreme events from the perspective of impacts

Risk Framework

- knowledge base of risk
- different degrees of quantification
- Broadened view of risk, but still within IPCC boundaries
- WGI/WGII coordination to produce probabilistic information on climate events for risk calculations
- application of risk assessment to WGIII topics, e.g., risks of application of new technologies to mitigation
- visibility to human and social factors and social impacts, especially risks to most vulnerable people, ethical aspects
- many stakeholders – including business community, finance, insurance
- flipside of risks – opportunities, inclusion of solutions to climate risk problems
- mitigation and adaptation measures to reduce risk

Aadaptation mitigation interactions

- addressed in sectoral chapters (Ch. 2-8; incl. impacts of mitigation, and interactions between adaptation-mitigation)
- Synergies and trade-offs of sustainable development, adaptation, and mitigation assessed specifically (Ch. 18)
- analysis of economic and social benefits of mitigation and adaption (incl. avoided impacts), with respect to sustainable development
- social aspects (e.g., geopolitical, gender, ethnic, equity) of impacts of adaptation and mitigation, with respect to sustainable development

Geoengineering

primarily WGI–WGIII interaction

WGII involvement

- consequences on permafrost, carbon cycle, land use and change
- blue carbon context of adaptation and mitigation impacts and interactions
- impacts and feedbacks from geoengineering
- social acceptability, governance and risks of geoengineering

Global Stocktake

- across all WG
  - mitigation, adaptation and financing and support
- WGII specific
  - assessment of guidance and development of metrics for adaptation progress across scales
  - assessment of adaptation needs and costs, risks and vulnerability
  - past and future adaptation policy options
- WGII and WGIII
  - Interactions of adaptation needs and limits with mitigation