Concepts, approaches and indicators to guide adaptation

Based on the Key Findings of the AR6 Report on Impacts, Adaptation and Vulnerability

Presenting on behalf of the IPCC Working Group II Author Team

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Some main considerations for adaptation goal settings

1. What is the state of adaptation we are aiming for? (for whom and how): eg surviving (Level 1) all the way to thriving (Level 4). What is the future we envision?

2. How can these efforts meet multiple adaptation goals?

3. How do we enable adaptation, monitor local to global, and avoid unintended consequences?

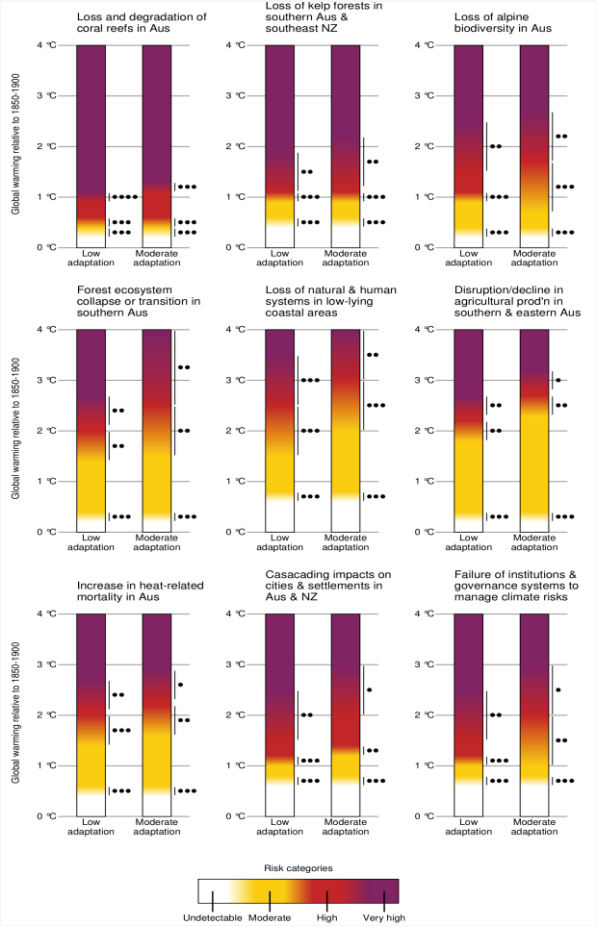
4. How do we make sure adaptation is not merely about returning to status quo?

Effective management of climate risks requires systematic integration of adaptation across interacting climate risks

Since AR5, M&E application has progressed but still in early stages: national systems developed but less on actual implementation.

Increasing ambition to evaluate success and effectiveness but challenges remain: lack of data and agreement on methods

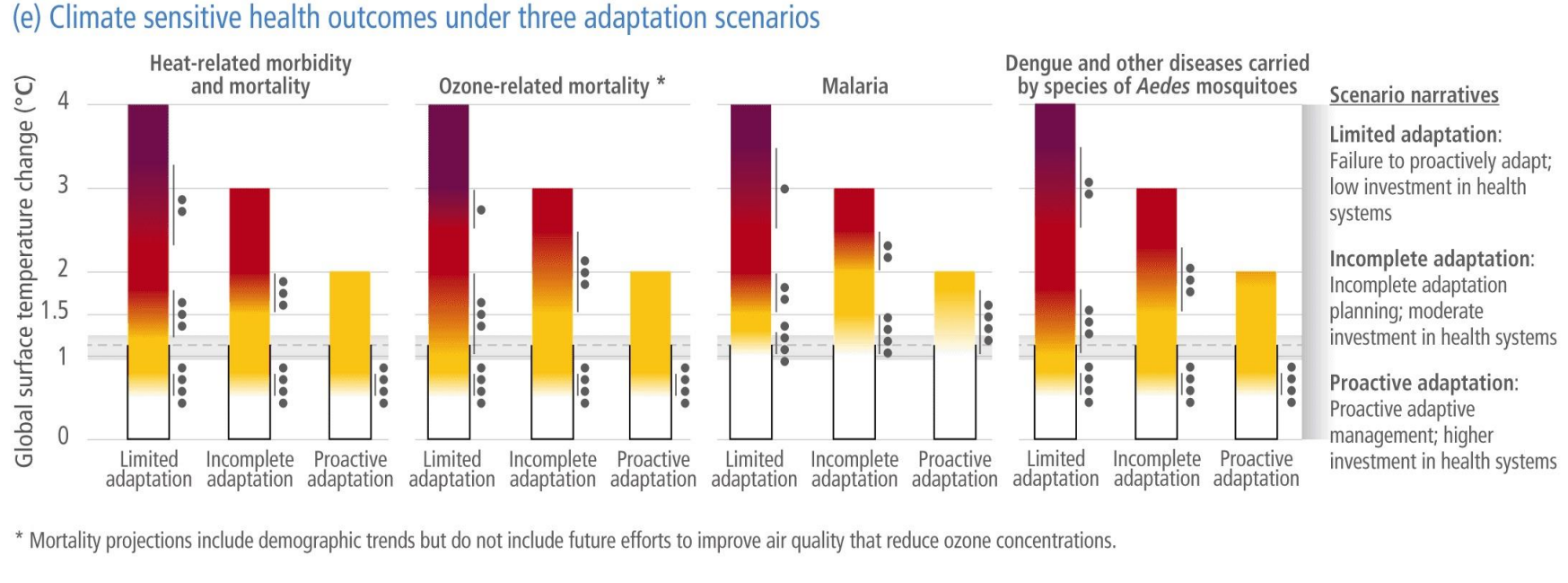
170 countries have policies on adaptation but few operational frameworks to evaluate adaptation



Evaluating progress at all scales

- Monitoring and evaluation (M&E) of adaptation measures is critical to tracking progress by project and portfolio
  - *Aggregate risk reduction can be presented at the regional and sectoral level through burning ember assessments*
- Monitoring of multiple outcomes, rather planning and implementation, is critical for tracking the effectiveness and progress of adaptation.
- M&E systems are most effective when supported by capacities and resources and embedded in enabling governance systems.

Setting a global goal for adaptation



SPM Figure 3 (panel e): Global and regional risks for increasing levels of global warming

Benefit to humans and ecosystems
from representative adaptation options

Confidence level
• Low •• Medium ••• High

Benefits of each adaptation option for ecosystems and ecosystem services

Breadth of applicability of each adaptation option benefiting humans

	Can reduce the exposure or vulnerability **of specific groups of people** i.e. <1 billion people	Can reduce the exposure or vulnerability **of many people** i.e. between 1–5 billion people	Can reduce the exposure or vulnerability **for most people in the world** i.e. >5 billion people
Highly beneficial	- Ecosystem-based adaptation (•••)	- Minimizing ecosystem stressors (••)	- Nature restoration (•••) - Diets/food waste (•••)
Moderately beneficial	- Strategic coastal retreat (•••) - Efficient water use/demand (••) - Seasonal/temporary mobility (••) - Permanent migration (••)	- Diversification of livelihoods (••) - Farm/fishery practice (•••)	- Infrastructure retrofitting (•••) - Building codes (••) - Disaster early warning (•••) - Governance cooperation (••)
No clear and different benefits / harms	- Coastal accommodation (••) - Food storage/distribution (••) - Water supply/distribution (•)	- Social safety nets (•) - Water capture/storage (•)	- Spatial planning (•) - Availability of health infrastructure (••) - Access to health care (••)
Worsens the situation	- Coastal infrastructure (•••)	- Insurance (••)	

Chapter 17, Figure 17.3. : Benefits of representative adaptation options to humans and ecosystems

The wider benefits of adaptation

Restored and connected habitats can provide corridors for vulnerable species

SDG 1: No poverty

Green buildings, green spaces, clean water, renewable energy, sustainable transport – in cities

SDG 3: Good health and wellbeing

For more than 3.4 billion people in rural areas: improved roads, reliable energy, clean water, food security

SDG 10: Reduced inequality

Policies that increase youth access to land, credit, knowledge and skills can support agri-food employment

SDG 14/15: Life on land & below water

Evidence of climate change impacts in many regions of the world

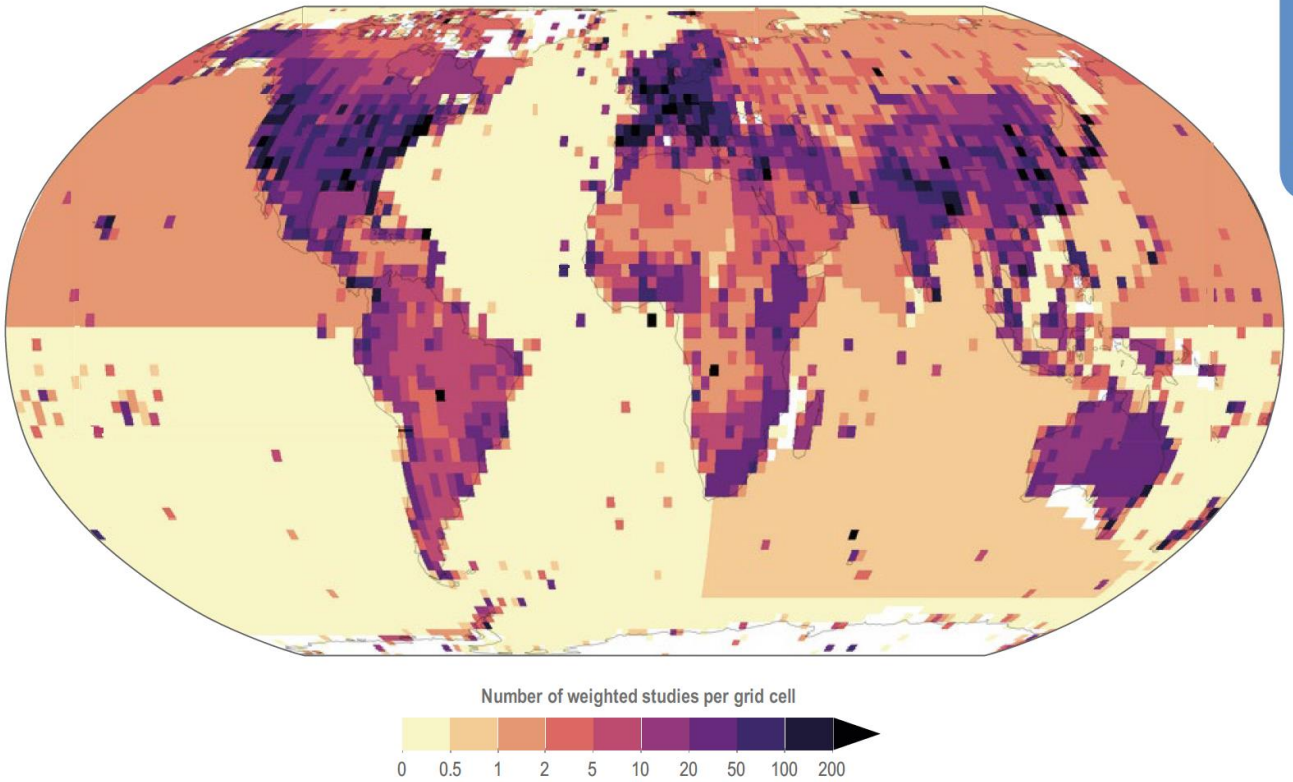
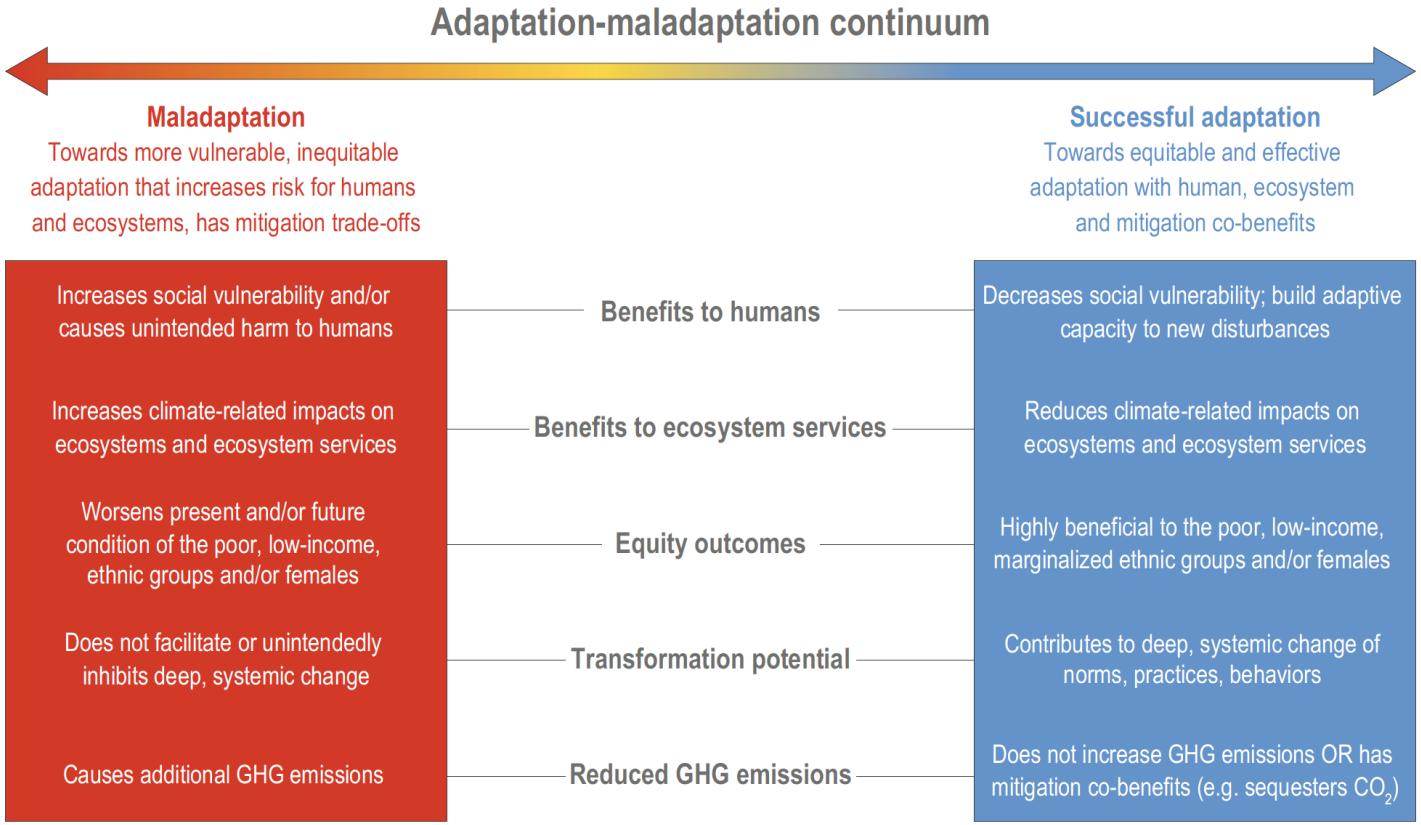


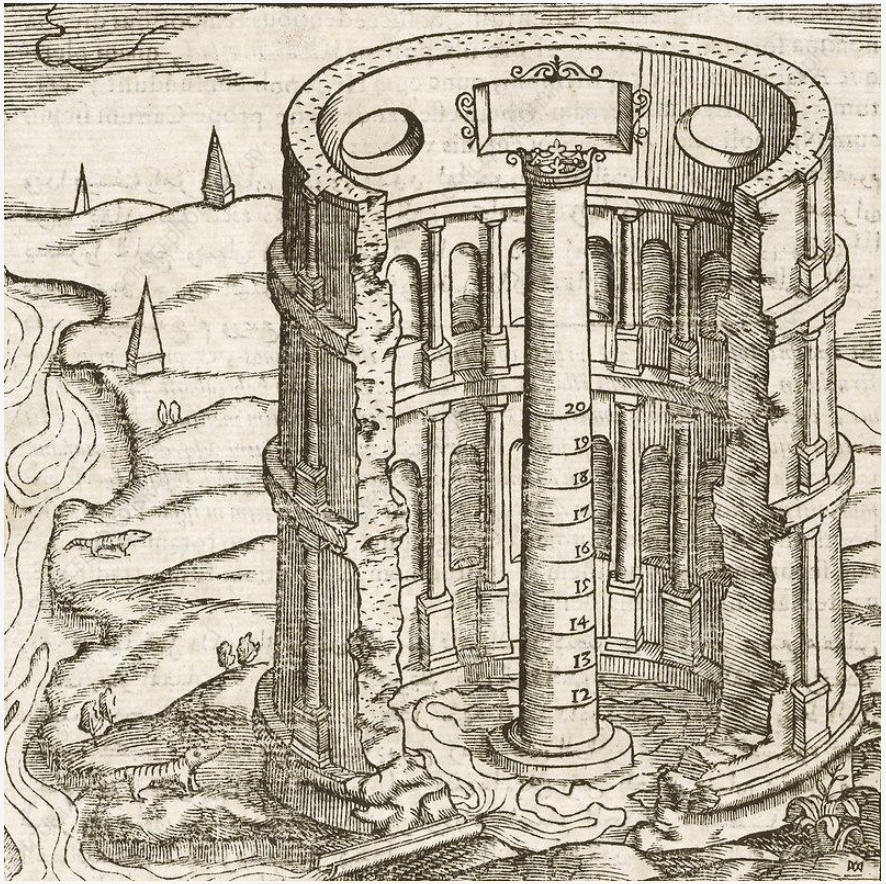
Figure 1.1 | Evidence of climate change impacts in many regions of the world. Global density map shows climate impact evidence, derived by machine-learning from 77,785 studies. Map colouring denotes the number of weighted studies per grid cell for all evidence on climate impacts (N= 77,785). Figure adopted from Callaghan et al. (2021).



Chapter 17, Figure 17.10: Adaptation-maladaptation continuum

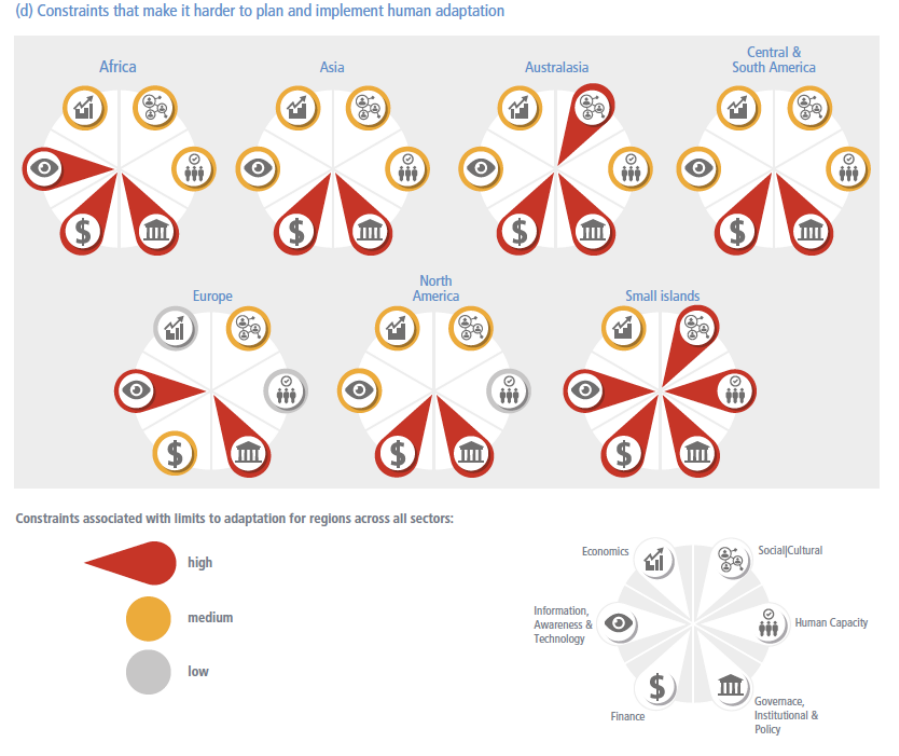
There are limits to adaptation

- Even effective adaptation cannot prevent all losses and damages
- Above 1.5°C some natural solutions may no longer work.
- Above 1.5°C, lack of fresh water could mean that people living on small islands and those dependent on glaciers and snowmelt can no longer adapt.
- By 2°C it will be challenging to farm multiple staple crops in many current growing areas.



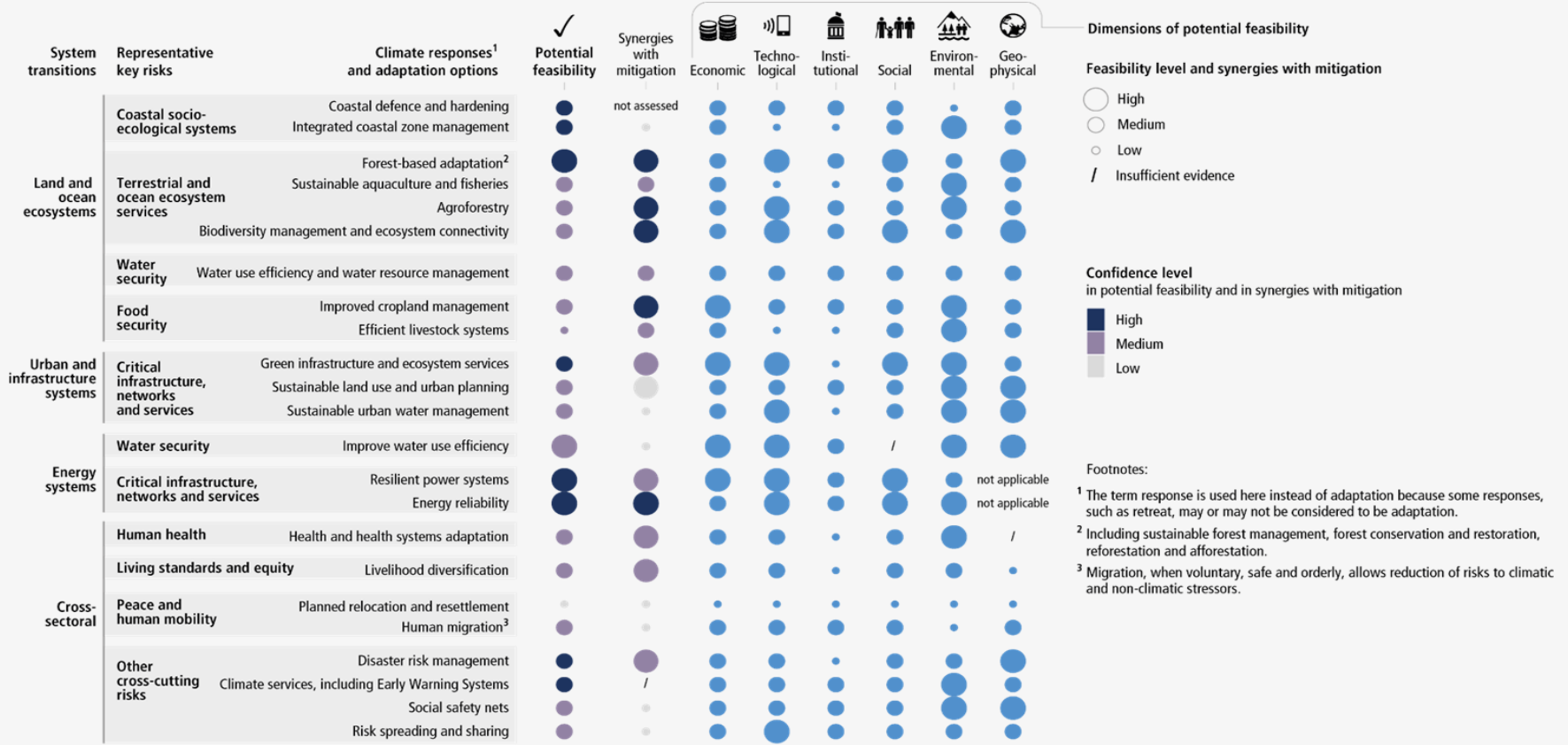
Some indicators are quantitative

Capturing the key dimensions of what matters



- Adaptation limits are being reached, but this is arising for different reasons.
- These differences can be revealed through a relatively small number of key dimensions.
- Where actions, policies and programs are associated with these key dimensions, then progress can be tracked in efforts to reduce constraints to adaptation.

The Feasibility of Adaptation measures



IPCC WGII AR6 SPM Figure 4a

SIXTH ASSESSMENT REPORT

Working Group II – Impacts, Adaptation and Vulnerability

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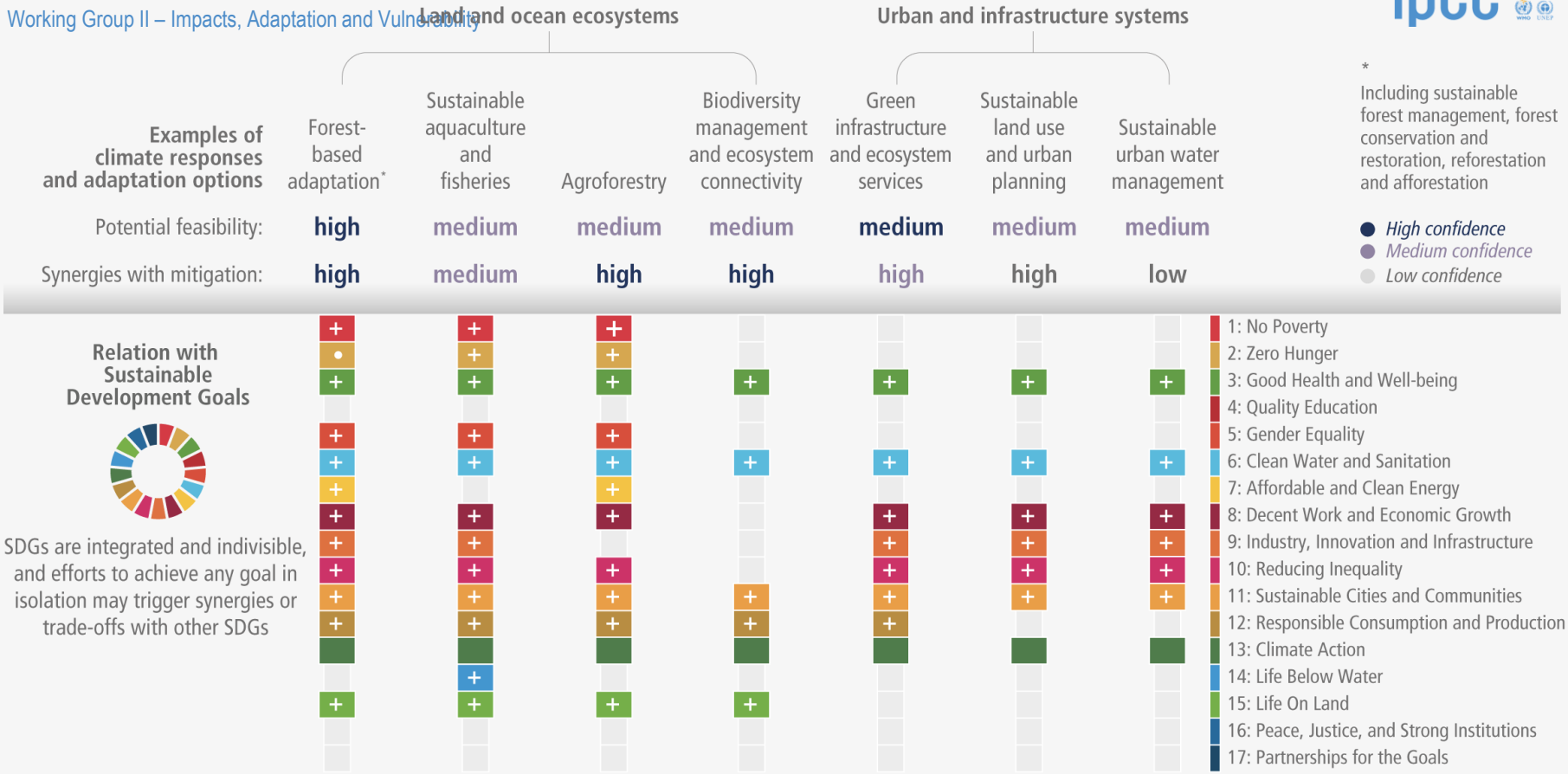
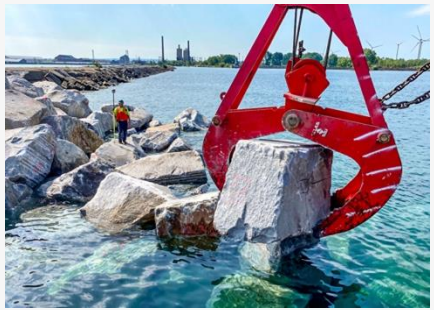
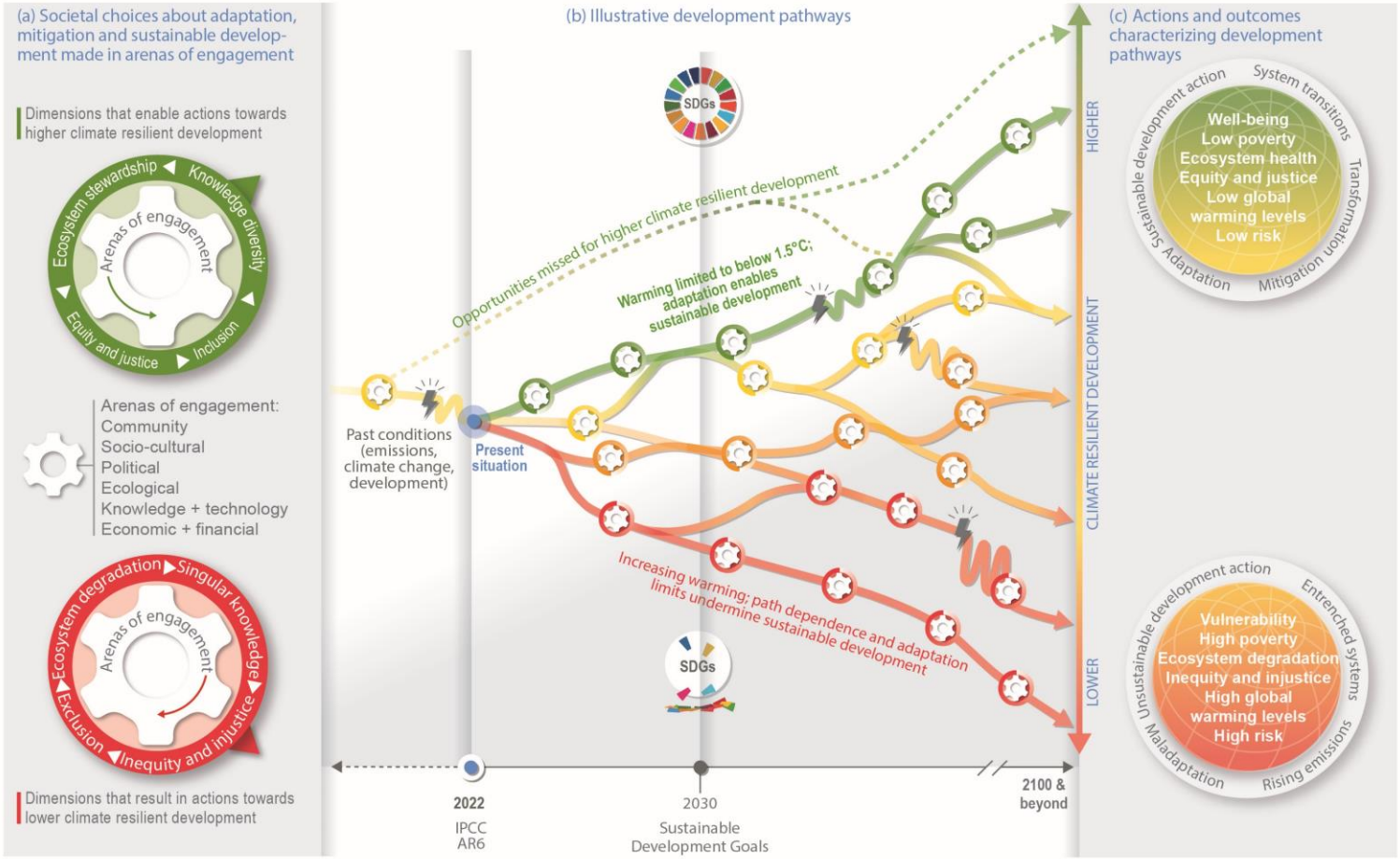


The critical role of finance

- Most finance targets emissions reductions rather than adaptation
- Current global financial flows are insufficient for near-term adaptation needs
- Financial flows in many sectors are deepening risks and increasing future needs
- Lower economic performance, impacted by climate, constrains investment capacity, especially in lower income regions




(a) Societal choices about adaptation, mitigation and sustainable development made in arenas of engagement
Dimensions that enable actions towards higher climate resilient development
Ecosystem stewardship
Knowledge diversity
Arenas of engagement
Equity and justice
Inclusion
Arenas of engagement:
Community
Socio-cultural
Political
Ecological
Knowledge + technology
Economic + financial
Ecosystem degradation
Singular knowledge
Arenas of engagement
Exclusion
Inequity and injustice
Dimensions that result in actions towards lower climate resilient development
(b) Illustrative development pathways
SDGs
Opportunities missed for higher climate resilient development
Warming limited to below 1.5°C; adaptation enables sustainable development
Past conditions (emissions, climate change, development)
Present situation
Increasing warming; path dependence and adaptation limits undermine sustainable development
SDGs
HIGHER
CLIMATE RESILIENT DEVELOPMENT
LOWER
2022
IPCC AR6
2030
Sustainable Development Goals
2100 & beyond
(c) Actions and outcomes characterizing development pathways
Sustainable development action
System transitions
Transformation
Adaptation
Mitigation
Well-being
Low poverty
Ecosystem health
Equity and justice
Low global warming levels
Low risk
Unsustainable development action
Entrenched systems
Maladaptation
Rising emissions
Vulnerability
High poverty
Ecosystem degradation
Inequity and injustice
High global warming levels
High risk
Illustrative climatic or non-climatic shock, e.g. COVID-19, drought or floods, that disrupts the development pathway
Narrowing window of opportunity for higher CRD

Societal choices are the result of multiple decisions made by multiple actors in diverse arenas of engagement

- Multiple government, private sector and civil society actors interact in different arenas of engagement, including economic + financial, knowledge + technology, ecological, political, socio-cultural and **community** arenas.

Arenas of engagement:
Community
Socio-cultural
Political
Ecological
Knowledge + technology
Economic + financial

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Theory
Practice

Thank you!

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