ipcc
INTERGOVERNMENTAL PANEL ON climate change

THE WORKING GROUP II

CONTRIBUTION TO THE IPCC'S FIFTH ASSESSMENT REPORT

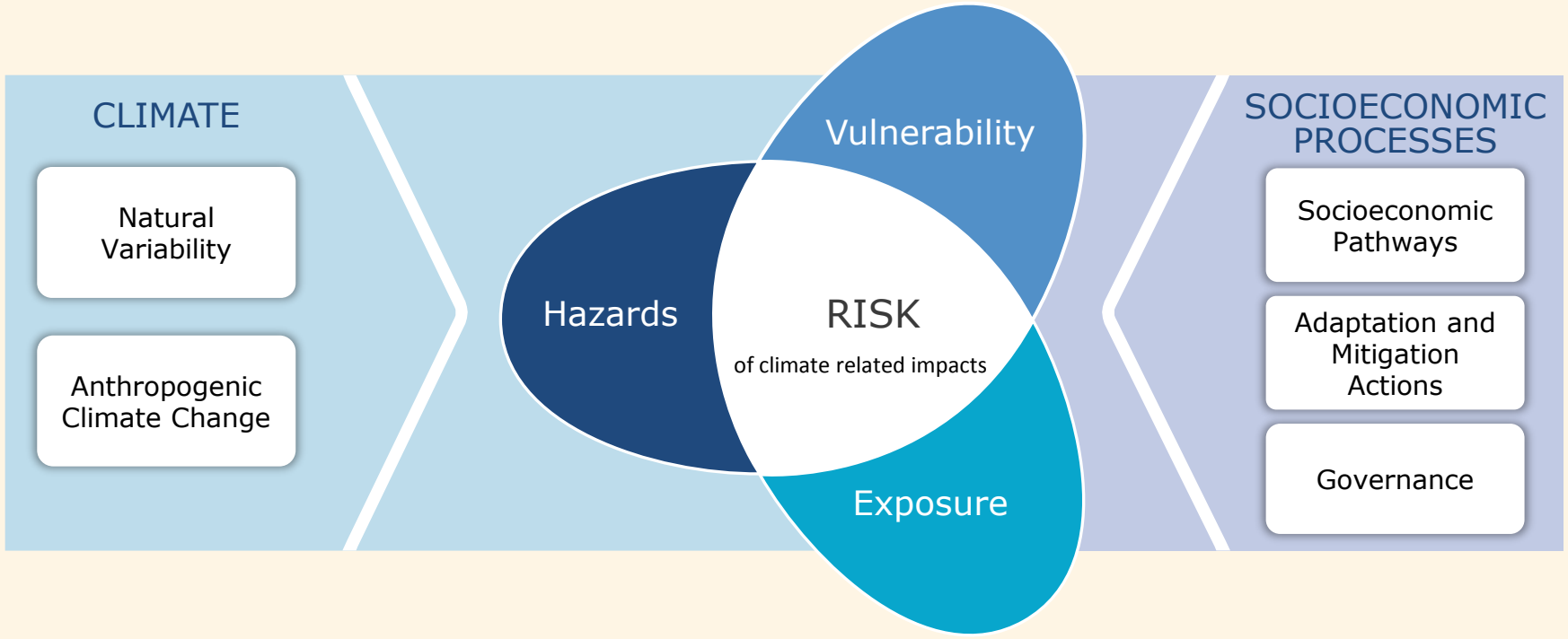
Climate Change 2014: Impacts, Adaptation, and Vulnerability (AR5)

Summary for Policymakers
Technical Summary

ipcc
INTERGOVERNMENTAL PANEL ON climate change

CLIMATE CHANGE 2014:

IMPACTS, ADAPTATION, AND VULNERABILITY

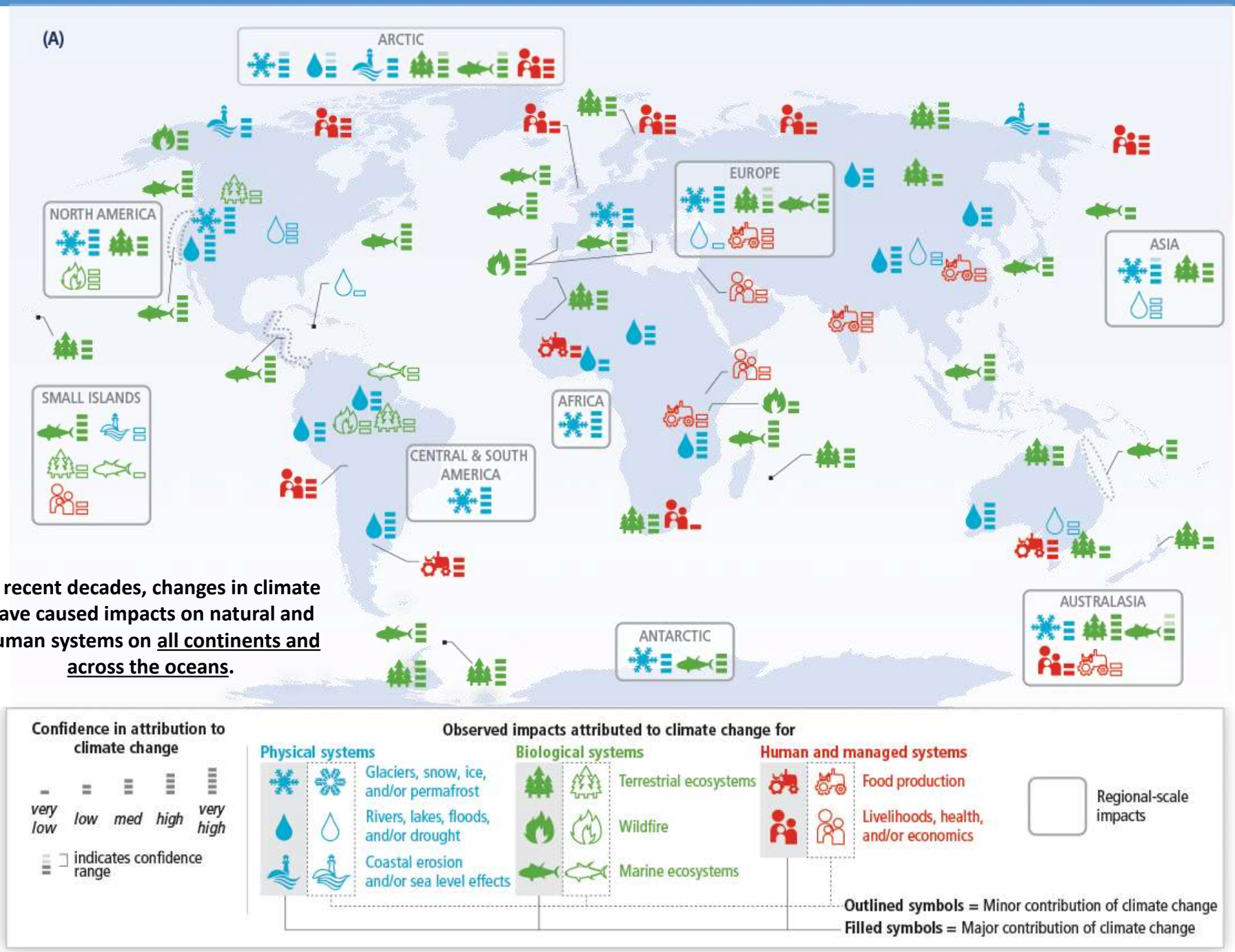

CLIMATE
Natural Variability
Anthropogenic Climate Change
Hazards
Vulnerability
RISK
of climate related impacts
Exposure
SOCIOECONOMIC PROCESSES
Socioeconomic Pathways
Adaptation and Mitigation Actions
Governance

WIDESPREAD OBSERVED IMPACTS

A CHANGING WORLD

ipcc
INTERGOVERNMENTAL PANEL ON Climate change


WIDESPREAD
OBSERVED IMPACTS
A CHANGING WORLD
ipcc
INTERGOVERNMENTAL PANEL ON Climate Change

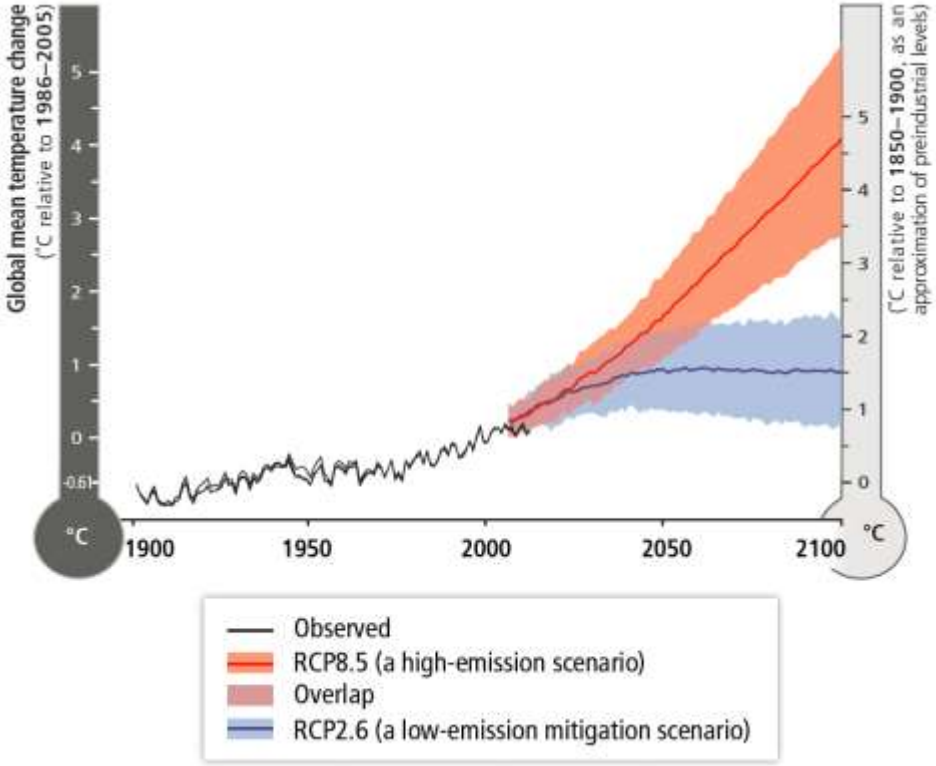


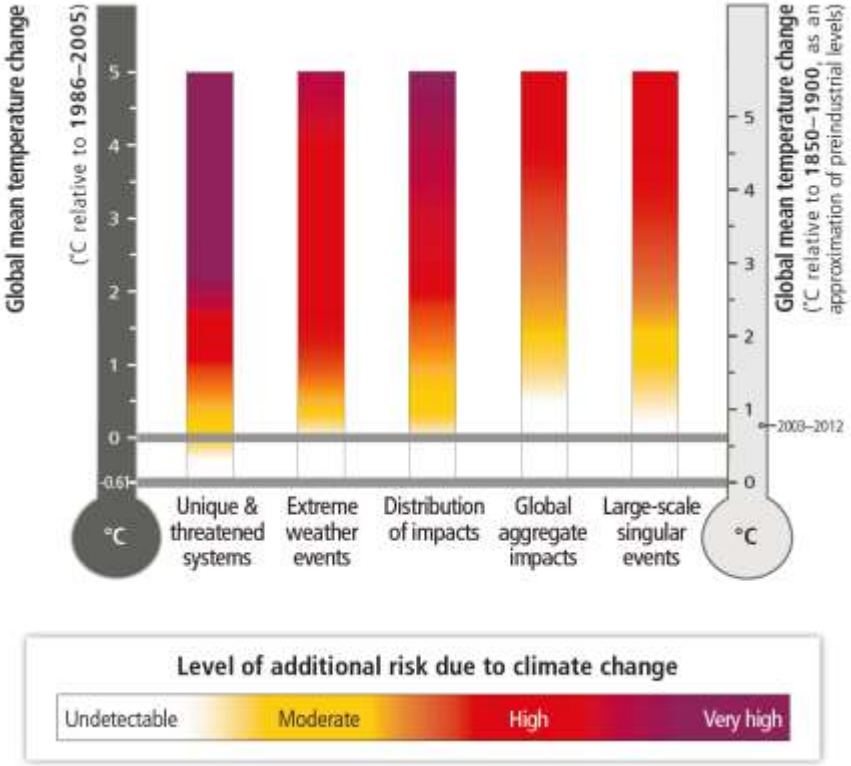
In recent decades, changes in climate have caused impacts on natural and human systems on <u>all continents and across the oceans</u>.


ADAPTATION IS
ALREADY OCCURING
ipcc
INTERGOVERNMENTAL PANEL ON climate change


ADAPTATION IS
ALREADY OCCURING
ipcc
INTERGOVERNMENTAL PANEL ON Climate change


RISKS OF
CLIMATE CHANGE
INCREASE
WITH CONTINUED
HIGH EMISSIONS





Increasing magnitudes of warming increase the likelihood of severe, pervasive, and irreversible impacts.

VULNERABILITY AND EXPOSURE

AROUND THE WORLD

Differences in vulnerability and exposure arise from non-climatic factors and from multidimensional inequalities often produced by uneven development processes. These differences shape differential risks from climate change.

ipcc
INTERGOVERNMENTAL PANEL ON Climate change

Climate Change 2014: Impacts, Adaptation, and Vulnerability (AR5)

Summary for Policymakers
Technical Summary

PART A — GLOBAL AND SECTORAL ASPECTS

Context for the AR5

1. Point of departure
2. Foundations for decisionmaking

Natural and Managed Resources and Systems and Their Uses

3. Freshwater resources
4. Terrestrial and inland water systems
5. Coastal systems and low-lying areas
6. Ocean systems
7. Food security and food production systems

Human Settlements, Industry, and Infrastructure

8. Urban areas
9. Rural areas
10. Key economic sectors and services

Human Health, Well-Being, and Security

11. Human health: impacts, adaptation, and co-benefits
12. Human security
13. Livelihoods and poverty

Adaptation

14. Adaptation needs and options
15. Adaptation planning and implementation
16. Adaptation opportunities, constraints, and limits
17. Economics of adaptation

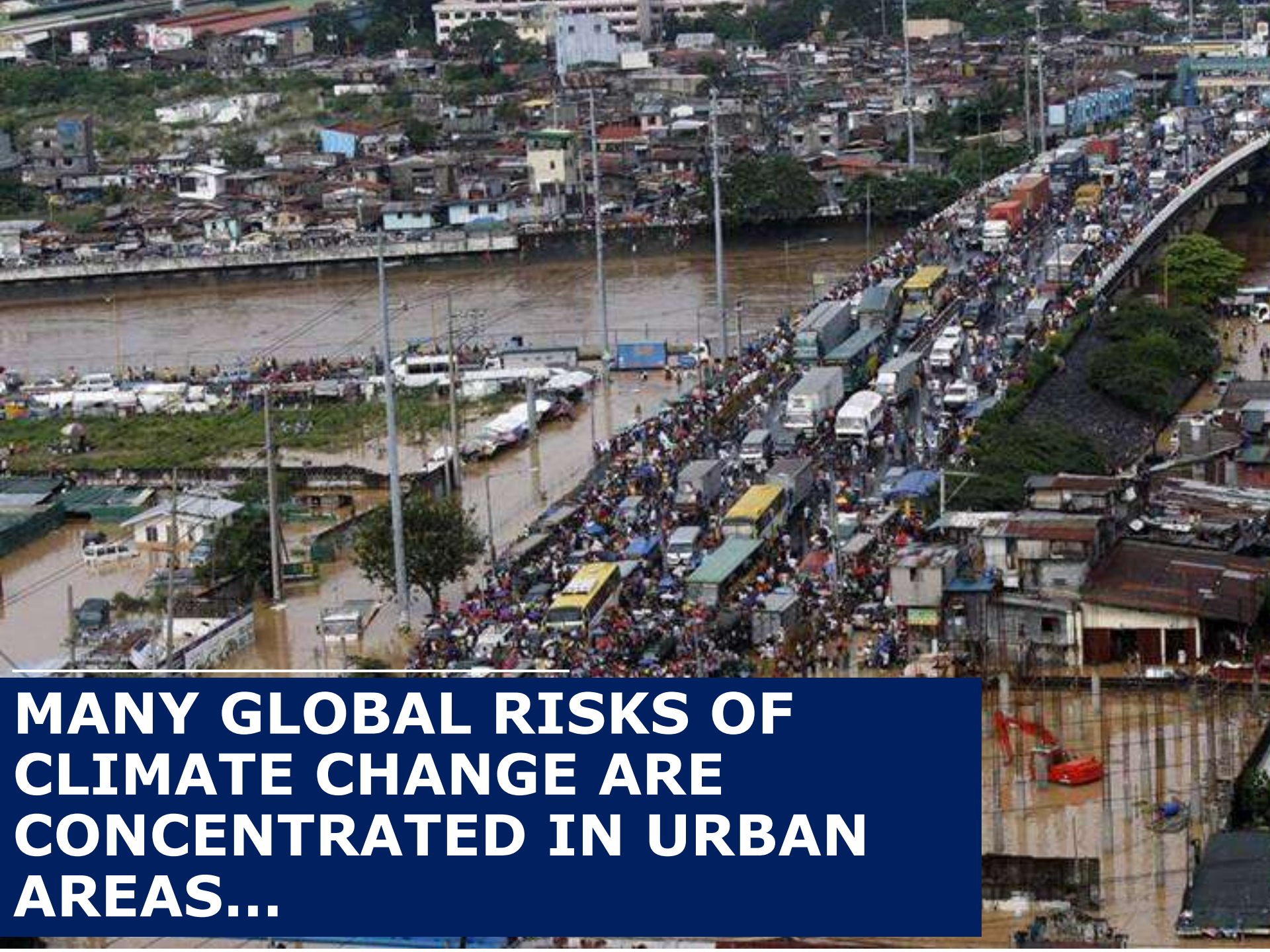
Multi-Sector Impacts, Risks, Vulnerabilities, and Opportunities

18. Detection and attribution of observed impacts
19. Emergent risks and key vulnerabilities
20. Climate-resilient pathways: adaptation, mitigation, and sustainable development

PART B — REGIONAL ASPECTS

21. Regional context
22. Africa
23. Europe
24. Asia
25. Australasia
26. North America
27. Central and South America
28. Polar Regions
29. Small Islands
30. The Ocean

Appendices



MANY GLOBAL RISKS OF CLIMATE CHANGE ARE CONCENTRATED IN URBAN AREAS…

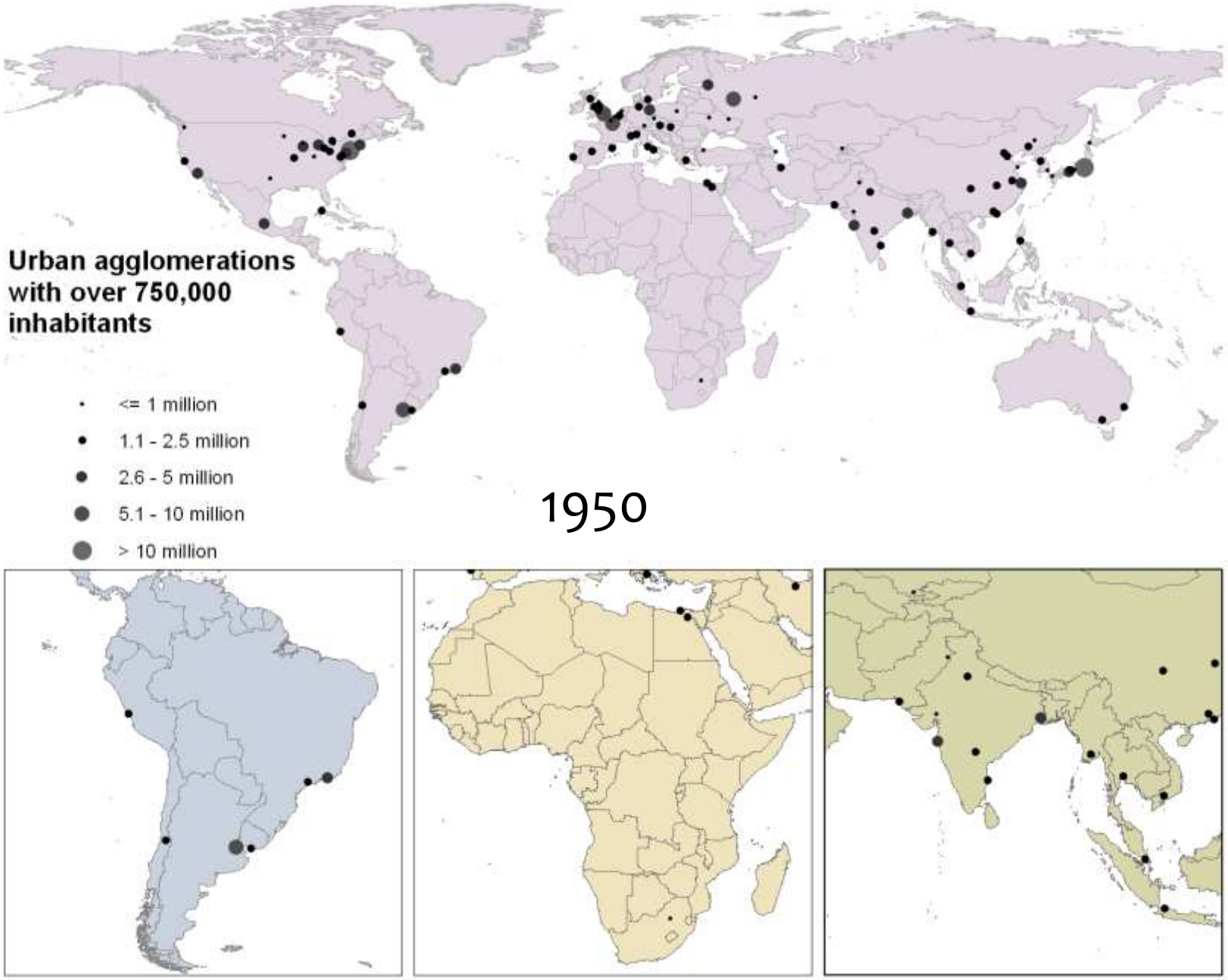
Urban areas concentrate people and assets:

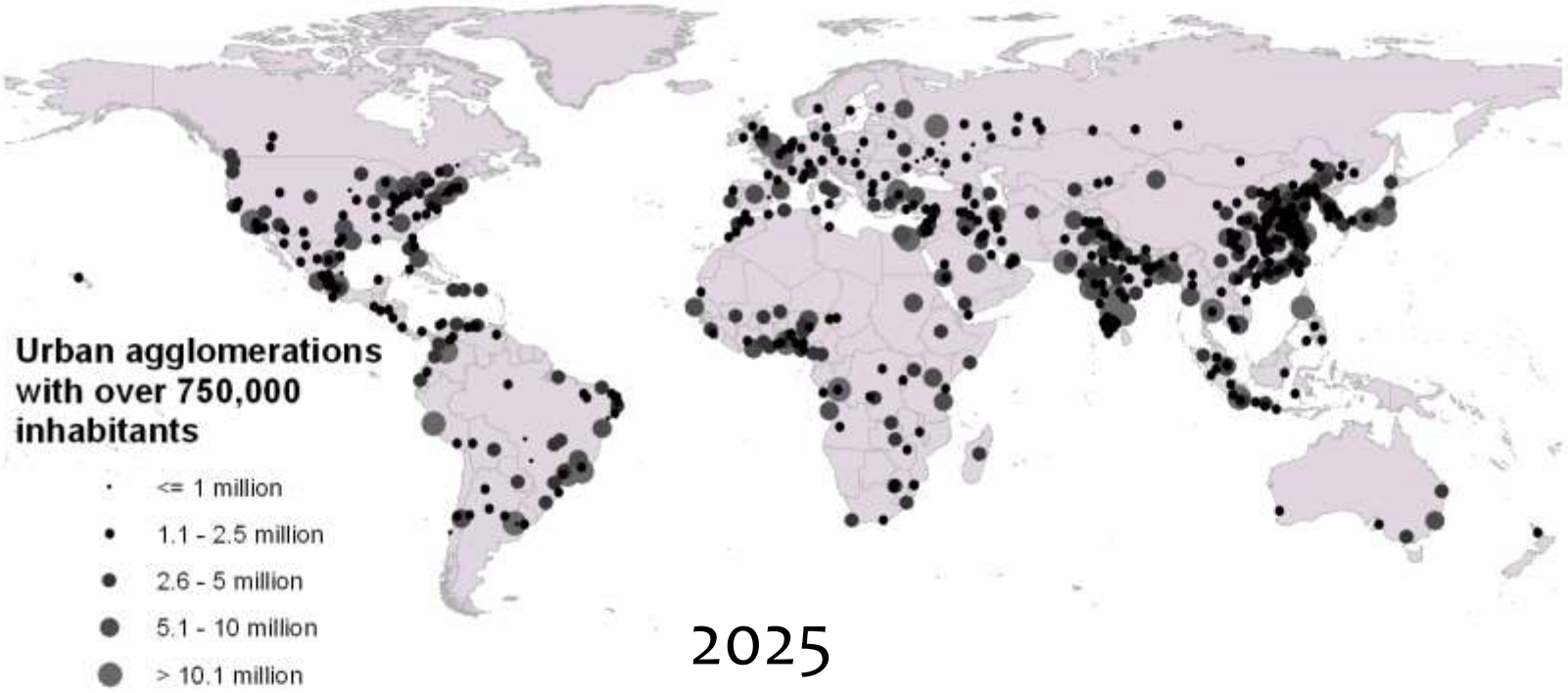
- In 2016 54.5 % of the world's population lived in urban areas. By 2050 a further 2.5 billion people will be added to the world's urban population, with nearly 90% of the increase concentrated in Asia and Africa.

- Most of the world's economy and assets: *600 cities account for 60% of the world's GDP*

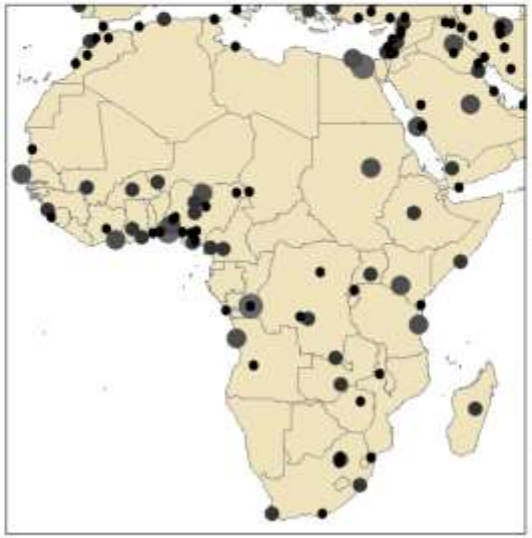
- Makes cities vulnerable to climate change risks – flood, drought, extreme heat (UHI) and precipitation with food security, human health and infrastructural impacts and losses…

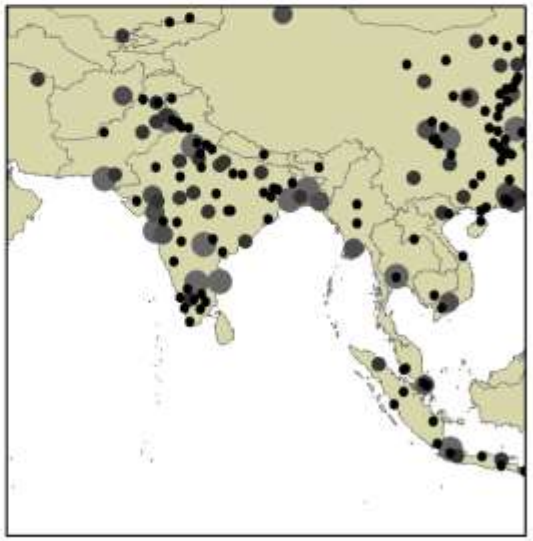
ipcc
INTERGOVERNMENTAL PANEL ON Climate Change


Urban agglomerations with over 750,000 inhabitants
<= 1 million
1.1 - 2.5 million
2.6 - 5 million
5.1 - 10 million
> 10 million
1950


Urban agglomerations with over 750,000 inhabitants
<= 1 million
1.1 - 2.5 million
2.6 - 5 million
5.1 - 10 million
> 10.1 million

2025

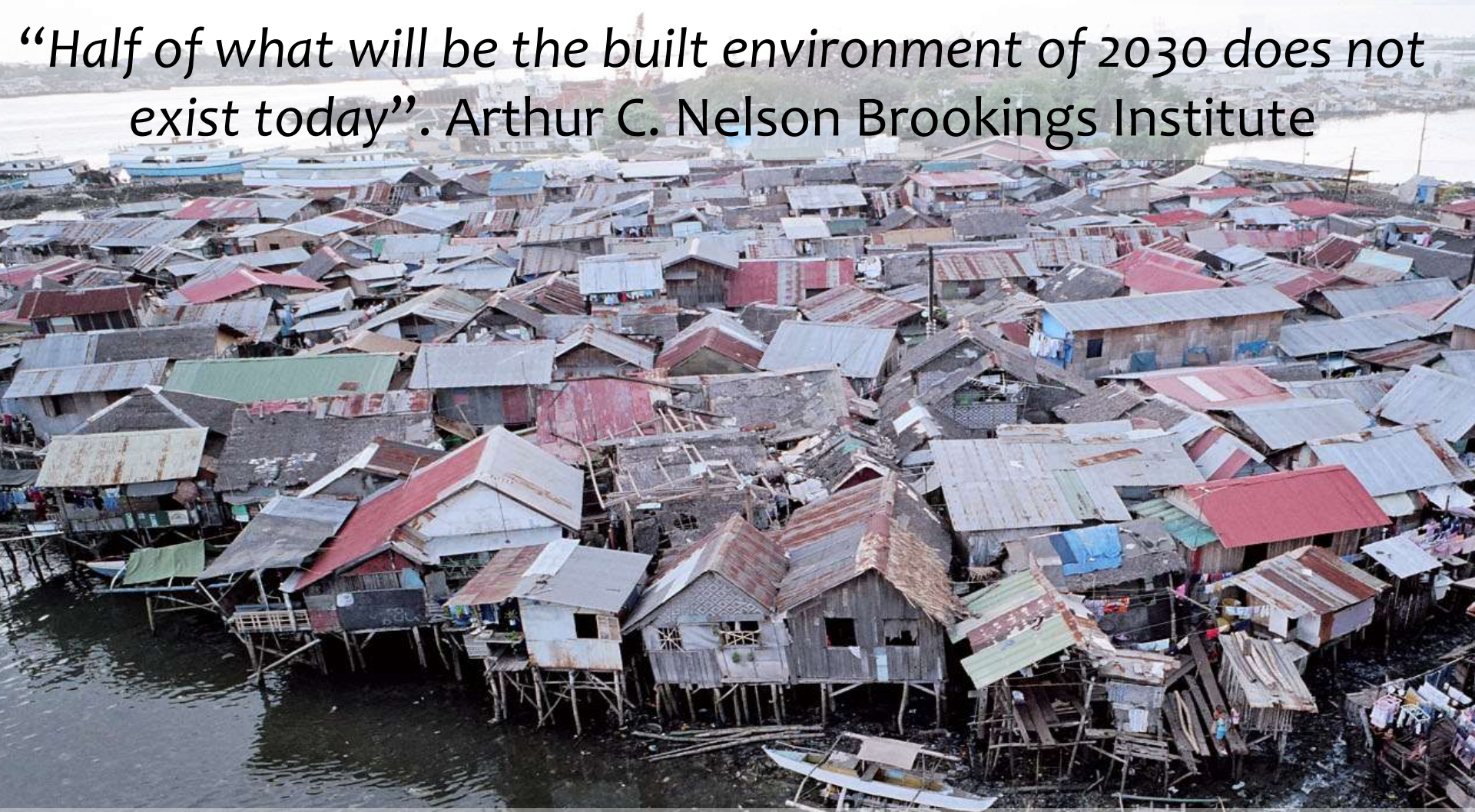




Underdevelopment makes cities vulnerable regardless of the type of risk:

- Very large development and infrastructure deficits
  - *Most of the world's urban population is in low- and middle-income developing countries*
  - *Loss of ecological infrastructure*
  - *A billion living in informal settlements*

"Half of what will be the built environment of 2030 does not exist today". Arthur C. Nelson Brookings Institute



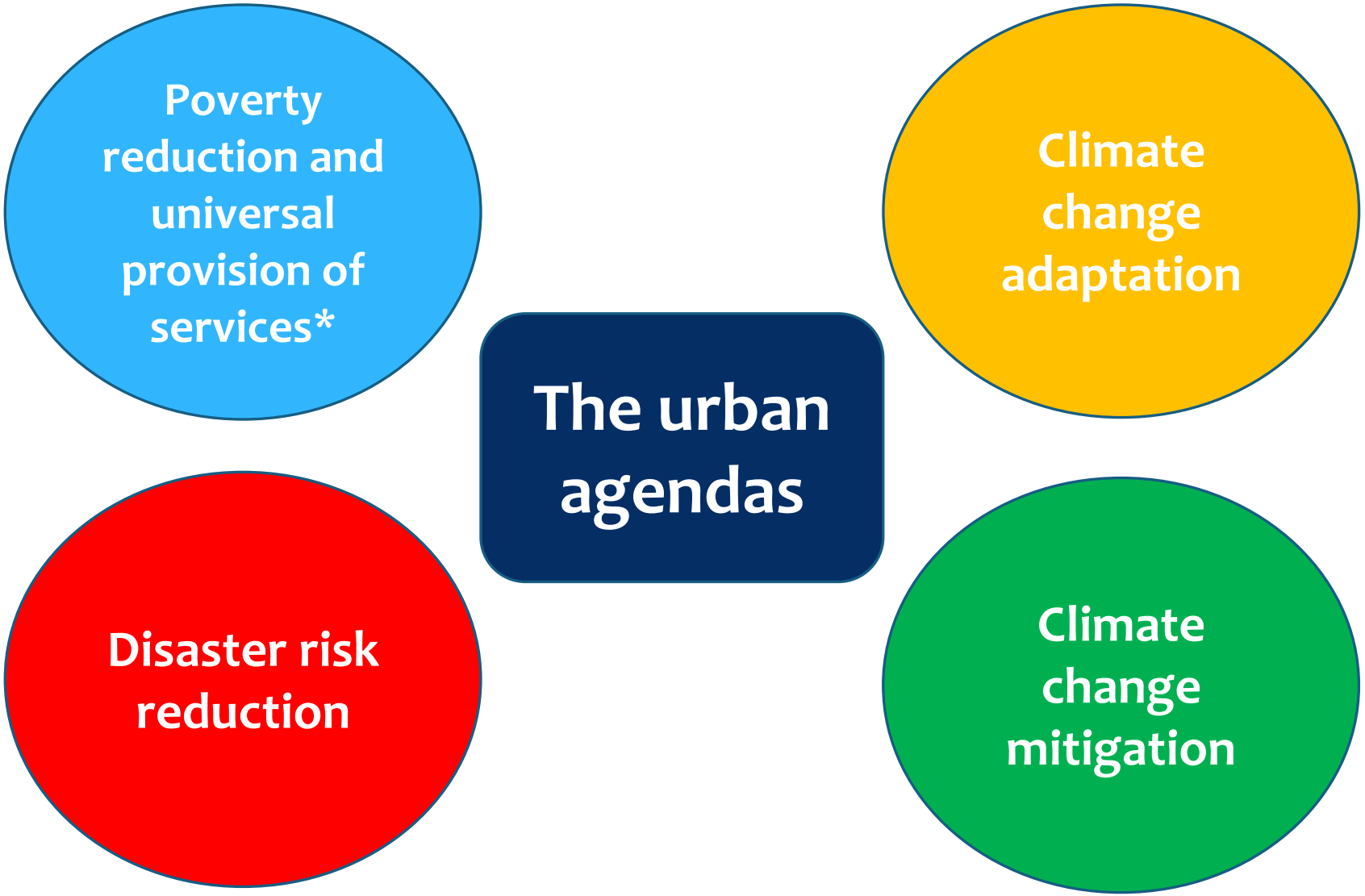
Unique global opportunity: Annual urban infrastructure spend from $10 trillion to more than $20 trillion by 2025, majority spent in urban centers in emerging economies – opportunity of aging infrastructure.

EFFECTIVE CLIMATE CHANGE ADAPTATION

A MORE VIBRANT WORLD

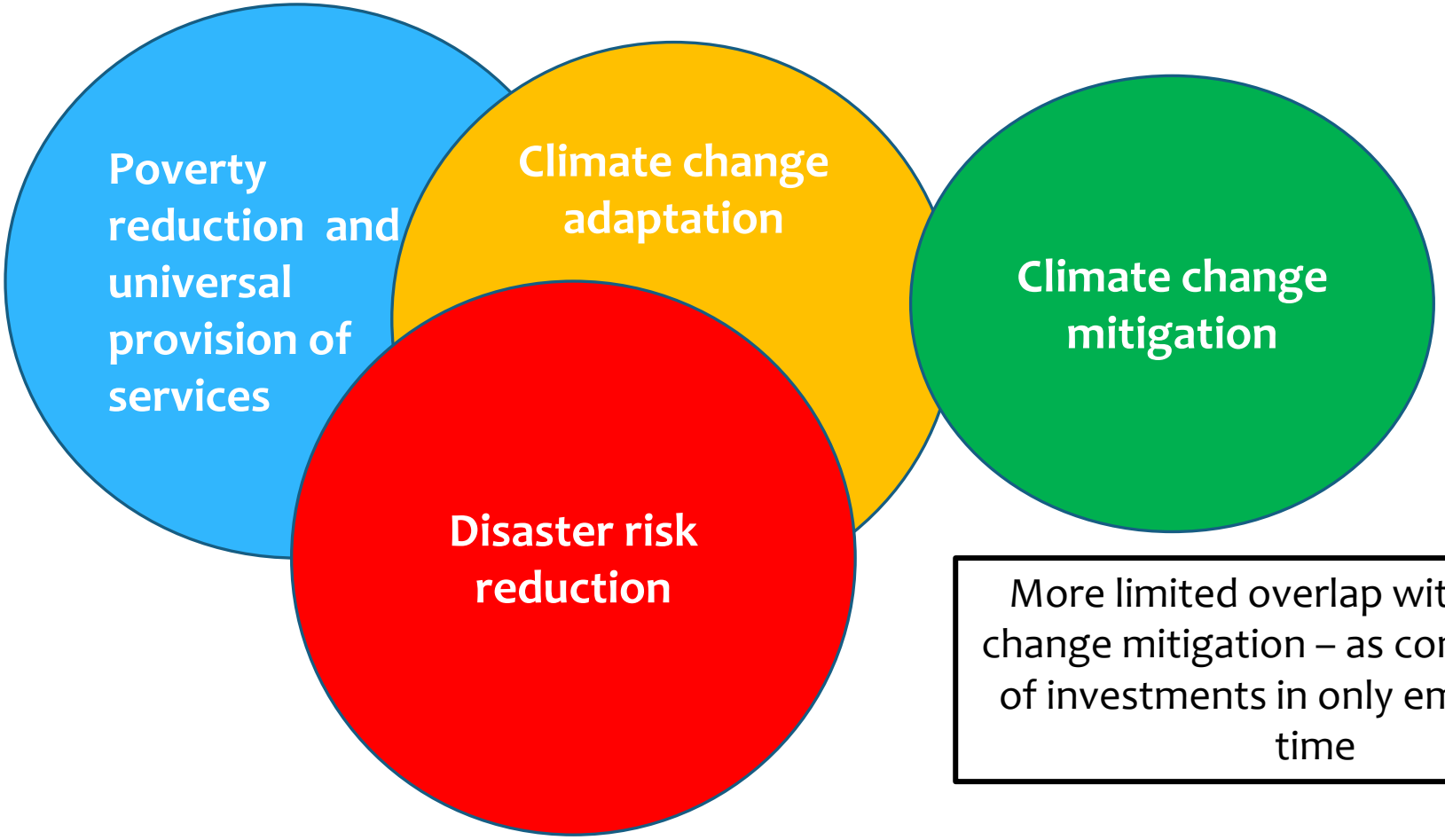
ipcc
INTERGOVERNMENTAL PANEL ON Climate Change

FOCUS ON INTEGRATED DECISION-MAKING TO GENERATE MULTIPLE BENEFITS AND MANAGE TRADE-OFFS



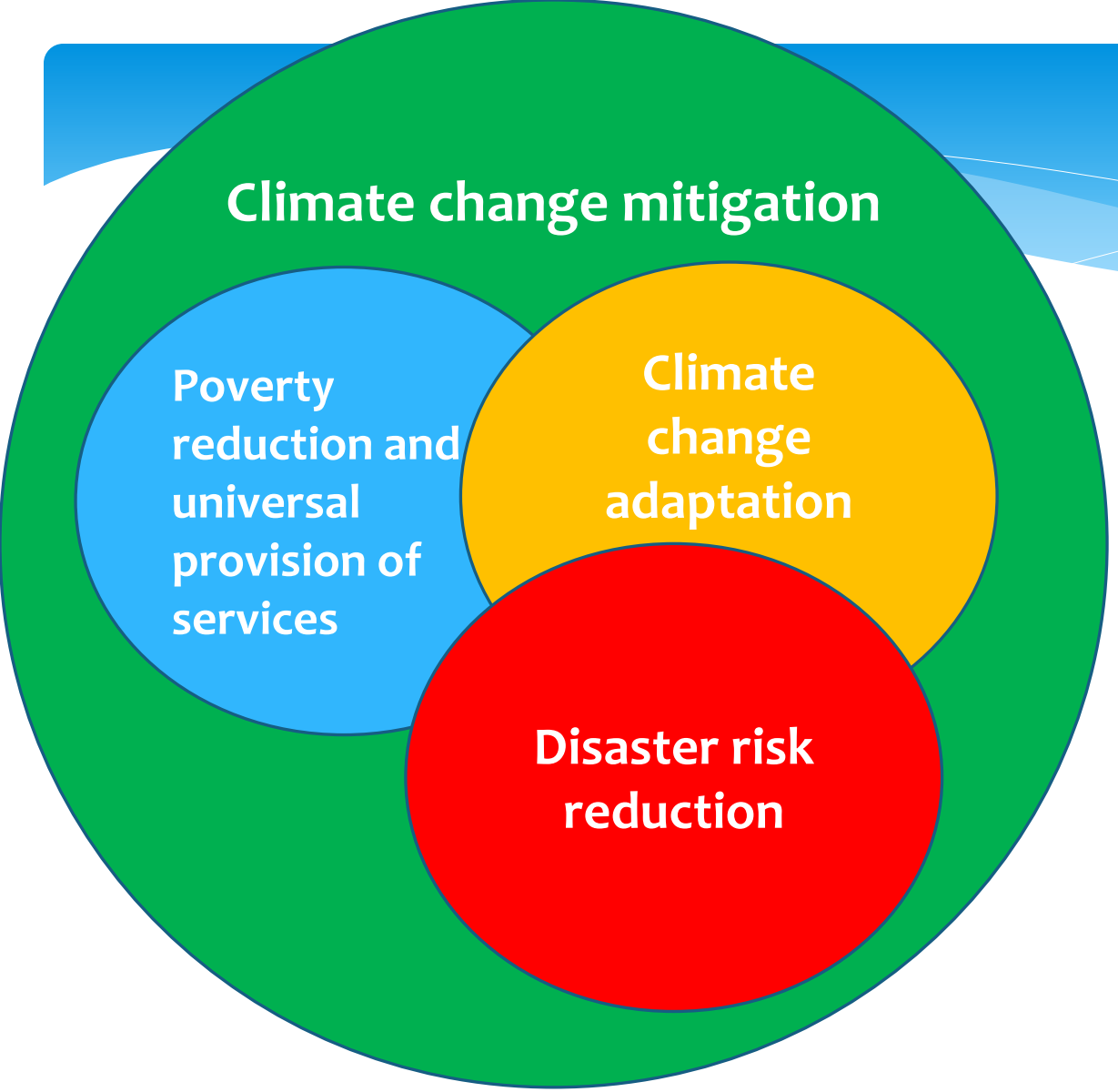
* Following sustainable development principles

Large overlaps especially in low- and lower-middle income nations



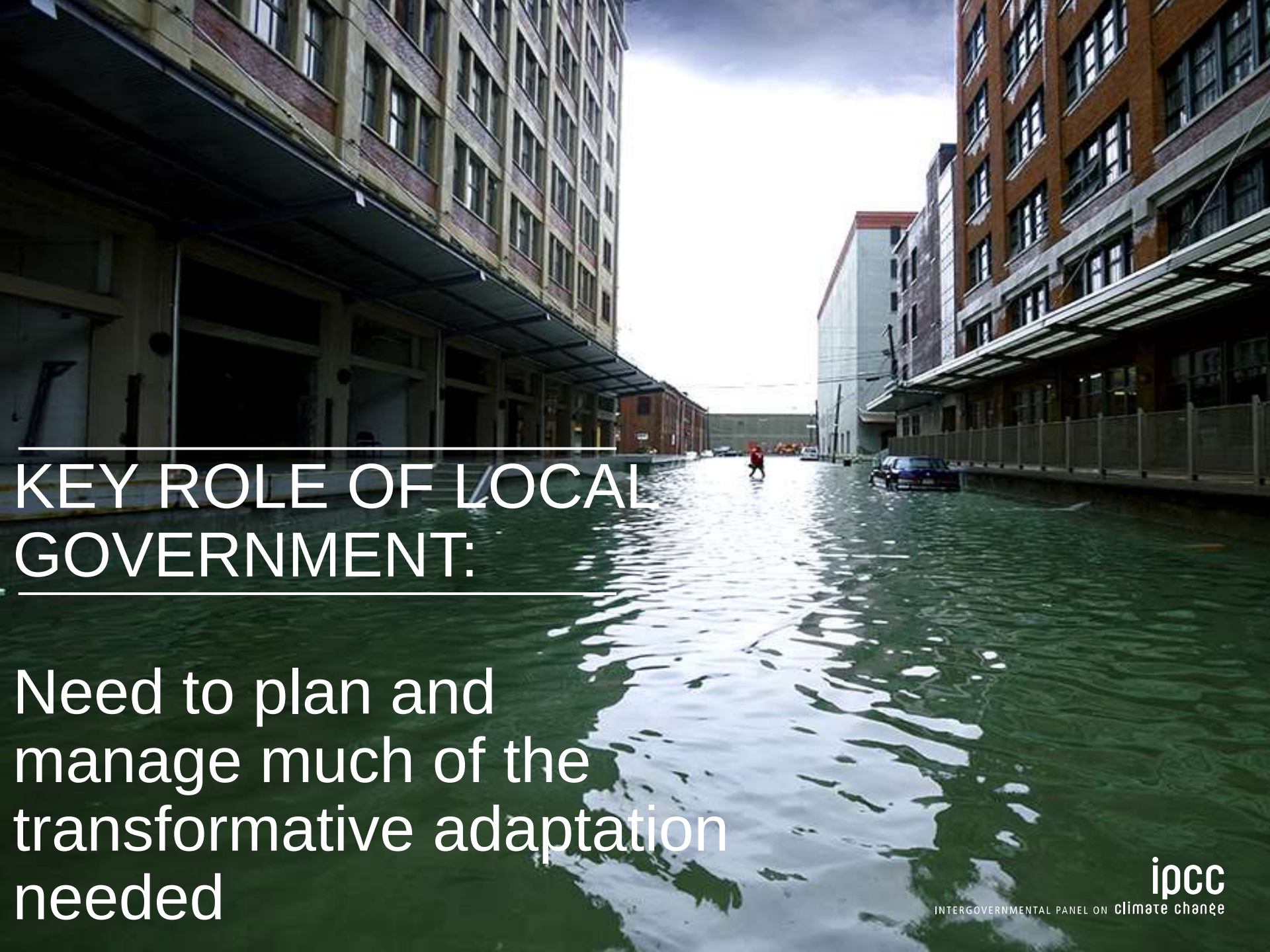
More limited overlap with climate change mitigation – as consequences of investments in only emerge over time

The urban agendas



The urban agendas

- In long-term 'dangerous' climate change has profound influence on the other three
- Date when even strong adaptation cannot reduce risks without mitigation
- **Transformative adaptation**



KEY ROLE OF LOCAL GOVERNMENT:

Need to plan and manage much of the transformative adaptation needed

ipcc
INTERGOVERNMENTAL PANEL ON Climate change

Urban climate governance advantage

- Unique policy competence
  - *Engagement with local stakeholders*
  - *Tap/influence private and household investment*
  - *Economies of scale*
  - *Integrate land use and infrastructure planning to address adaptation and mitigation needs in a pro-poor and ecologically sustainable manner*

Local governments do not have all the right policy levers nor the resources to get the job done

Effective urban climate risk governance

- *Appropriate mandates – to avoid hitting resource or policy 'glass ceiling'.*
- *Local powers for good planning and managing land use change*
- *Alignment across national, sub-national, local policies*
- *Access to locally relevant, timely climate data and assessment tools, recognize and work with uncertainty*
- *Iterative decision-making including monitoring and design for continuous learning*
- *Leadership matters!*

Thank you

Dr Debra Roberts
IPCC Co-Chair WGII AR6

Sustainable and Resilient Cities
Initiatives Unit
Ethekwini Municipality
Durban, South Africa

debra.roberts@durban.gov.za