

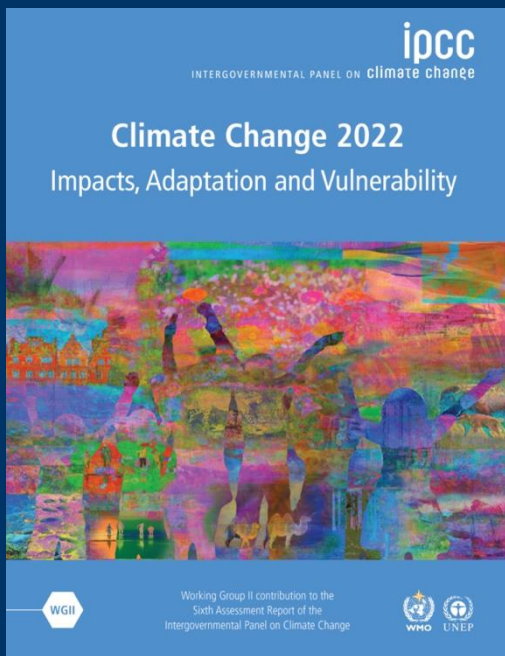
Key Findings of the AR6 Report on Impacts, Adaptation and Vulnerability

Part I: Impacts and Risks

IPCC Working Group II Author Team

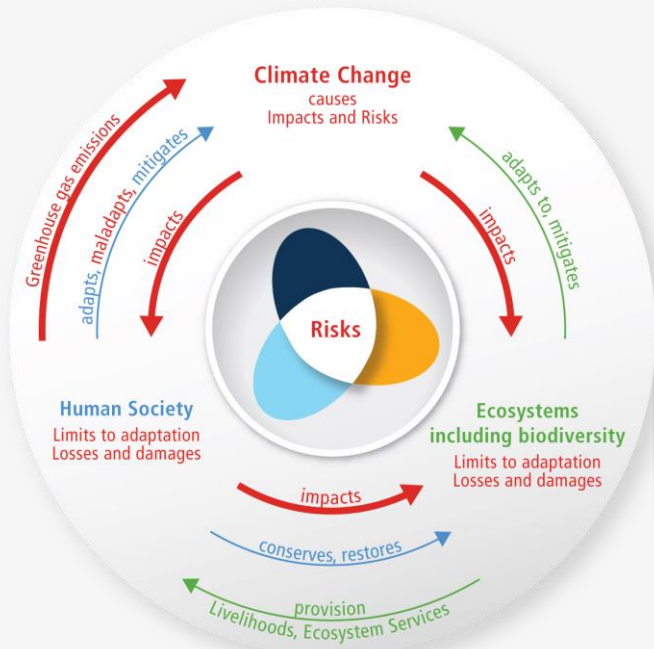


Ocean Image Bank/M.
Curnock, S. Baldwin,
CC BY-NC-ND 2.0; Y.
Ishida/UNDP T. Leste
CC BY-NY 2.0



The scientific evidence is clear:
Climate change is a threat to
human well-being and the
health of the planet.

Current imbalance ...

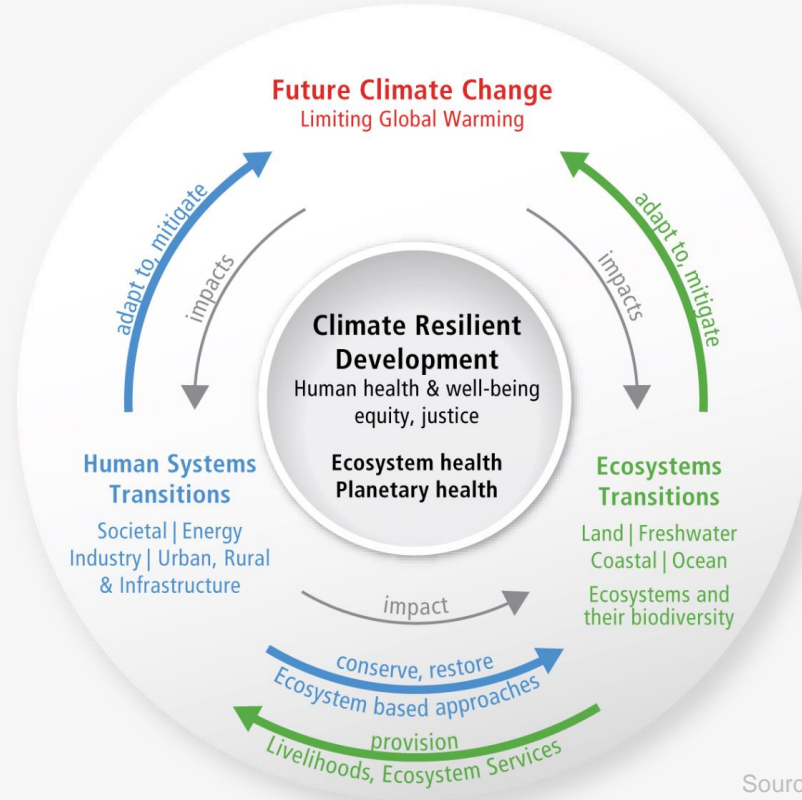


...a sustainable future?

From urgent to timely action

▶

Governance
Finance
Knowledge and capacity
Catalysing conditions
Technologies



The risk propeller shows that risk emerges from the overlap of:

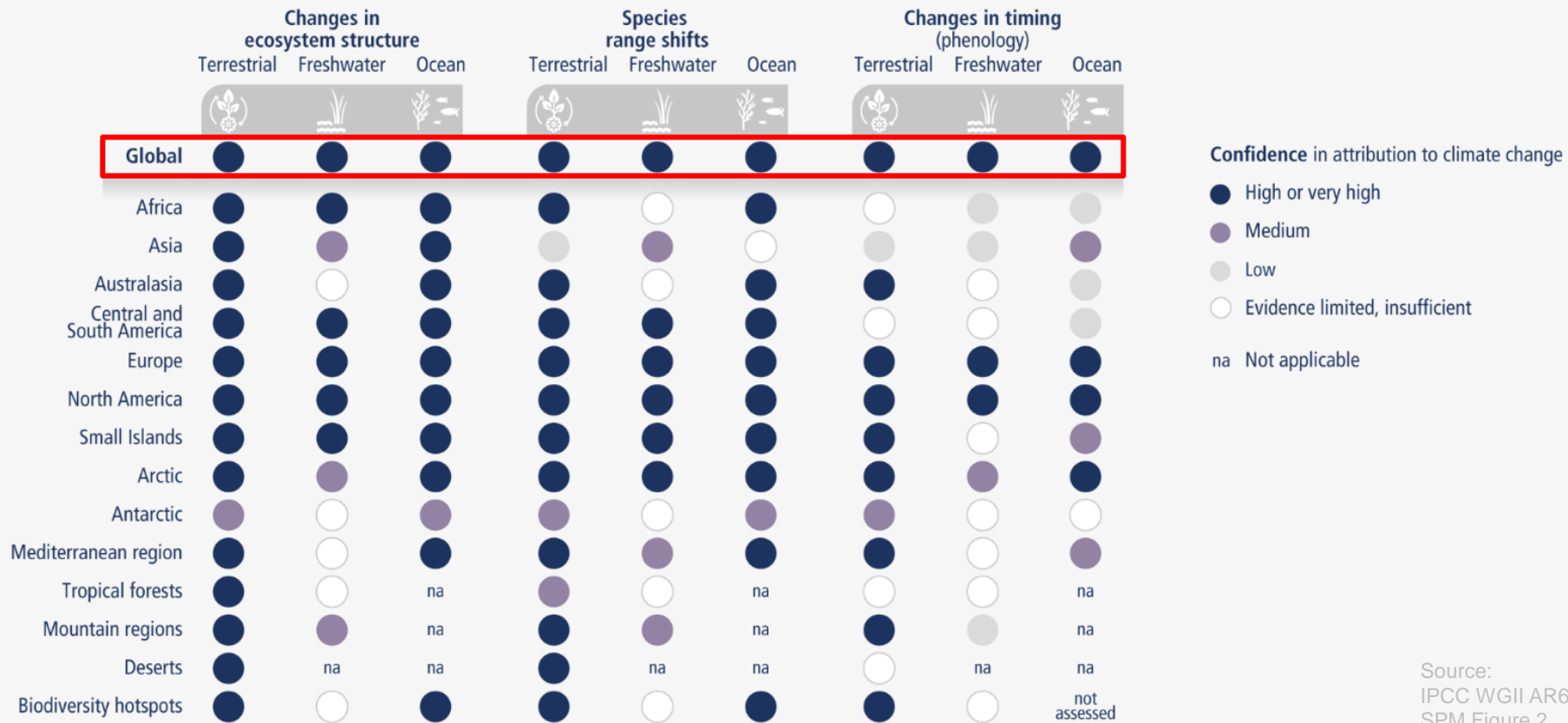
- **Climate hazard(s)**
 - **Vulnerability**
 - **Exposure**
- ...of human systems, ecosystems and their biodiversity

Global warming has caused dangerous and widespread disruption in nature

... for example
mass mortality of trees in
this drought-stressed
forest in California, USA.



Observed impacts of climate change on ecosystems



Source: IPCC WGII AR6 SPM Figure 2

Climate change is affecting the lives of billions of people, despite efforts to adapt

... for example, through high intensity cyclones, sea level rise, heavy rainfall

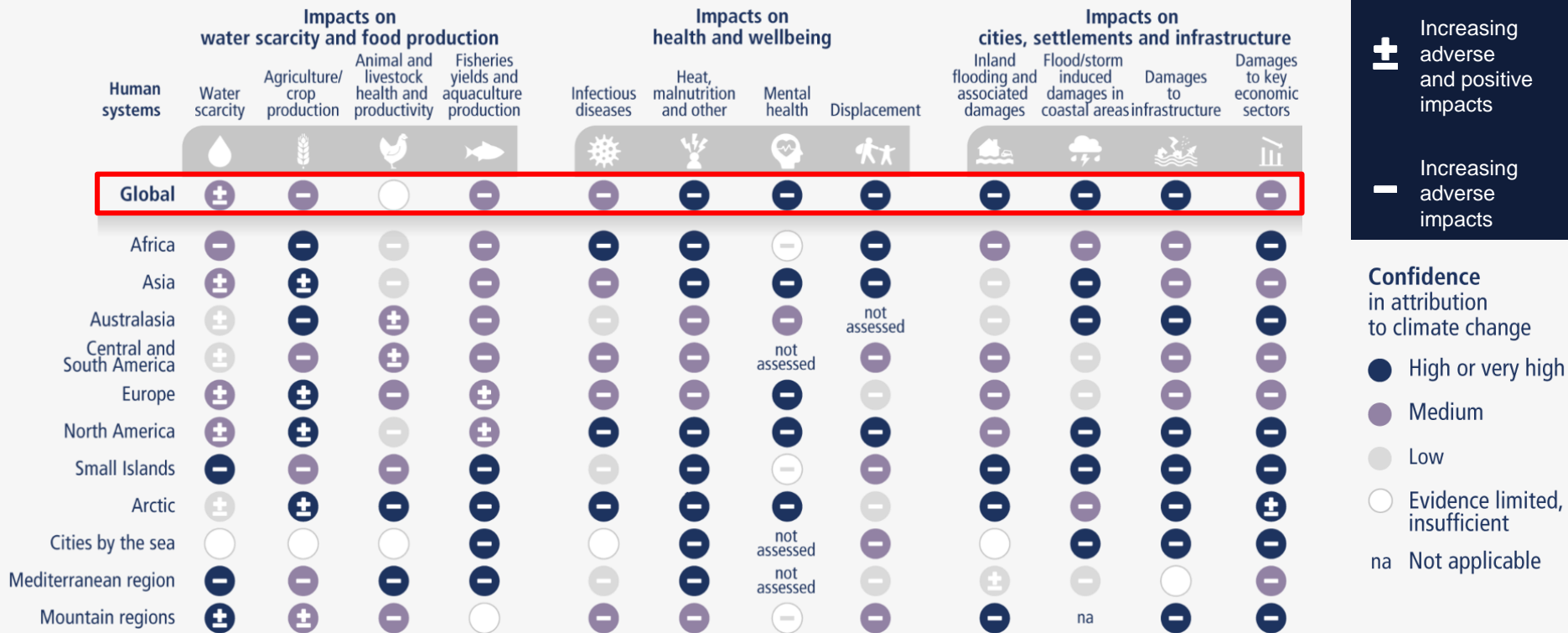


Impacts are magnified in cities where more than half the world's population lives

...for example, through
urban heat islands and air
pollution, or through
extreme events impacting
transport, water, sanitation
and energy systems



Observed impacts on human systems

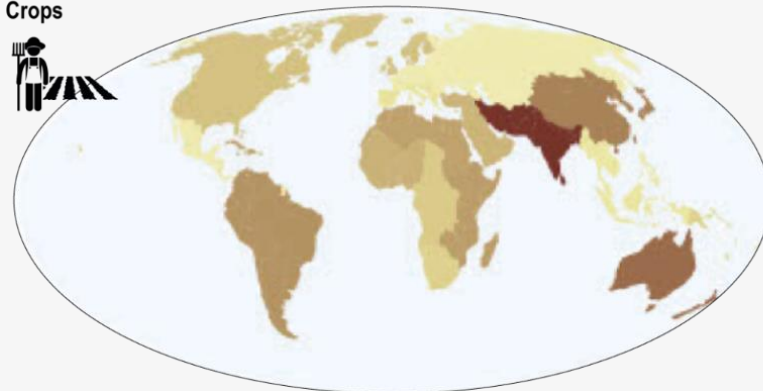


Regional impacts on major crop yields and food production loss events

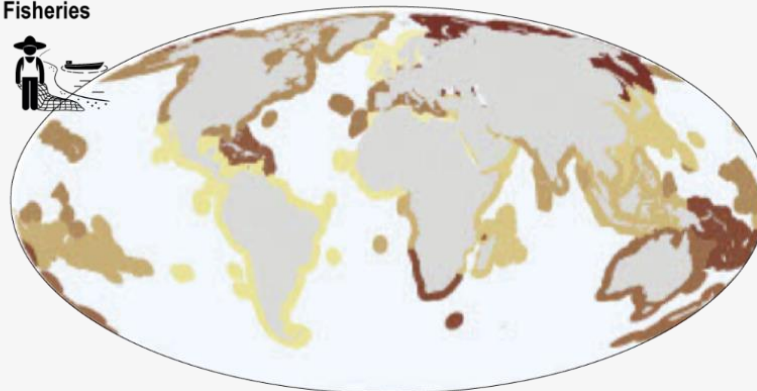
Frequency of
food production
loss events
Period 1961–2013



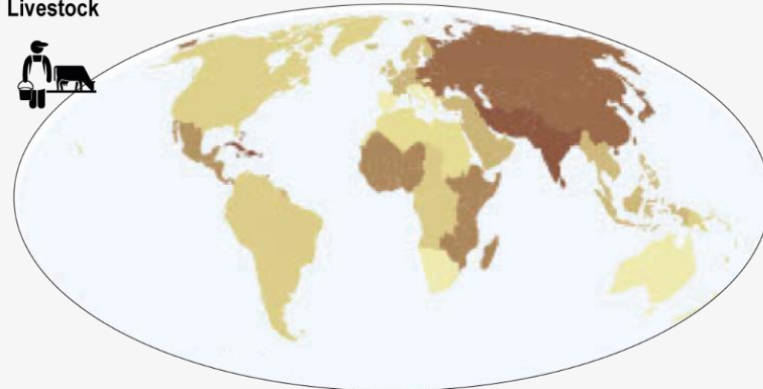
Crops



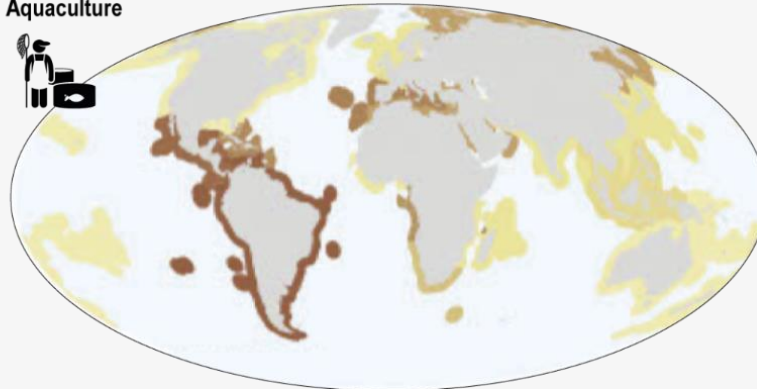
Fisheries



Livestock



Aquaculture

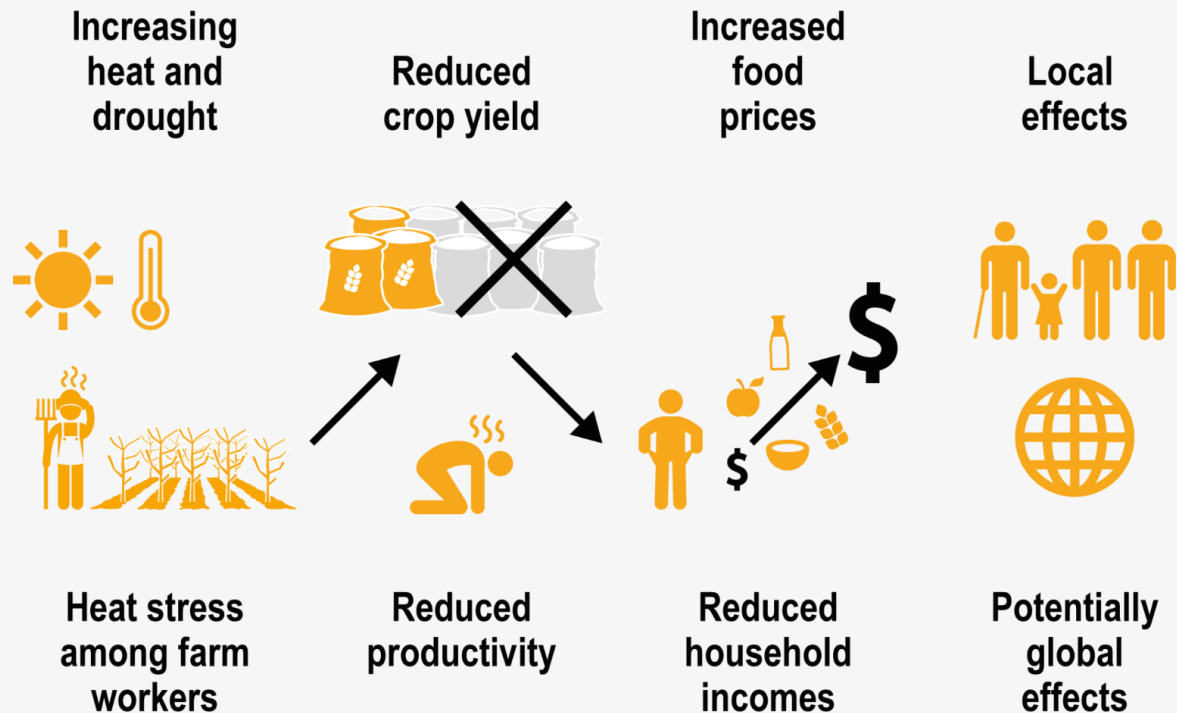


Simultaneous extreme events compound risks

Multiple extreme events that compound the risks are more difficult to manage

... e.g. reductions in crop yields, made worse by heat stress among farm workers

...





Climate change
combines with
unsustainable use of
natural resources,
habitat destruction,
growing urbanisation
and inequity

... reducing the
capacity to adapt.



3.3–3.6 billion people live in hotspots of high vulnerability to climate change.

These are across large parts of Africa, as well as South Asia, Central and South America, small islands and the Arctic.

... due to overlapping challenges

- Limited access to water, sanitation and health services
- Climate-sensitive livelihoods
- High levels of poverty
- Weak leadership
- Lack of funding
- Lack of accountability and trust in government

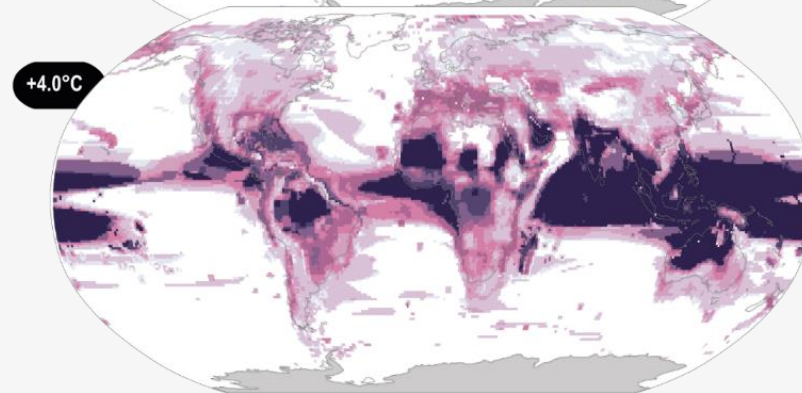
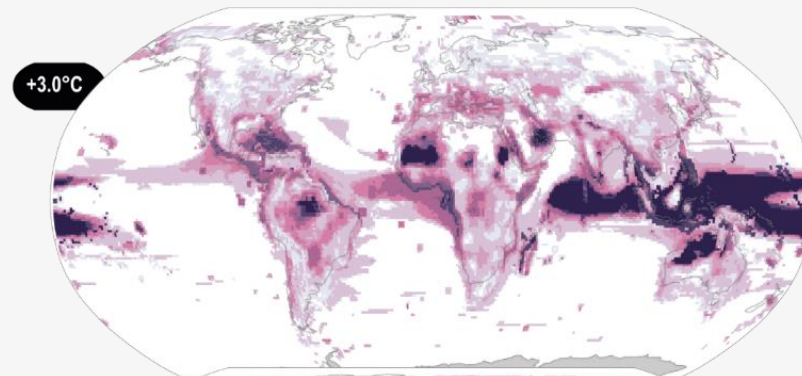
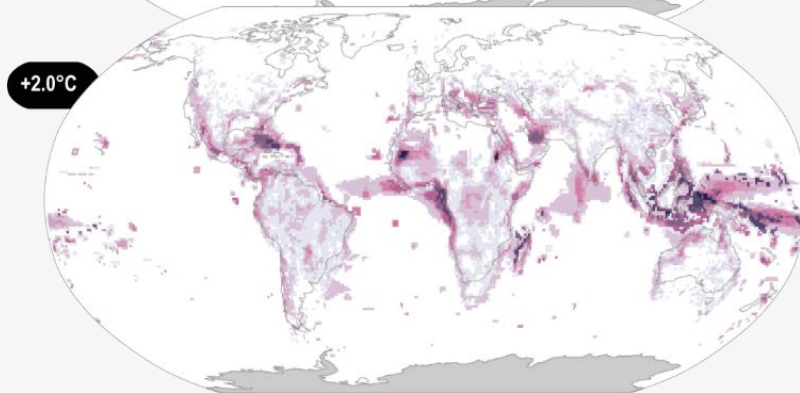
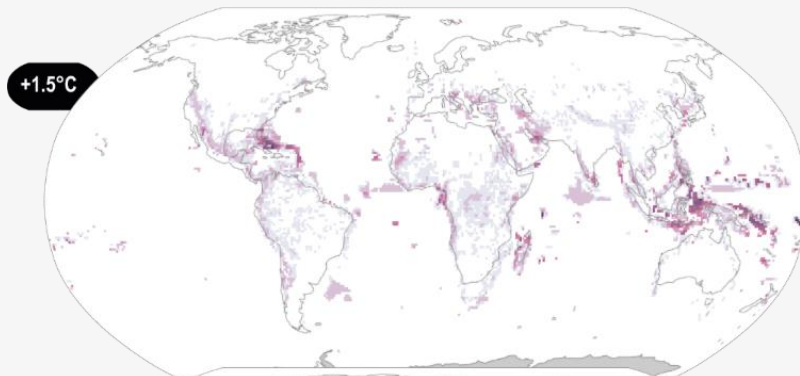
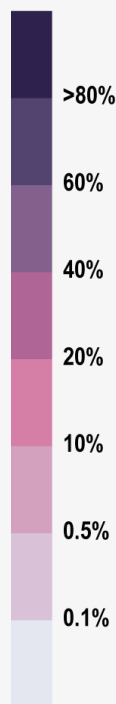




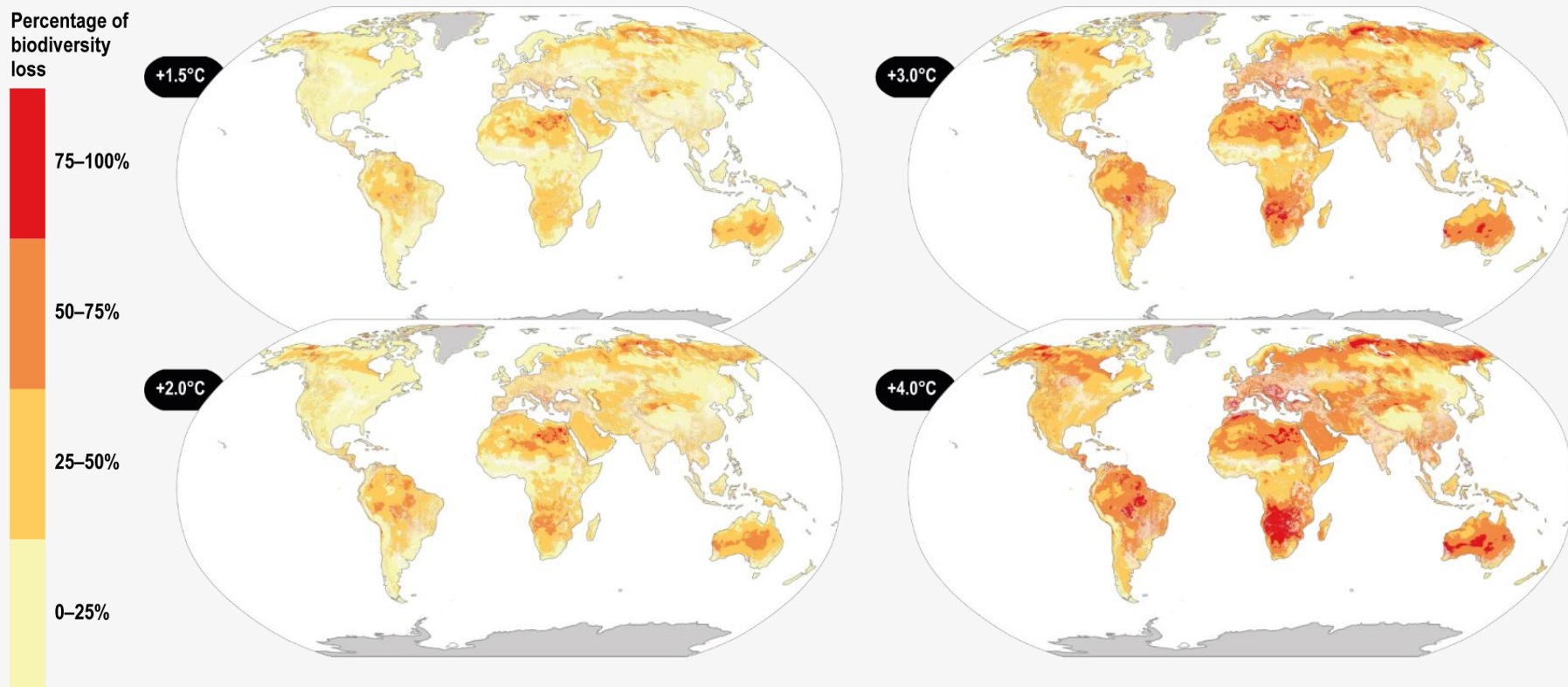
Every small increase in warming
will result in increased risks.

Species exposed to potentially dangerous climate conditions

Percentage of biodiversity exposed

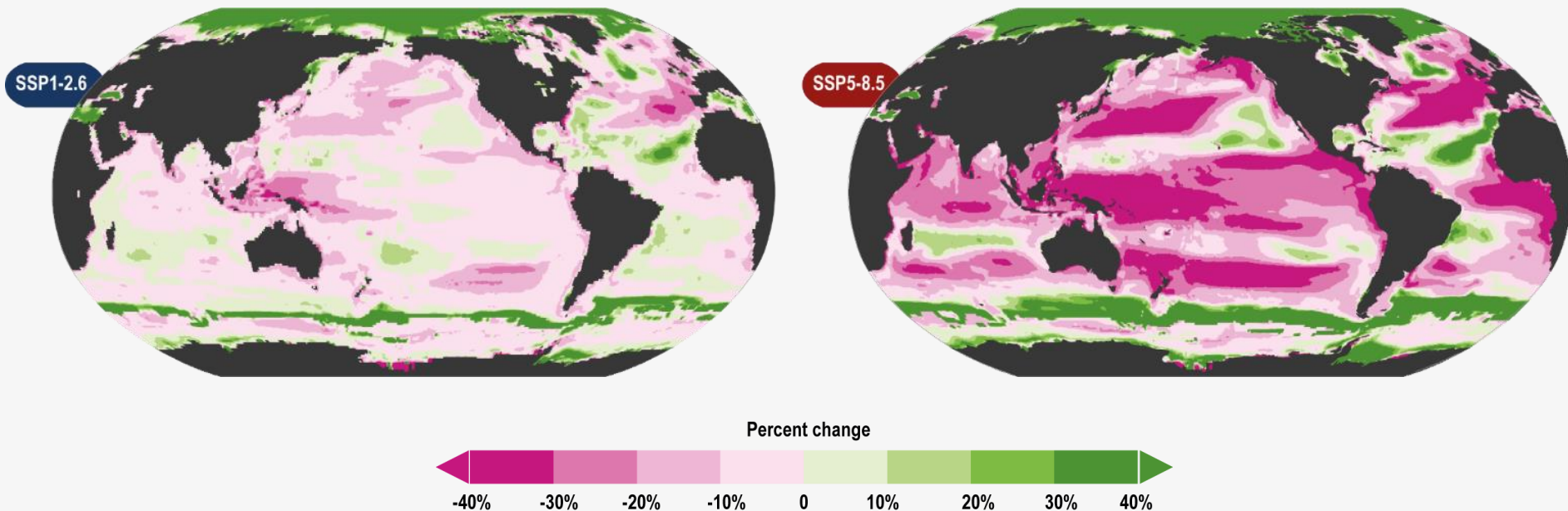


Projected loss of terrestrial and freshwater biodiversity



Projected change in marine fish biomass

Simulated change averaged over 2090–2099, relative to 1990–1999



Nature's crucial services at risk in a warming world



Pollination



Coastal Protection



Tourism/Recreation



Food Source



Health



Water filtration



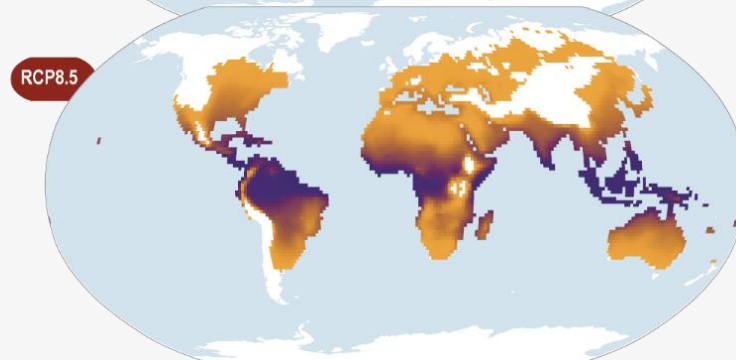
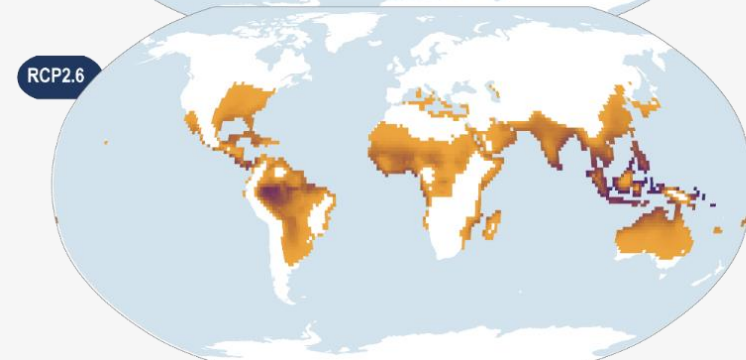
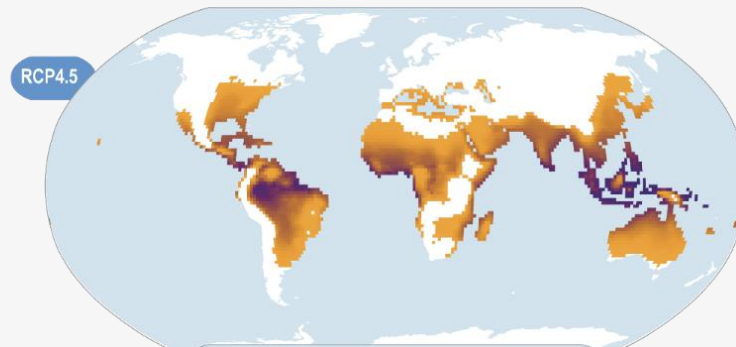
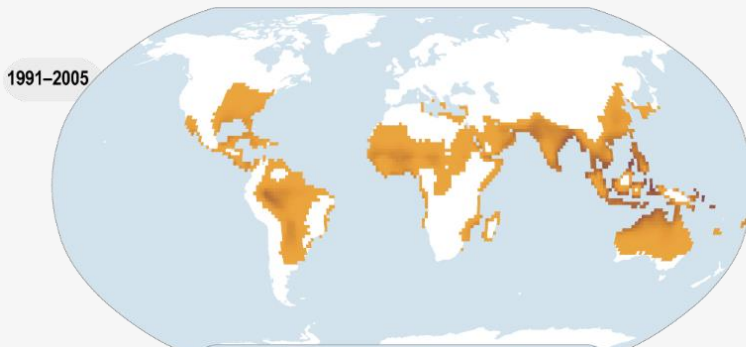
Clean air



Climate regulation

Global distribution of population exposed to hyperthermia from extreme heat and humidity. Concerning half to three-quarters of the population periodically by 2100.

Days per year when air temperature and humidity conditions turn deadly and pose a risk of death



Future global climate risks



Heat stress

Exposure to heat waves will continue to increase with additional warming ... **affecting crops, ecosystems and people**



Water scarcity

At 2°C, regions relying on snowmelt could experience **20% decline in water availability** for agriculture after 2050.



Food security

Climate change will increasingly **undermine food security.**

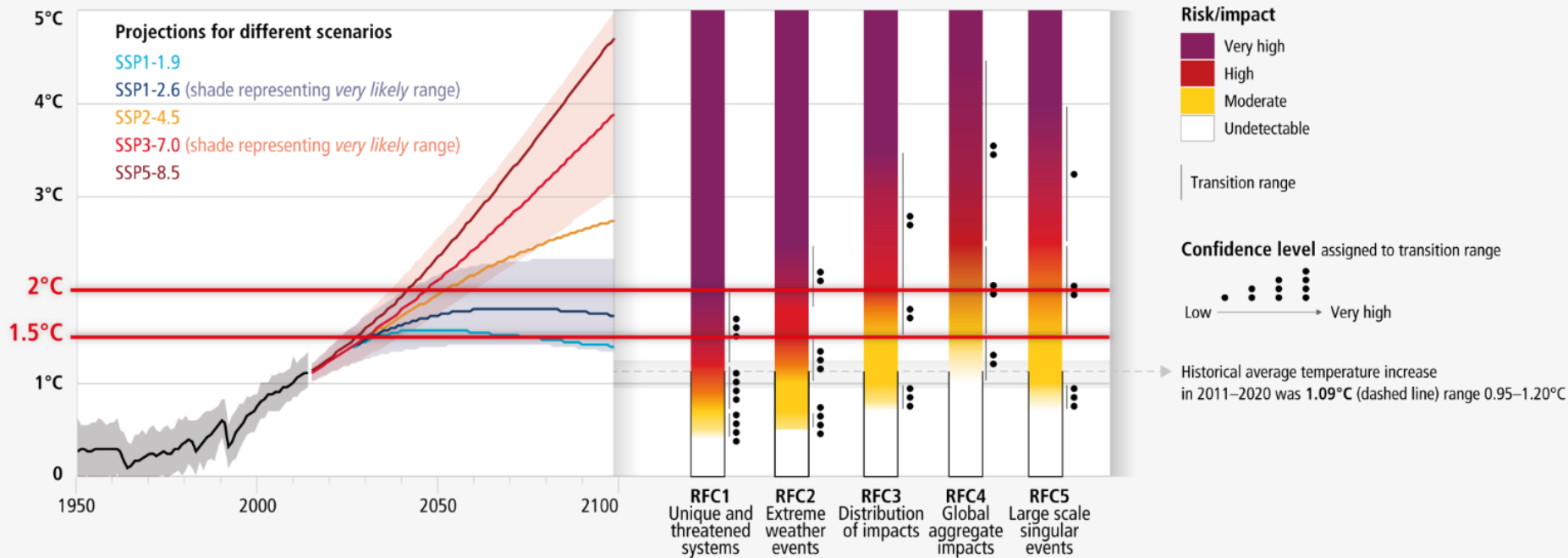


Flood risk

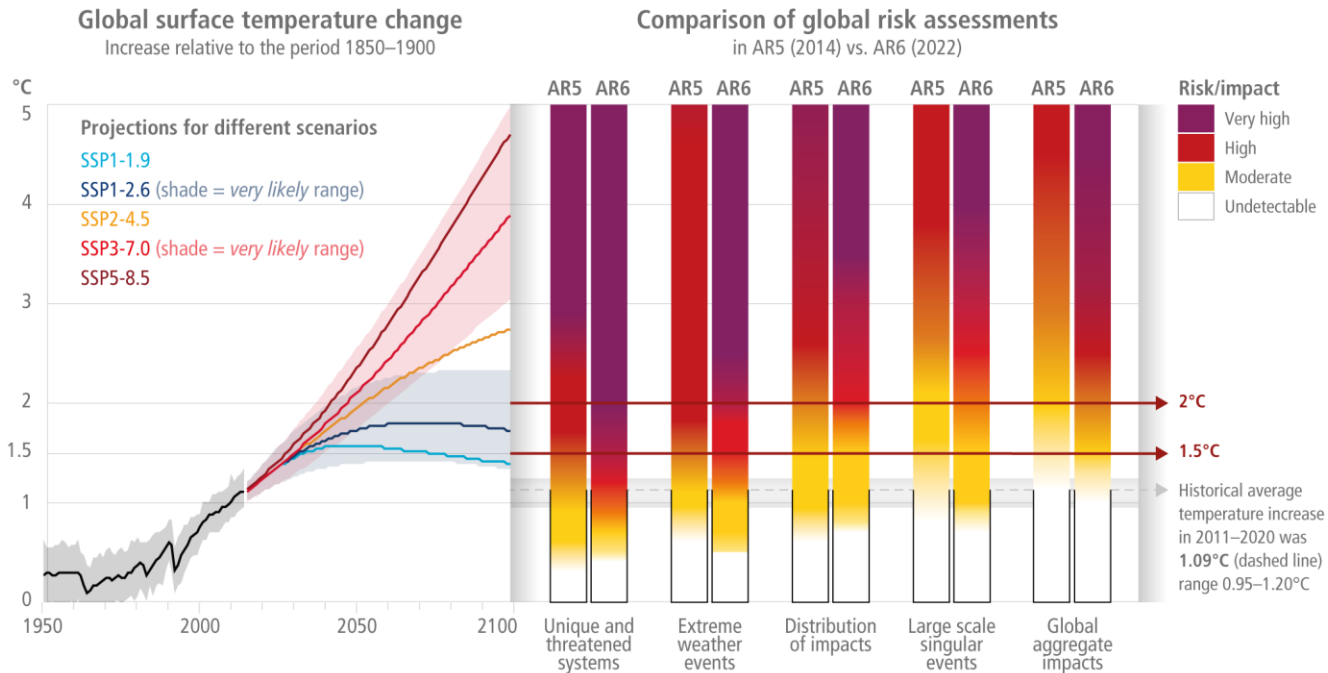
For **about a billion people in low-lying cities by the sea and on Small Islands** by mid-century

Global and regional risk

provide orientation for action (adaptation and mitigation)



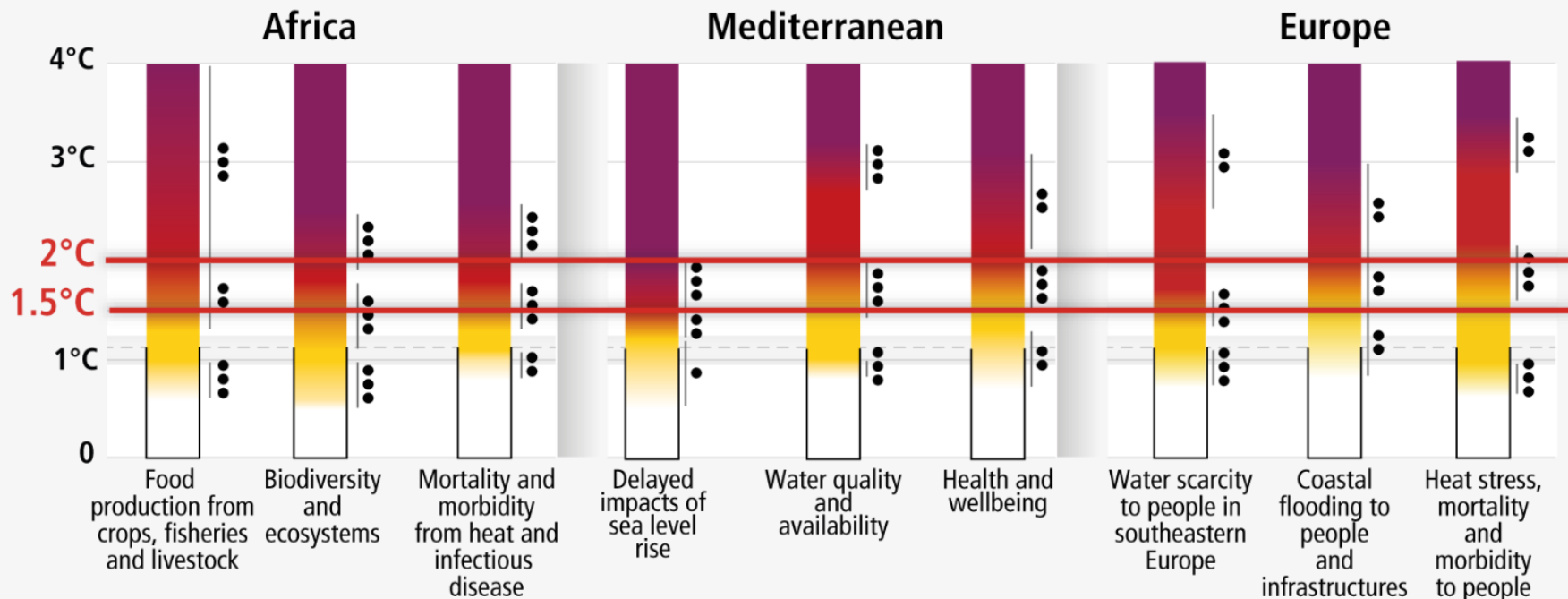
AR6 insight: Risks are developing sooner than assessed in AR5



Global and regional risk

provide orientation for action (adaptation and mitigation)

... minimising risk by keeping global warming below 1.5°C



Thank you!

Now it is time for your questions

IPCC Working Group II Author Team



@IPCC_CH
#IPCCReport



@IPCC



@IPCC



linkedin.com/
company/ipcc

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

Part II: Adaptation

IPCC Working Group II Author Team



Ocean Image Bank/M
Curnock, S. Baldwin, CC
BY-NC-ND 2.0; Y
Ishida/UNDP T. Lestè CC
BY-NY 2.0



Action on adaptation has increased but progress is uneven and we are not adapting fast enough.

“ There are increasing gaps between adaptation action taken and what’s needed.

These gaps are largest among lower income populations.

They are expected to grow.



There are options we can take to reduce the risks to people and nature.

Nature offers significant untapped potential

e.g. through agroforestry building resilience in forests with high biodiversity ...
example: Nigerian rubber farmer, diversifying his business with food crops, fruit trees and bees ...





Water management

Options on farms:

- Irrigation
- Rainwater storage, water-saving technologies
- Moisture conservation in soils

Economic and ecological benefits; reduced vulnerability

Wider options:

- Securing drinking water
- Flood and drought risk management
- Working with nature, land-use planning

Effectiveness declines with increased warming

Improving food security

Effective options:

- Cultivar improvements
- Agroforestry
- Farm and landscape diversification
- Community-based adaptation
- Strengthening biodiversity

Wider benefits:

- Food security and nutrition
- Health and well-being
- Livelihoods





Transforming cities

By 2050 urban areas could be home to two-thirds of the world's population.

Effective options

- Nature-based and engineering approaches together
- Establishing green and blue spaces
- Urban agriculture
- Social-safety nets for disaster management

Wider benefits

- Public health improvements
- Ecosystem conservation

Adapting informal settlements

Effective options:

- Local knowledge
- Adequate capacity (information, funding, tools)
- Engagement of policymakers
- Involvement of residents in decision-making
- Institutional change (accountability, commitment, transparency)



Maladaptation

Adaptation that results in unintended consequences



The most disadvantaged groups are most affected by maladaptation.



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.

Financial constraints

- Current global financial flows are insufficient
- Most finance targets emissions reductions rather than adaptation
- Climate impacts can slow down economic growth through losses and damages



Five System Transitions in Adaptation



**Land, ocean,
coastal and
freshwater
ecosystems**



**Urban, rural
and
infrastructure**



Energy



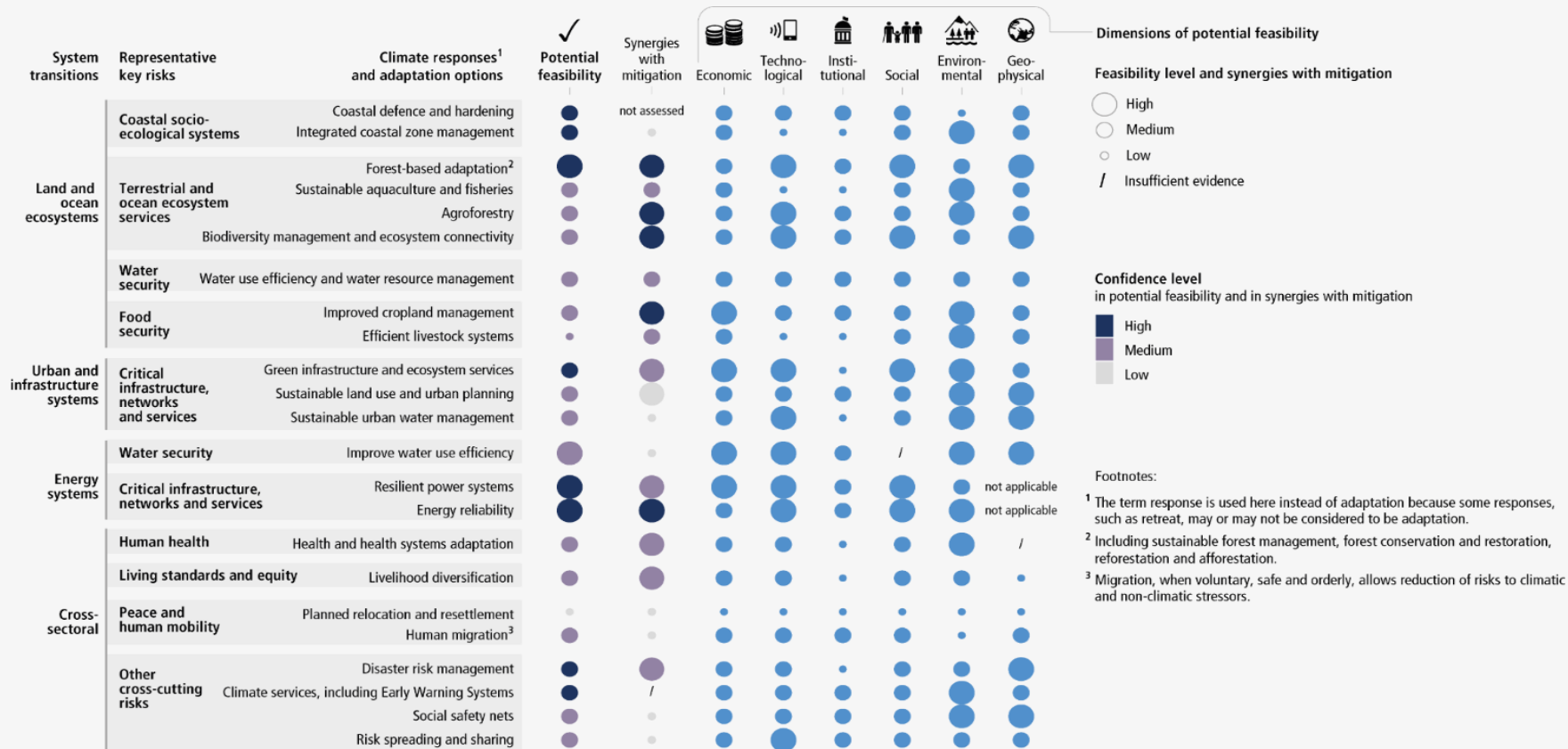
Industry



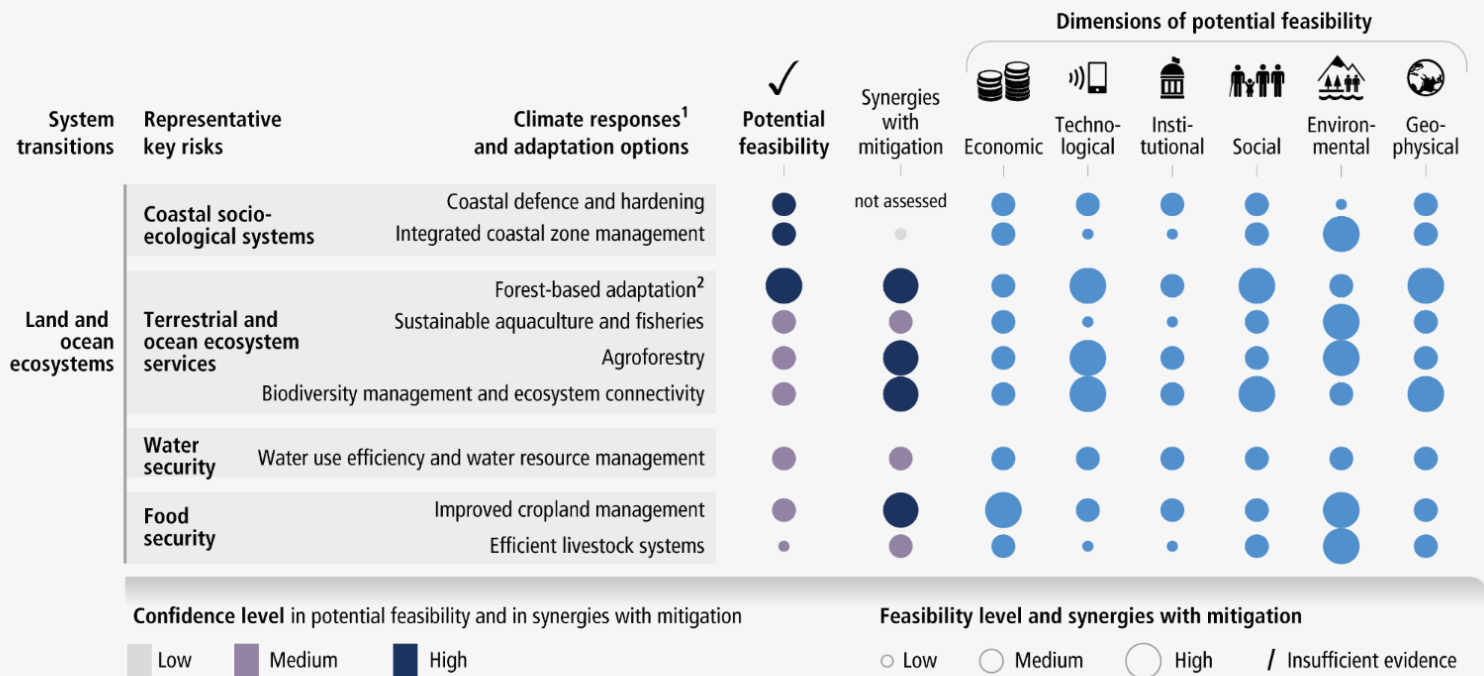
Society

- Make possible the adaption required for human health and well being; economic and social resilience; ecosystem health and planetary health
- Are important for achieving the low global warming levels that would avoid many limits to adaptation

The Feasibility of Adaptation measures: overview



The Feasibility of Adaptation measures: Land and ocean ecosystems



Footnotes:

¹ The term response is used here instead of adaptation because some responses, such as retreat, may or may not be considered to be adaptation.

² Including sustainable forest management, forest conservation and restoration, reforestation and afforestation.

³ Migration, when voluntary, safe and orderly, allows reduction of risks to climatic and non-climatic stressors.

The Feasibility of Adaptation measures: Urban and infrastructure systems



Confidence level in potential feasibility and in synergies with mitigation

Low Medium High

Feasibility level and synergies with mitigation

Low Medium High / Insufficient evidence

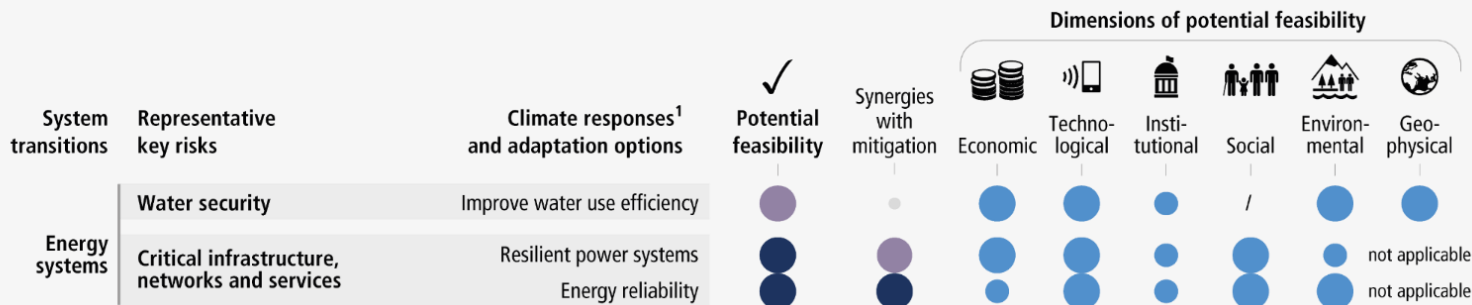
Footnotes:

¹ The term response is used here instead of adaptation because some responses, such as retreat, may or may not be considered to be adaptation.

² Including sustainable forest management, forest conservation and restoration, reforestation and afforestation.

³ Migration, when voluntary, safe and orderly, allows reduction of risks to climatic and non-climatic stressors.

The Feasibility of Adaptation measures: Energy systems



Confidence level in potential feasibility and in synergies with mitigation

Low Medium High

Feasibility level and synergies with mitigation

Low Medium High / Insufficient evidence

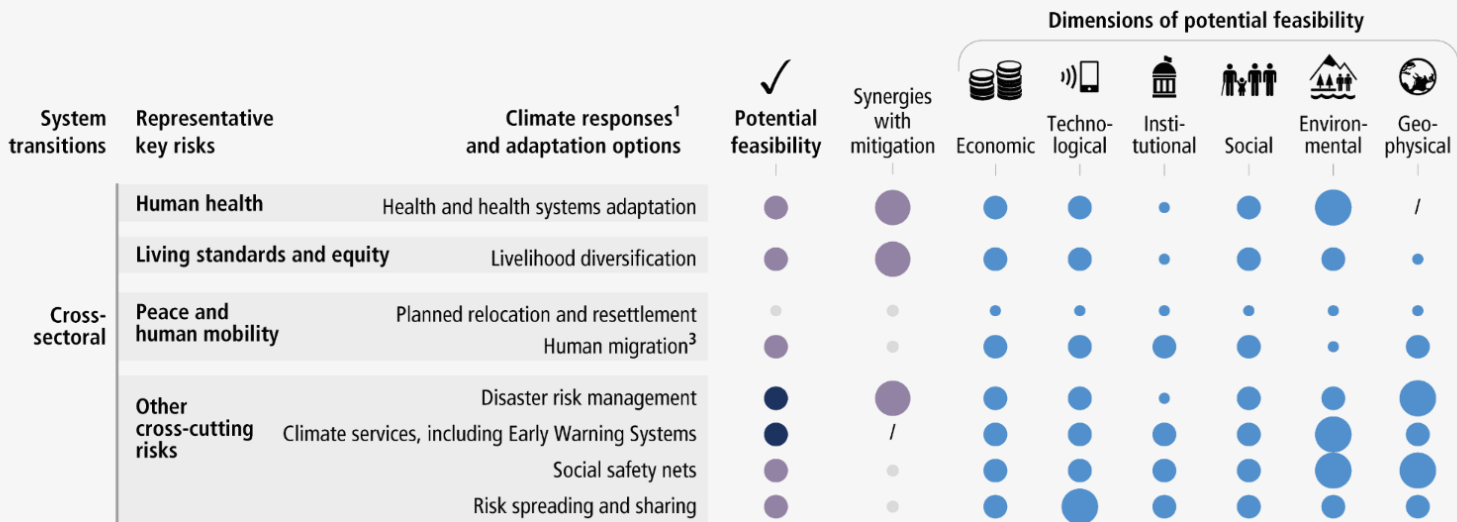
Footnotes:

¹ The term response is used here instead of adaptation because some responses, such as retreat, may or may not be considered to be adaptation.

² Including sustainable forest management, forest conservation and restoration, reforestation and afforestation.

³ Migration, when voluntary, safe and orderly, allows reduction of risks to climatic and non-climatic stressors.

The Feasibility of Adaptation measures: Cross-sectoral



Confidence level in potential feasibility and in synergies with mitigation

Low Medium High

Feasibility level and synergies with mitigation

Low Medium High / Insufficient evidence

Footnotes:

¹ The term response is used here instead of adaptation because some responses, such as retreat, may or may not be considered to be adaptation.

² Including sustainable forest management, forest conservation and restoration, reforestation and afforestation.

³ Migration, when voluntary, safe and orderly, allows reduction of risks to climatic and non-climatic stressors.

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

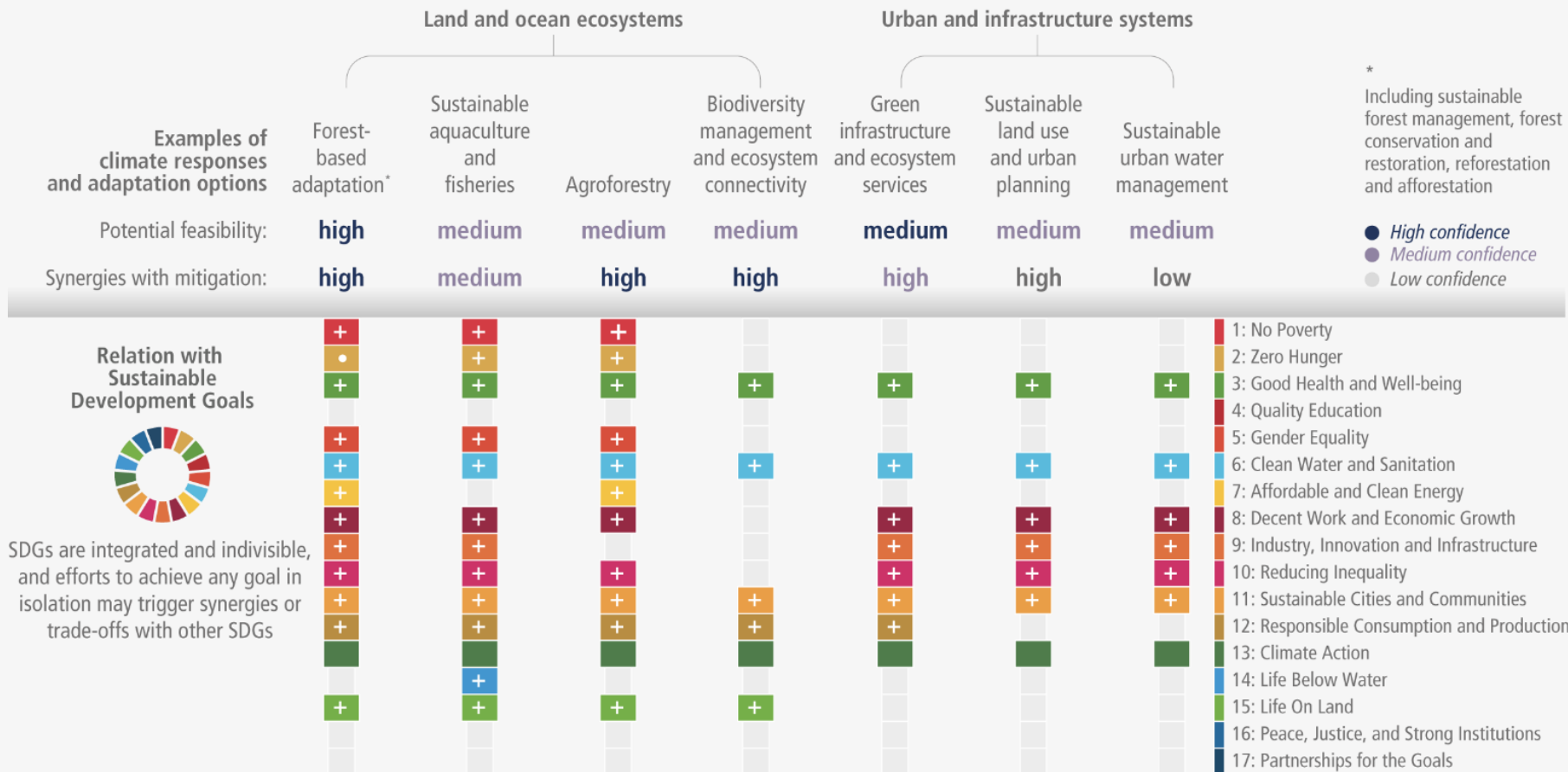
SDG 10: Reduced inequality



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

SDG 14/15: Life on land & below water

Mitigation and SDG co-benefits, e.g., urban and green infrastructure



IPCC WGII AR6 SPM Figure 4b

Thank you!

Now it is time for your questions

IPCC Working Group II Author Team



@IPCC_CH
#IPCCReport



@IPCC



@IPCC



linkedin.com/
company/ipcc

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

Part III: Climate Resilient Development

IPCC Working Group II Author Team



Ocean Image Bank/M
Curnock, S. Baldwin, CC
BY-NC-ND 2.0; Y
Ishida/UNDP T. Lesté CC
BY-NY 2.0

“ The impacts of climate change have already significantly affected the livelihoods and living conditions, especially of the poorest and most vulnerable, and will continue to undermine development during the coming century.

3.3 – 3.6 billion people live in hotspots of high vulnerability to climate change

These are across large parts of Africa, as well as South Asia, Central and South America, small islands and the Arctic.





Climate Change and Vulnerability

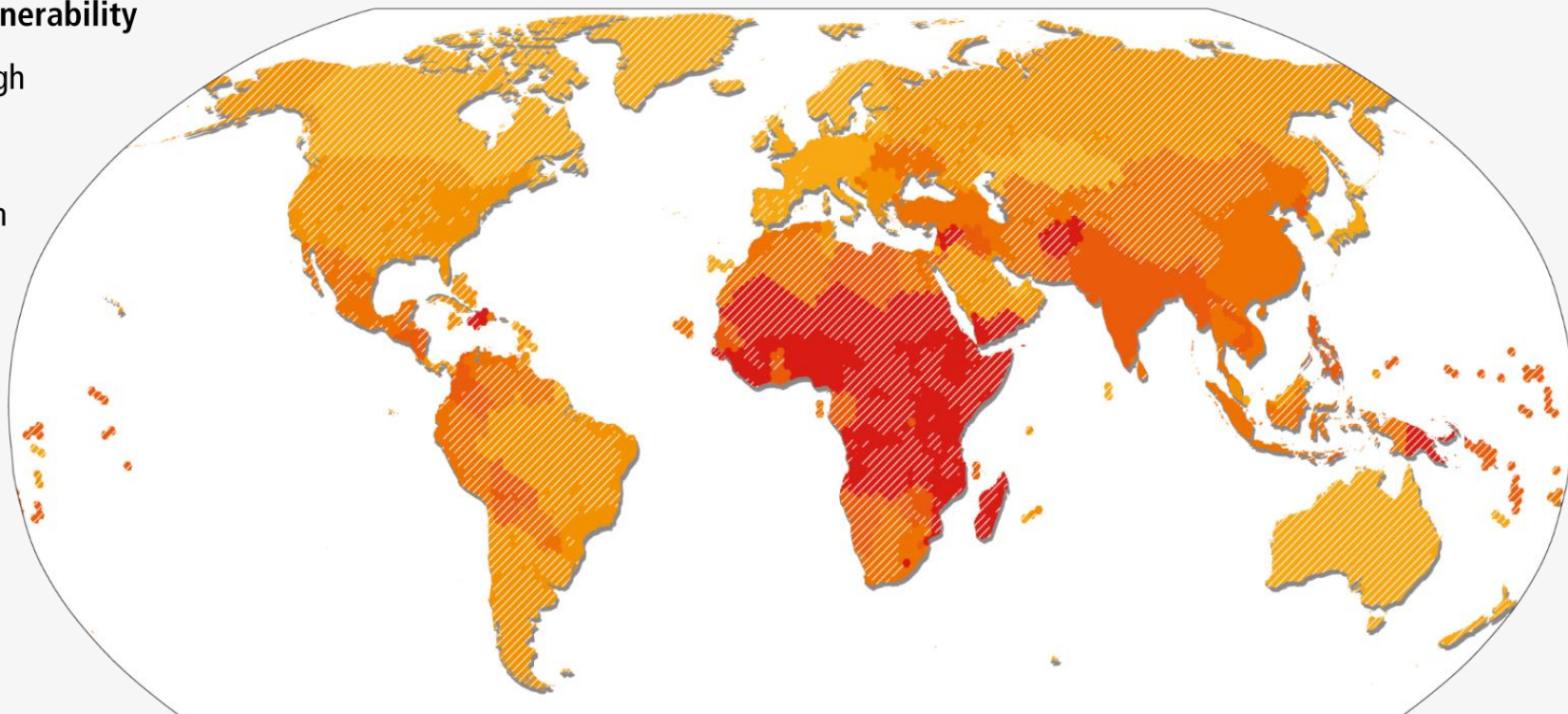
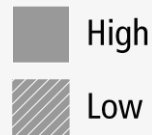
- Adverse impacts of climate change, development deficits and inequality exacerbate each other.
- Existing vulnerabilities and inequalities intensify with adverse impacts of climate change
- These impacts disproportionately affect marginalised groups, amplifying inequalities and undermining sustainable development across all regions.
- Due to their socio-economic conditions and the broader development context, many poor communities, especially in regions with high levels of vulnerability and inequality, are less resilient to diverse climate impacts

Human vulnerability to climate change impacts

Relative vulnerability



Population density



**Vulnerable
population groups in
most vulnerable
regions have the
most urgent need for
adaptation**



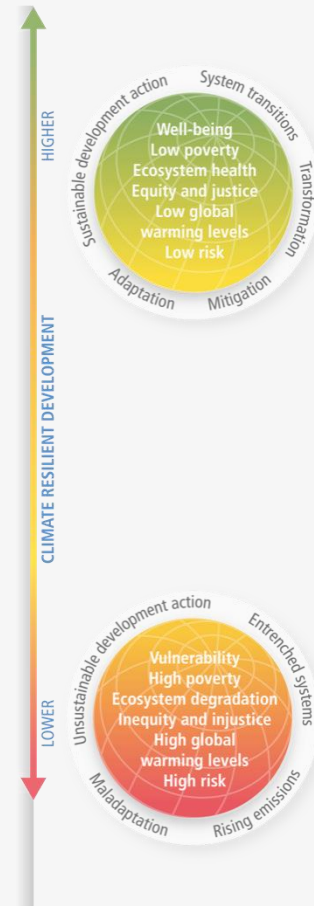
“ Social and economic inequities linked to gender, poverty, race/ethnicity, religion, age, or geographic location compound vulnerability to climate change and have created and could further exacerbate injustices...

It is critical to prioritize equity and justice in decision-making and investment.

Our future?

- Reduced climate risks – adaptation and mitigation
- Reduced greenhouse gas emissions – mitigation
- Enhanced biodiversity
- Achieved the Sustainable Development Goals, *e.g.*: *no poverty, zero hunger, good health and well-being, and access to clean water and sanitation.*

This is Climate Resilient Development which is the solutions framework...





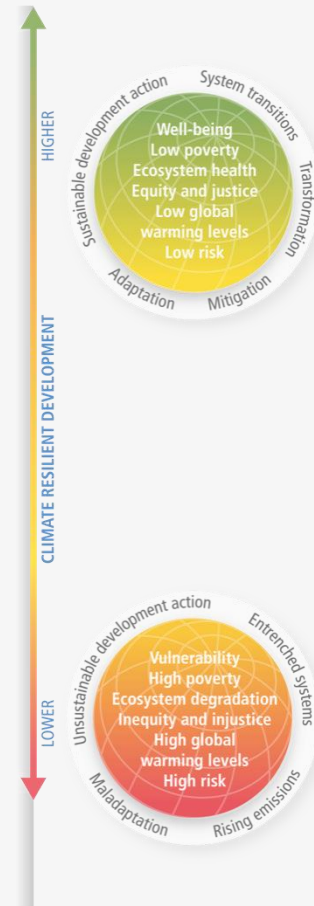
Accelerating adaptation

- Political commitment and follow-through across all levels of government
- Institutional framework: clear goals, priorities that define responsibilities
- Enhancing knowledge of impacts and risks improves responses
- Monitoring and evaluation of adaptation measures are essential to track progress
- Inclusive governance that prioritises equity and justice – direct participation
- Overcoming financial constraints

Climate Resilient Development

The solutions framework:

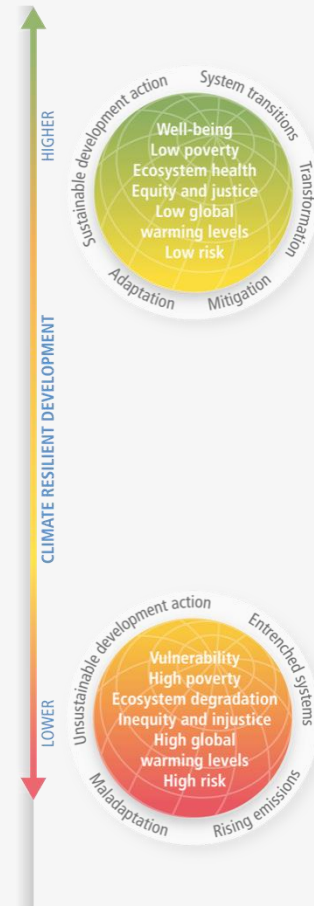
- Is considered across government and all of civil society
- Involves everyone – forming partnerships



Climate Resilient Development

The solutions framework:

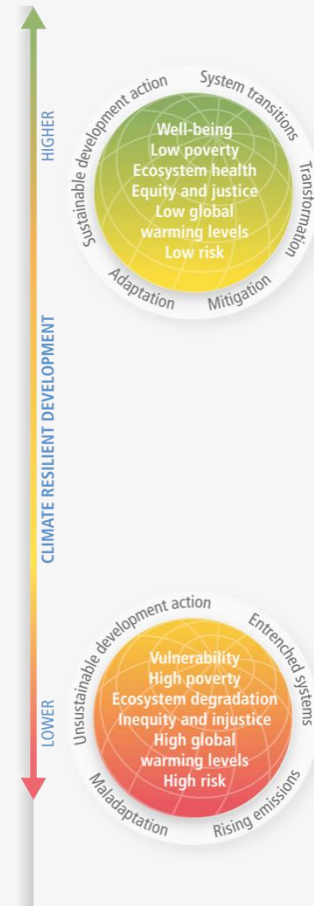
- Draws on wide-ranging knowledge (scientific, Indigenous, local, practical)



Climate Resilient Development

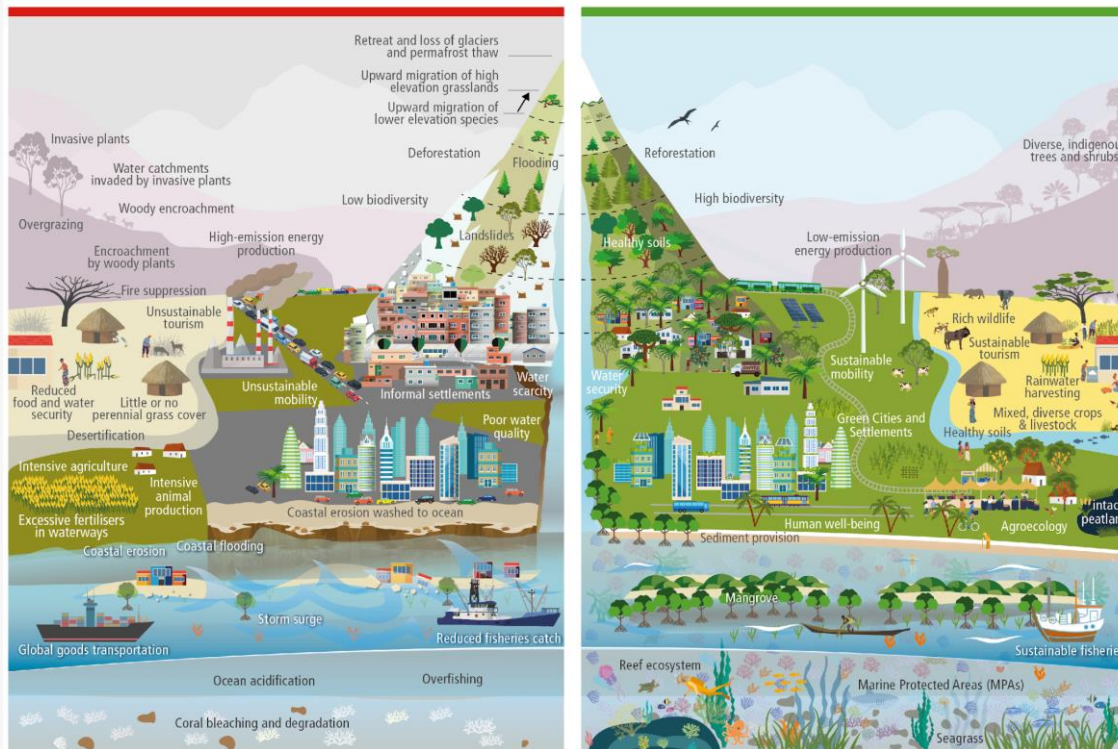
The solutions framework:

- Involves marginalized groups
- Prioritises equity and justice
- Reconciles different interests, values and world views



Ecosystem health influences prospects for Climate Resilient Development

Human activities that degrade ecosystems also drive global warming and negatively impact nature and people

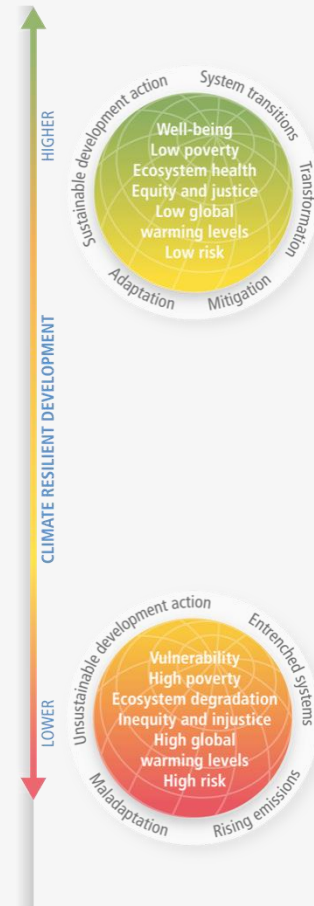


Human activities that protect, conserve and restore ecosystems contribute to climate resilient development

Climate Resilient Development

Ecosystem stewardship is key:

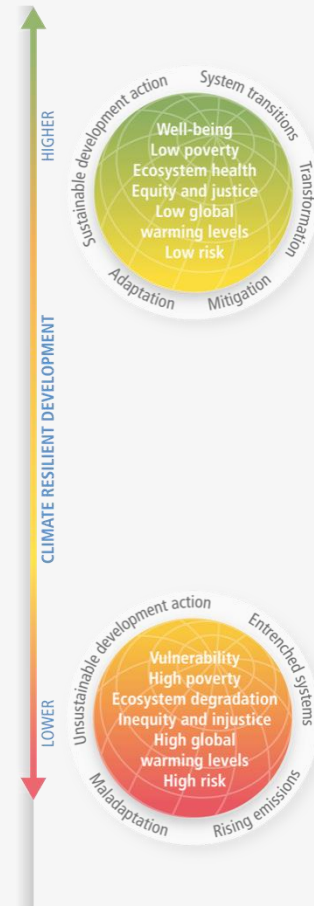
- Effective and equitable conservation and restoration of approximately 30-50% of land, freshwater and ocean ecosystems can help ensure a healthy planet
- Ecosystem-based adaptation and approaches to climate mitigation based on ecosystems are more effective at lower levels of global warming



Climate Resilient Development

The solutions framework:

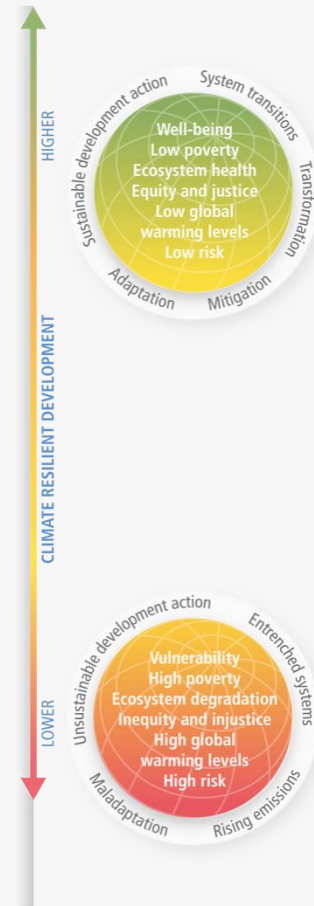
- regards the trend of urbanisation as critical opportunity
- Integrated, inclusive planning and investment in everyday decision-making about urban infrastructure, including social, ecological and grey/physical infrastructures, can significantly increase the adaptive capacity of urban and rural settlements.



Climate Resilient Development

The solutions framework:


- Requires scaled-up investment and international cooperation



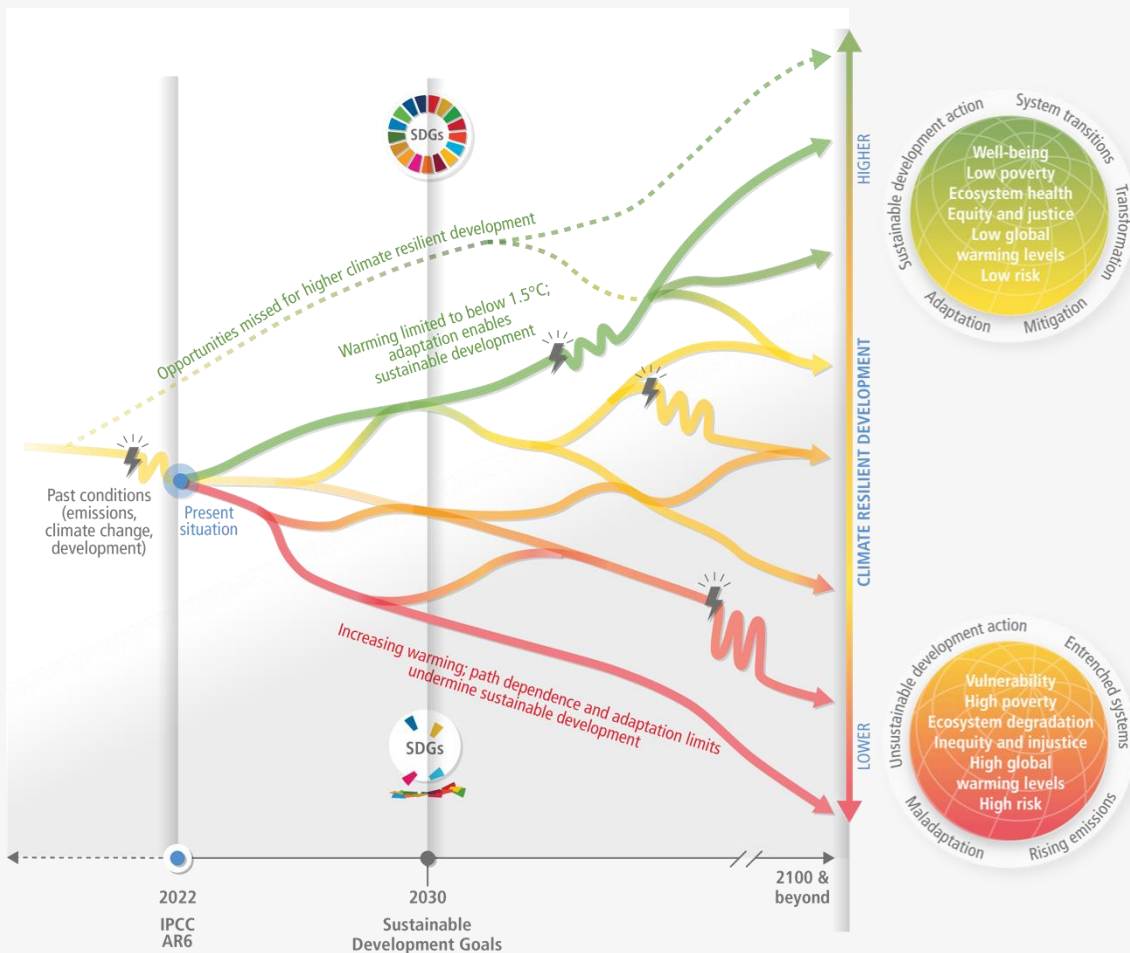
Increasing urgency

Starting today, every action, every decision matters.

Worldwide action is more urgent
than previously assessed.

 Illustrative climatic or non-climatic shock,
e.g. COVID-19, drought or floods,
that disrupts the development pathway

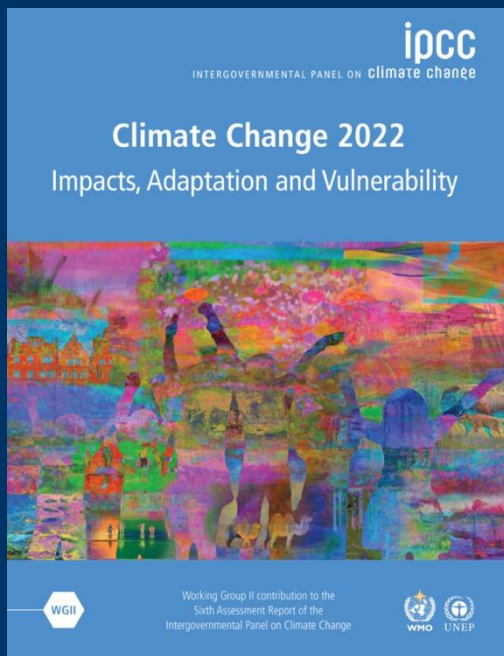
 Narrowing window of
opportunity for higher CRD





Climate resilient development is already challenging at current global warming levels.

The prospects will become further limited if warming exceeds 1.5°C and may not be possible if warming exceeds 2°C.



The science is clear.

Any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future.

This report offers solutions to the world. It is over to you now!

Thank you!

Now it is time for your questions

IPCC Working Group II Author Team



@IPCC_CH
#IPCCReport



@IPCC



@IPCC



linkedin.com/
company/ipcc