

Climate Change 2022

Impacts, Adaptation and Vulnerability



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Report by numbers



270 Authors



67 Countries



43 % Developing countries
57 % Developed countries



41 % Women / 59 % Men



675 Contributing authors

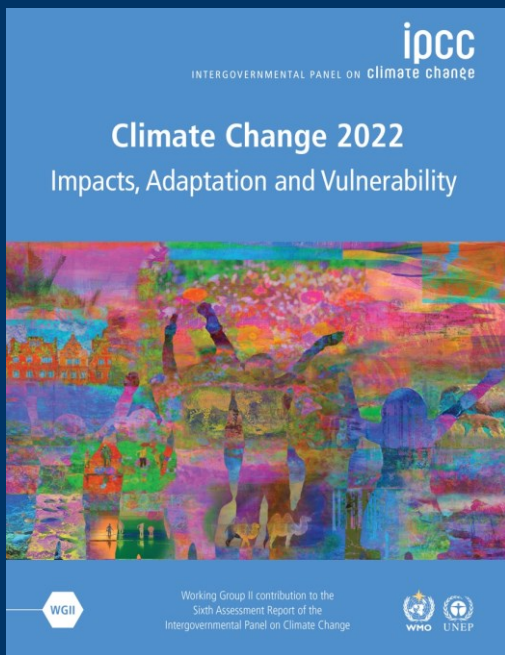


More than
34,000 scientific papers



62,418
Review comments

**Growing scientific
knowledge gives us our
best understanding yet**



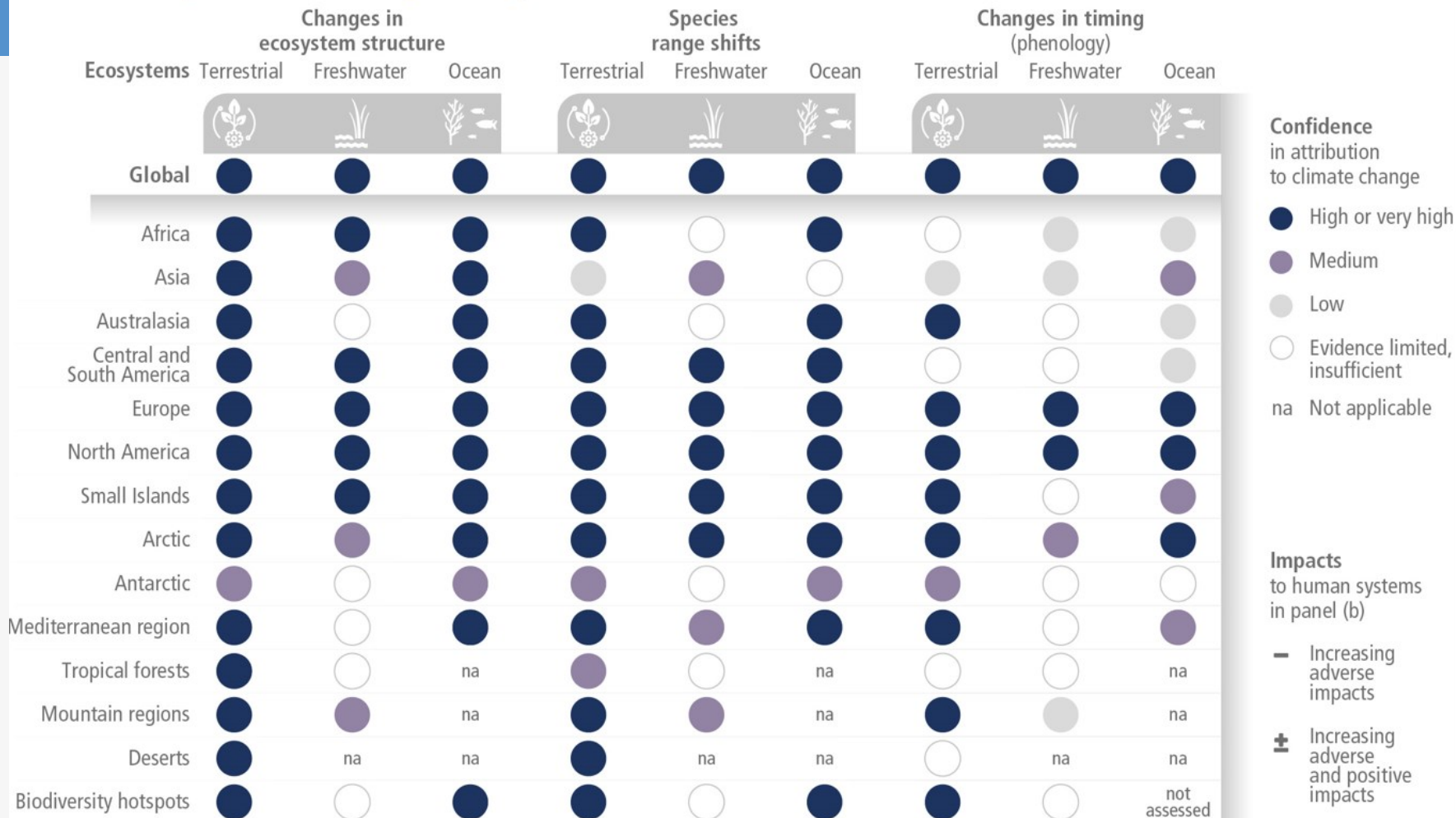
The scientific evidence is unequivocal: climate change is a threat to human well-being and the health of the planet.

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

This report offers solutions to the world.

Global warming
has caused dangerous and
widespread disruption in nature...

(a) Observed impacts of climate change on ecosystems



...and climate change is affecting the lives of billions of people, despite efforts to adapt.



(b) Observed impacts of climate change on human systems

Human systems	Impacts on water scarcity and food production				Impacts on health and wellbeing				Impacts on cities, settlements and infrastructure			
	Water scarcity	Agriculture/crop production	Animal and livestock health and productivity	Fisheries yields and aquaculture production	Infectious diseases	Heat, malnutrition and other	Mental health	Displacement	Inland flooding and associated damages	Flood/storm induced damages in coastal areas	Damages to infrastructure	Damages to key economic sectors
Global	+	-	○	-	-	-	-	-	-	-	-	-
Africa	-	-	-	-	-	-	○	-	-	-	-	-
Asia	+	+	-	-	-	-	-	-	-	-	-	-
Australasia	+	-	+	-	-	-	-	not assessed	-	-	-	-
Central and South America	+	-	+	-	-	-	not assessed	-	-	-	-	-
Europe	+	+	-	+	-	-	-	-	-	-	-	-
North America	+	+	-	+	-	-	-	-	-	-	-	-
Small Islands	-	-	-	-	-	-	○	-	-	-	-	-
Arctic	+	+	-	-	-	-	-	-	-	-	-	+
Cities by the sea	○	○	○	-	○	-	not assessed	-	○	-	-	-
Mediterranean region	-	-	-	-	-	-	not assessed	-	+	-	○	-
Mountain regions	+	+	-	○	-	-	○	-	-	na	-	-

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INTERGOVERNMENTAL PANEL ON climate change



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



[Peter Nguyen / Unsplash]



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

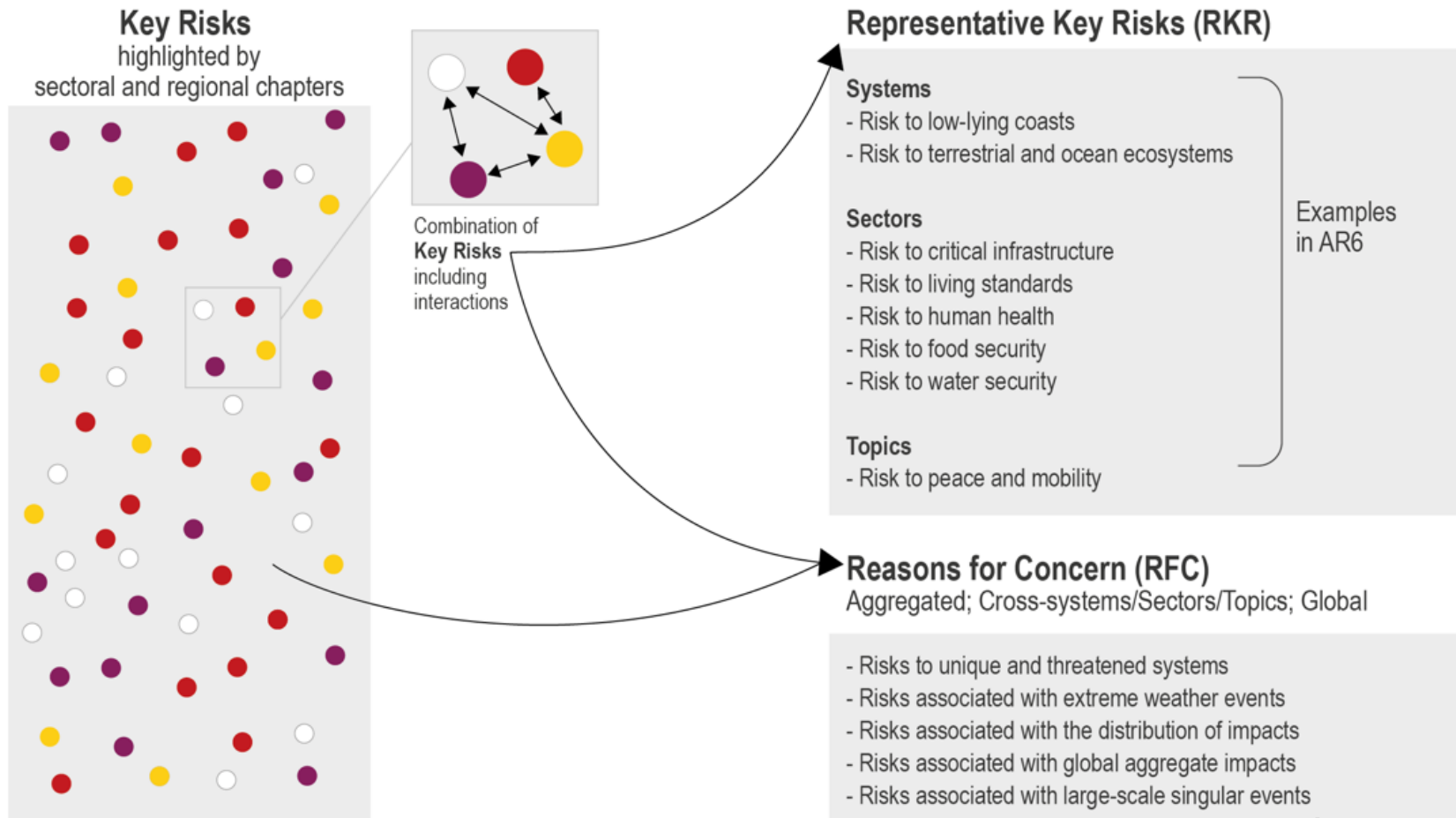
3.3 – 3.6 billion people live in hotspots of high vulnerability to climate change.





Every small increase in warming
will result in increased risks.

Interconnections between the Key Risks, Representative Key Risks and the Reasons for Concern

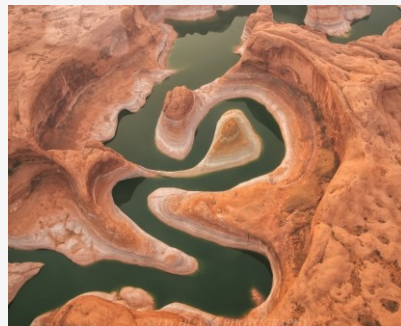


Future global climate risks



Heat stress

Exposure to heat waves will continue to increase with additional warming.



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.

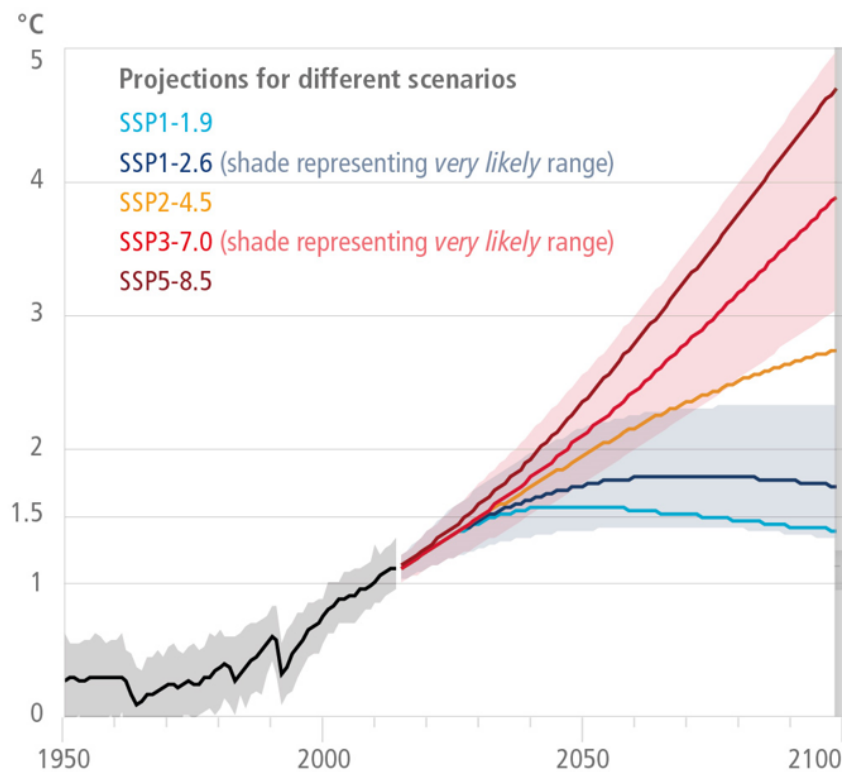


Flood risk

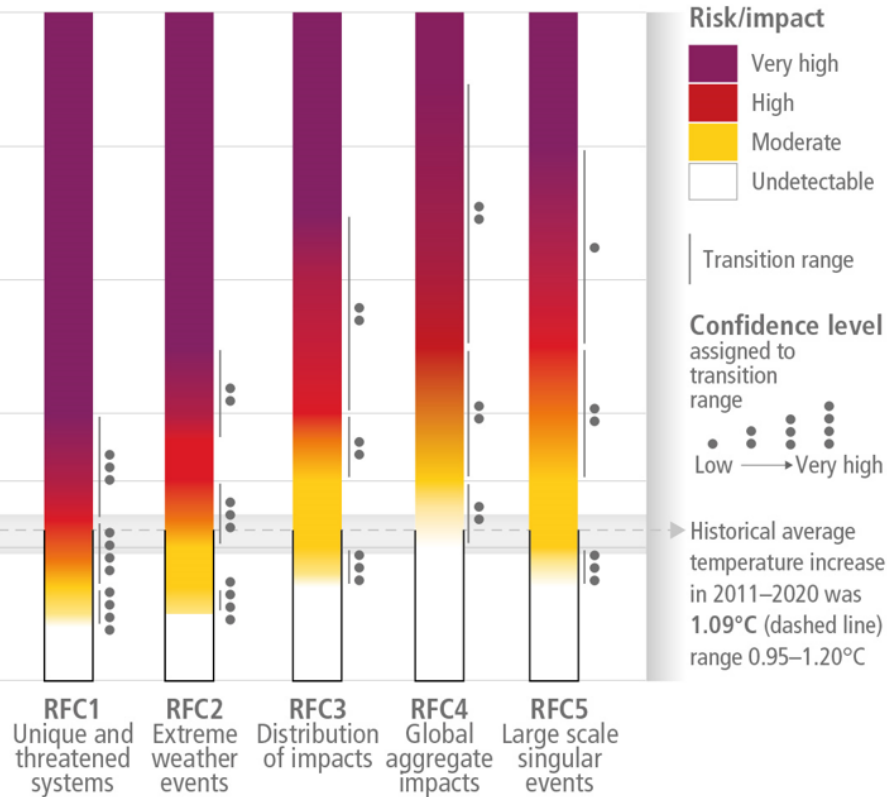
About a billion people in low-lying cities by the sea and on Small Islands at risk from sea level rise by mid-century.

Global and regional risks for increasing levels of global warming

(a) Global surface temperature change
Increase relative to the period 1850–1900



(b) Reasons for Concern (RFC)
Impact and risk assessments assuming low to no adaptation



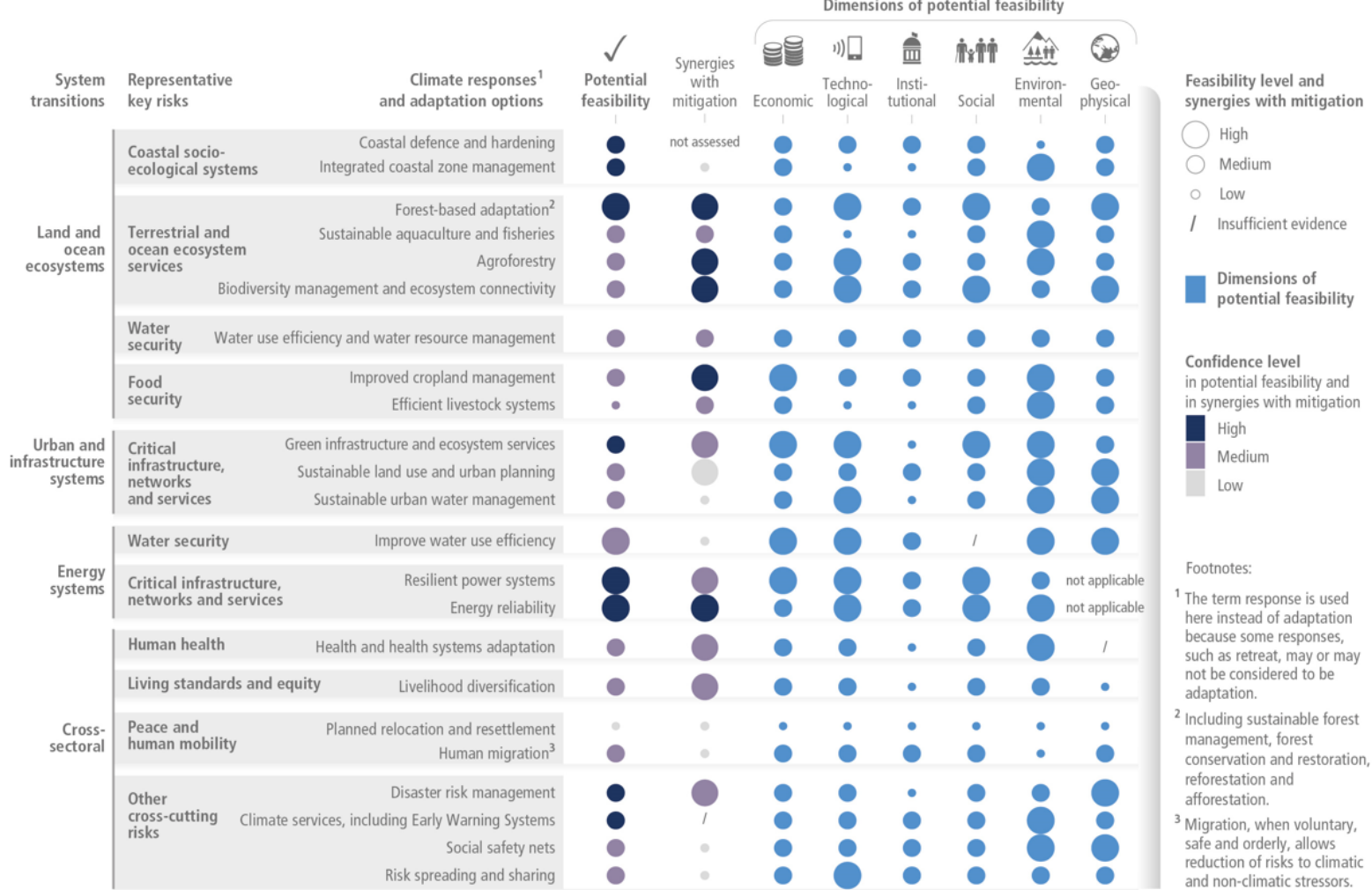


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Action on adaptation has increased but progress is uneven and we are not adapting fast enough.





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

Maladaptation

Adaptation that results in unintended consequences



The most disadvantaged groups are most affected by maladaptation.

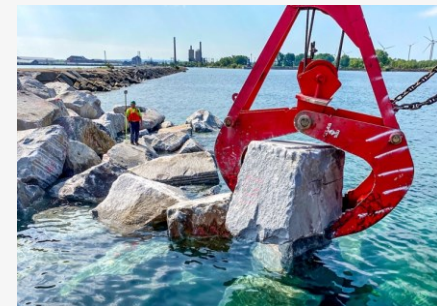


There are limits to adaptation

- 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





To avoid mounting losses, urgent action is required to adapt to climate change.

At the same time, it is essential to make rapid, deep cuts in greenhouse gas emissions to keep the maximum number of adaptation options open.




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

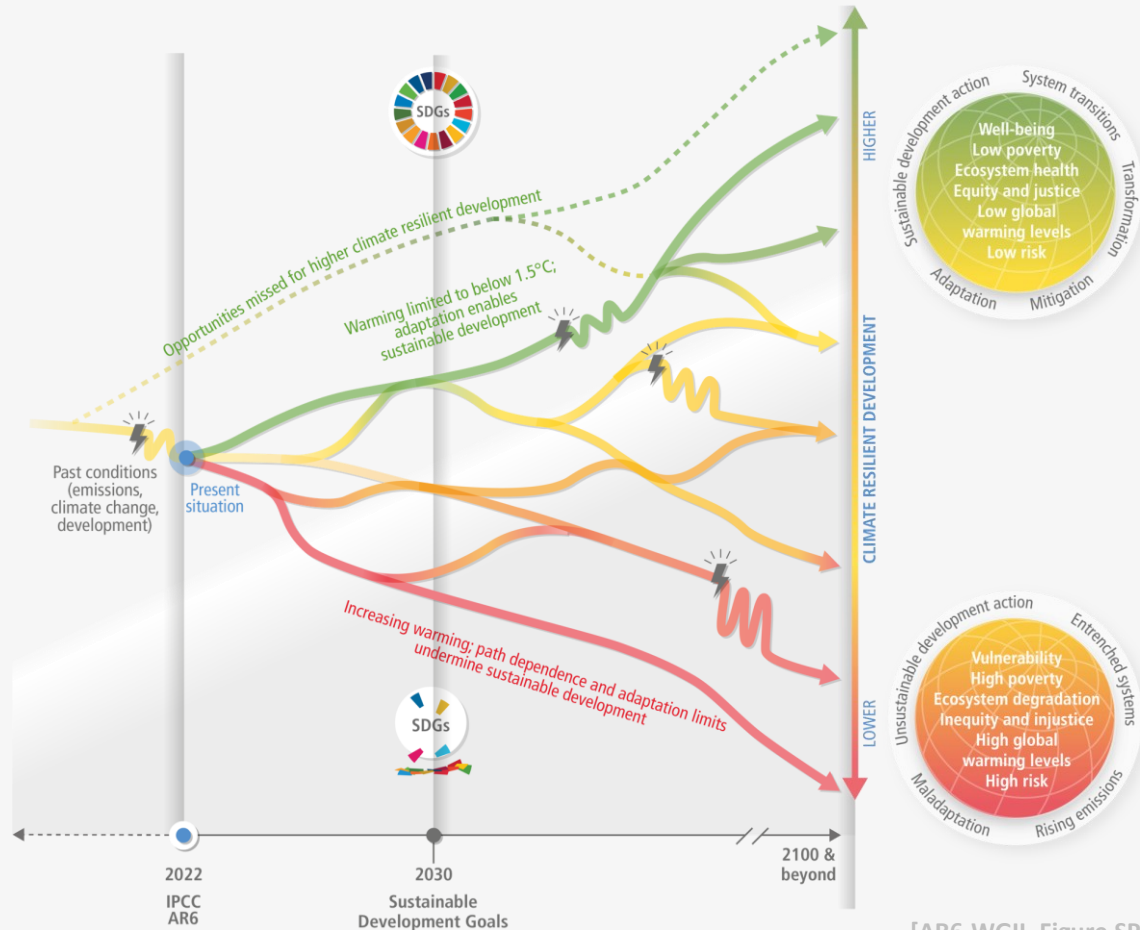
Increasing urgency

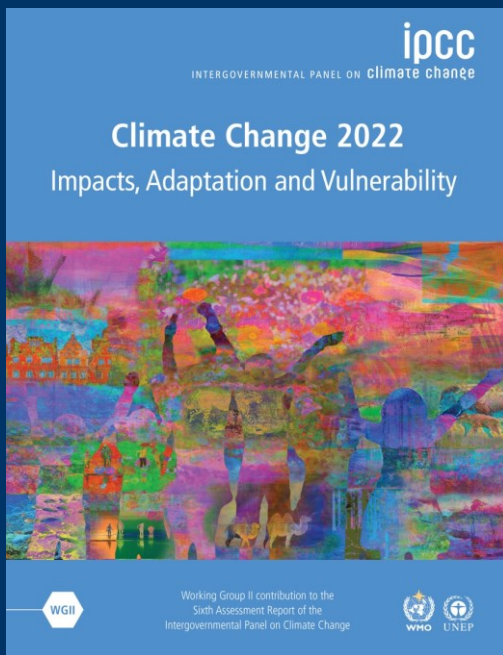
Starting today, every action, every decision matters.

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





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.