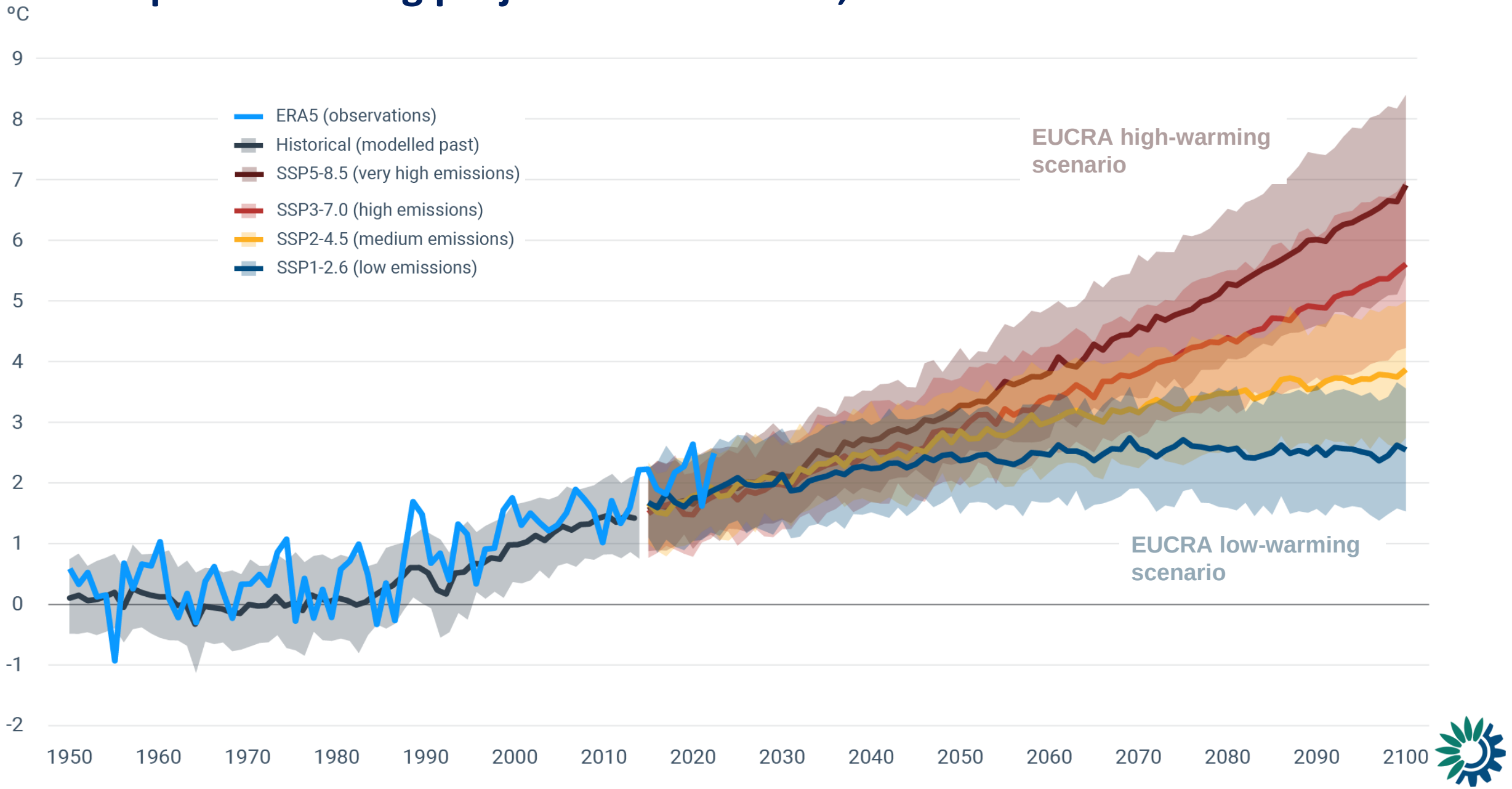
EUROPEAN CLIMATE RISK ASSESSMENT (EUCRA)

A comprehensive assessment of current and future climate risks in Europe

Leena Ylä-Mononen
Executive Director, European Environment Agency
23 April 2024

2023: a glimpse of 1.5°C

European warming projected to increase, but how much?



Source: Copernicus climate change service based on CMIP6

EUCRA: Helping build societal preparedness

- Climatic and non-climatic risk drivers in Europe
- Adaptation-related policy priorities
- Development of EU policies in climate-sensitive sectors
- Prioritisation of adaptation-related investments
- Reference for national and regional climate risk assessments

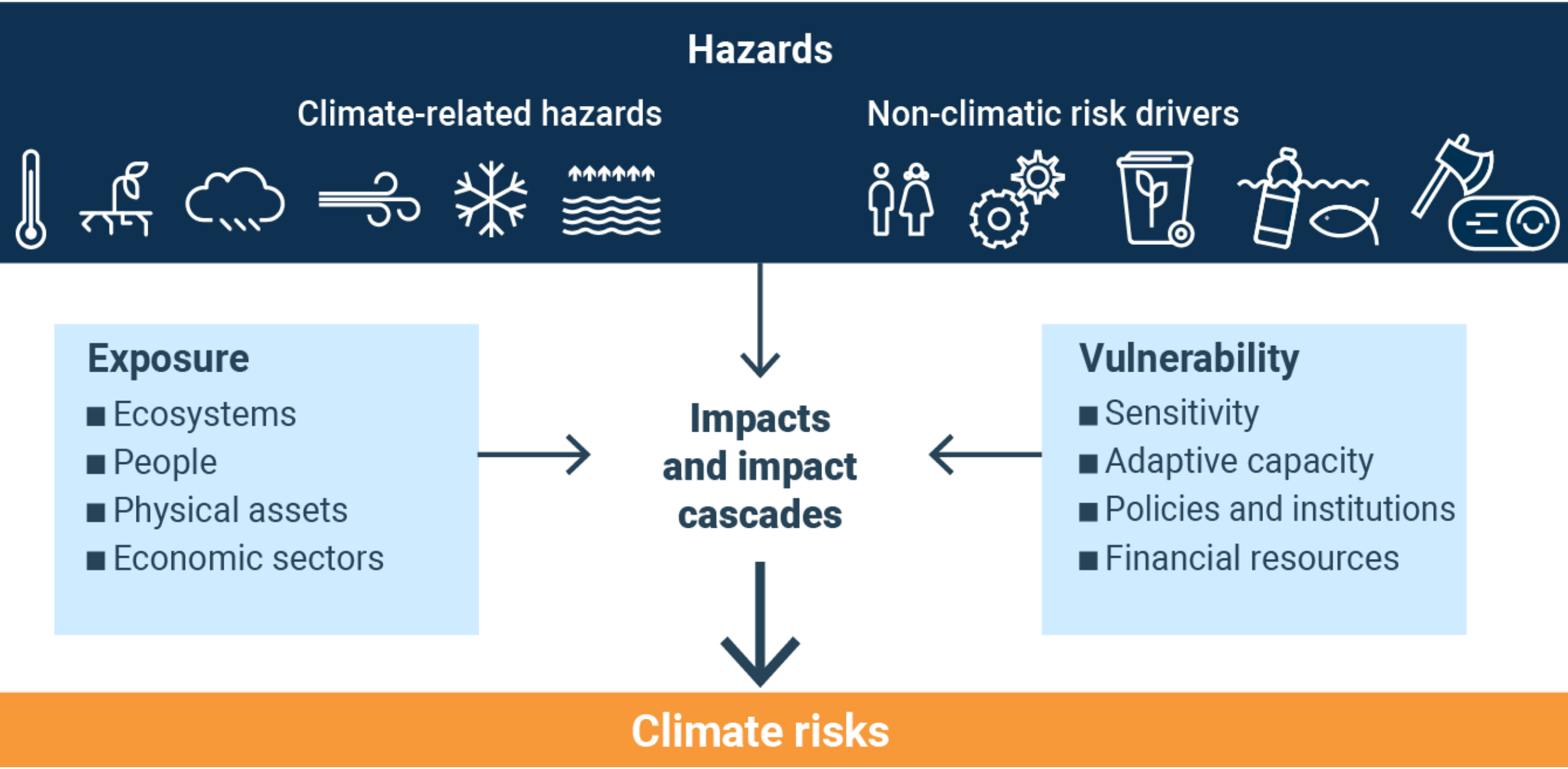
EUCRA thematic factsheets

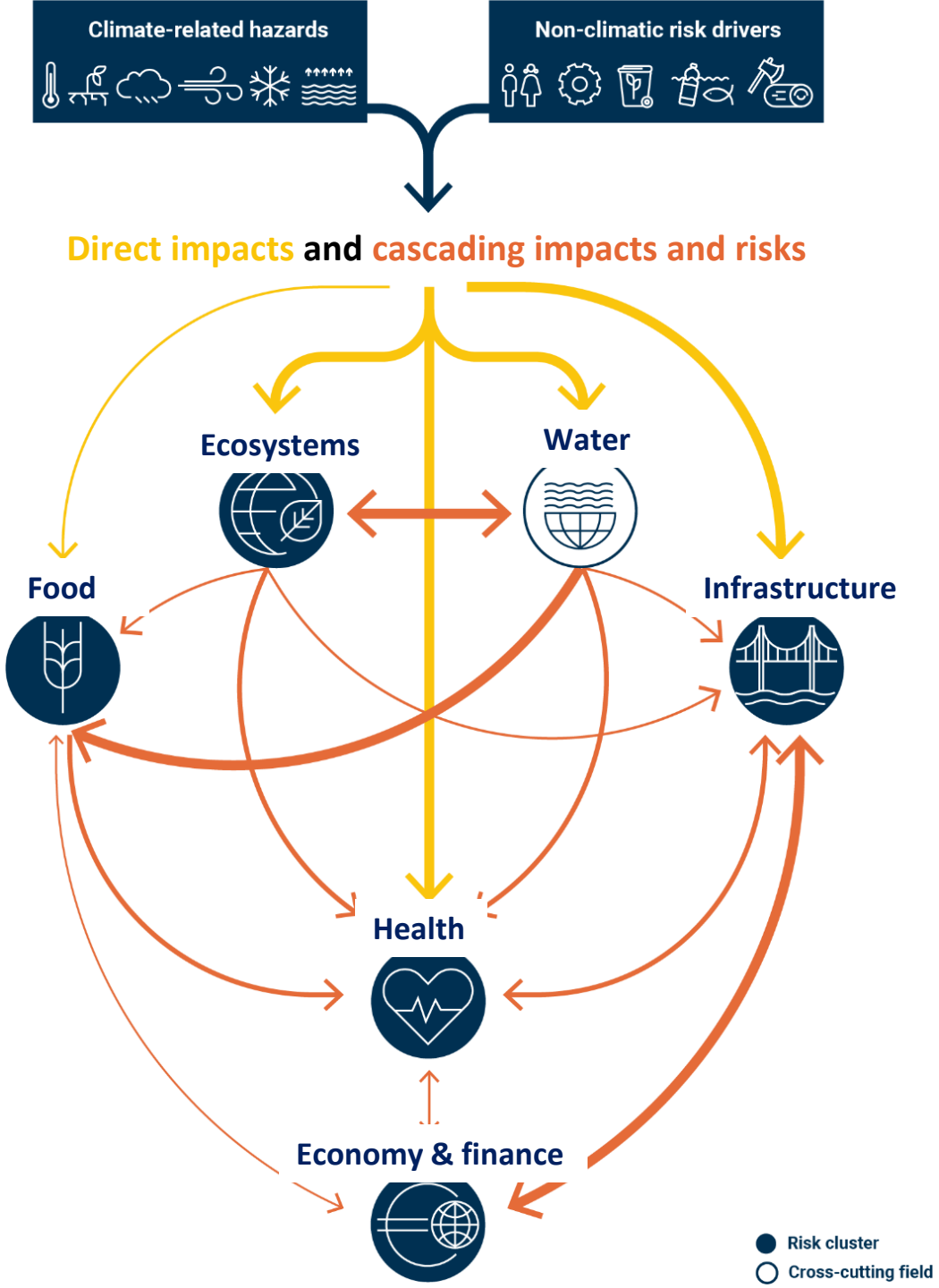
Terrestrial & freshwater ecosystems	Marine & coastal ecosystems	Water security	Food production & food security
Human health	Energy	Built environment	EU Outermost regions

EUCRA risk storylines

Extreme heat and prolonged drought	Large-scale flooding	Infectious diseases	Forest disturbances and carbon sinks
Major disruption of critical infrastructure	Disruption of international supply chains	Stability of financial markets & public finances	

Hazards do not occur in isolation





Climate risks can cascade across systems

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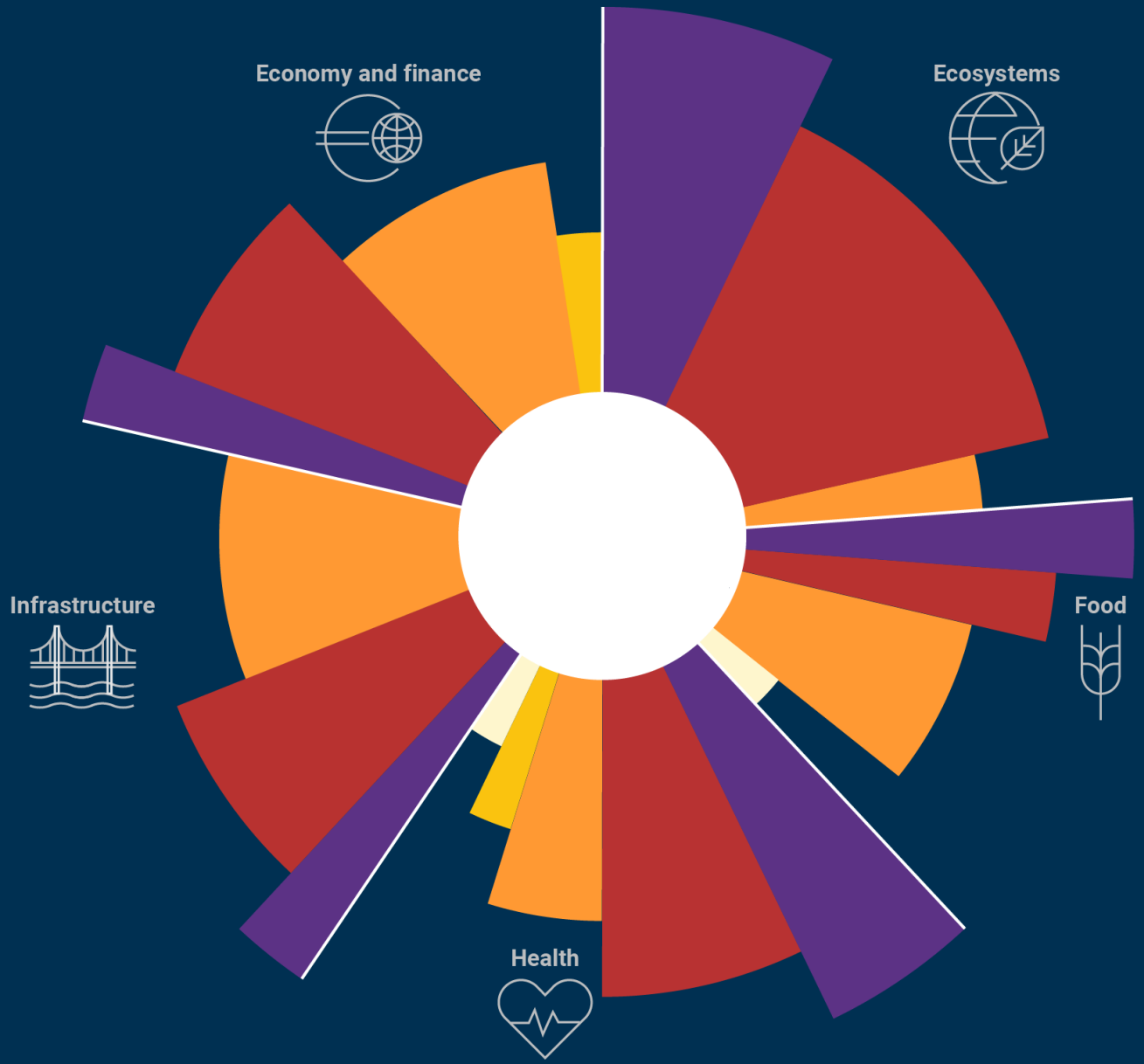
Priorities for EU policy on climate adaptation



- Urgent action needed
- More action needed
- Further investigation
- Sustain current action
- Watching brief

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Climate risks for 'Ecosystems' cluster	Urgency to act	Risk severity		
		Current	Mid-century	Late century (low/high warming scenario)
Coastal ecosystems		+++	+++	+++
Marine ecosystems		+++	+++	++
Biodiversity/carbon sinks due to wildfires (hotspot region: southern Europe)		+++	++	++
Biodiversity/carbon sinks due to wildfires		+++	++	++
Biodiversity/carbon sinks due to droughts and pests		+++	++	++
Species distribution shifts (*)		+++	++	++
Ecosystems/society due to invasive species		+++	++	++
Aquatic and wetland ecosystems		+++	++	++
Soil health (*)		+++	++	++
Cascading impacts from forest disturbances		+	+	+

Legends and notes

Urgency to act
- Urgent action needed
- More action needed
- Further investigation
- Sustain current action
- Watching brief

Risk severity
- Catastrophic
- Critical
- Substantial
- Limited

Confidence
Low: +
Medium: ++
High: +++

(*) Wide range of evaluations by authors and risk reviewers.
(**) Urgency based on high warming scenario (late century).

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Climate risks for 'Food' cluster	Urgency to act	Risk severity		
		Current	Mid-century	Late century (low/high warming scenario)
Crop production (hotspot region: southern Europe)		+++	++	++
Crop production		+++	++	++
Food security due to climate impacts outside Europe (*)		++	++	+
Food security due to higher food prices		++	+	+
Fisheries and aquaculture		++	+	+
Livestock production		++	++	+

Legends and notes

Urgency to act
- Urgent action needed
- More action needed
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- Watching brief

Risk severity
- Catastrophic
- Critical
- Substantial
- Limited

Confidence
Low: +
Medium: ++
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(*) Wide range of evaluations by authors and risk reviewers.
(**) Urgency based on high warming scenario (late century).

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Climate risks for 'Health' cluster	Urgency to act	Risk severity		
		Current	Mid-century	Late century (low/high warming scenario)
Heat stress — general population		+++	+++	+++
Population/built environment due to wildfires (hotspot region: southern Europe)		+++	+++	+++
Population/built environment due to wildfires		+++	++	++
Well-being due to non-adapted buildings (*)		++	++	++
Heat stress — outdoor workers (hotspot region: southern Europe)		+++	+++	+++
Heat stress — outdoor workers		+++	+++	+++
Pathogens in coastal waters		+	+	+
Health systems and infrastructure		+++	++	++
Infectious diseases		+++	++	++

Legends and notes

Urgency to act
- Urgent action needed
- More action needed
- Further investigation
- Sustain current action
- Watching brief

Risk severity
- Catastrophic
- Critical
- Substantial
- Limited

Confidence
Low: +
Medium: ++
High: +++

(*) Wide range of evaluations by authors and risk reviewers.
(**) Urgency based on high warming scenario (late century).

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Climate risks for 'Infrastructure' cluster	Urgency to act	Risk severity		
		Current	Mid-century	Late century (low/high warming scenario)
Pluvial and fluvial flooding		+++	+++	++
Coastal flooding		+++	+++	+++
Damage to infrastructure and buildings (*)		++	++	++
Energy disruption due to heat and drought (hotspot region: southern Europe)		++	++	++
Energy disruption due to heat and drought		++	++	+
Energy disruption due to flooding		++	++	++
Marine transport		++	++	++
Land-based transport		++	++	++

Legends and notes

Urgency to act
- Urgent action needed
- More action needed
- Further investigation
- Sustain current action
- Watching brief

Risk severity
- Catastrophic
- Critical
- Substantial
- Limited

Confidence
Low: +
Medium: ++
High: +++

(*) Wide range of evaluations by authors and risk reviewers.
(**) Urgency based on high warming scenario (late century).

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Economy and finance

Climate risks for 'Economy and finance' cluster	Urgency to act	Risk severity		
		Current	Mid-century	Late century (low/high warming scenario)
European solidarity mechanisms	Urgent action needed	+++	++	++
Public finances	More action needed	++	++	++
Property and insurance markets	More action needed	++	++	++
Population/economy due to water scarcity (hotspot region: southern Europe)	More action needed	++	++	++
Population/economy due to water scarcity	Further investigation	++	++	++
Pharmaceutical supply chains (*)	Further investigation	++	+	+
Supply chains for raw materials and components (*)	Further investigation	++	++	++
Financial markets	Further investigation	+	+	+
Winter tourism	Sustain current action	+++	+++	++

Legends and notes

Urgency to act
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European Environment Agency

Societal resilience: preparing for a changing climate

Thank you

Leena Ylä-Mononen
Executive Director, European Environment Agency
23 April 2024

Societal preparedness

Where are we and where are we going?

Elena Višnar Malinovská
Head of Unit, DG CLIMA Adaptation and Resilience to Climate Change

Forging a Climate Resilient Europe – 2021 Adaptation Strategy

Smarter adaptation

- Help close **knowledge** gaps on climate impacts and resilience, improve **data** recording, collection and access…

Faster adaptation

- Horizon **Missions**, climate proofing **guidance** and other decision support tools, **standardization**, sustainable **finance**, resilient **water** management…

More systemic adaptation

- Guidelines for National Adaptation Strategies, reskilling, public finances, nature-based solutions…

International

European Commission

2021 European Climate Law

Union and Member States to ensure continuous **progress** in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change

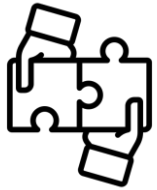
- Union institutions and MS to ensure that adaptation policies are **coherent, mutually supportive and work towards better integration of adaptation in a consistent manner** (*mainstreaming*) in all policy areas
- By 30 September 2023, and every five years thereafter, the Commission shall **review the consistency of Union measures** with ensuring progress on adaptation

2023 Progress Assessment: Union level

Commission committed to 49 actions in Adaptation Strategy

- Exceptionally **broad sectoral/topic coverage**, variety of timeframes
- Rapid **mainstreaming** in some areas like health policy, slower progress/sequencing in others

Some examples: European Climate and Health Observatory; Technical Guidance on Climate Proofing Infrastructure; Water Re-use Regulation; Horizon Mission on Adaptation…



Awareness and skills increasing across Commission departments due to ongoing coordination: improving **adaptive capacity**

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2023 Progress Assessment: National level (1)

Good coverage of acute **hazards** (heatwaves, droughts, pluvial floods…

- key hazards sometimes missing among slow-onset / chronic hazards (sea level rise and coastal flooding…)

Almost all Member States have conducted **climate risk assessments**

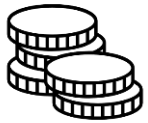
- Robust, comprehensive assessments covering more than 5 sectors an exception

Adaptation a **legal obligation** in 8 MS

- PM office rarely involved in coordination; adaptation **voluntaristic** in many MS

2023 Progress Assessment: National level (2)

Progress made in implementing measures – but tracking and **measuring impact** is difficult/lacking



Financing: most countries lack dedicated budgets; gaps in assessing needs; project pipelines need improvement

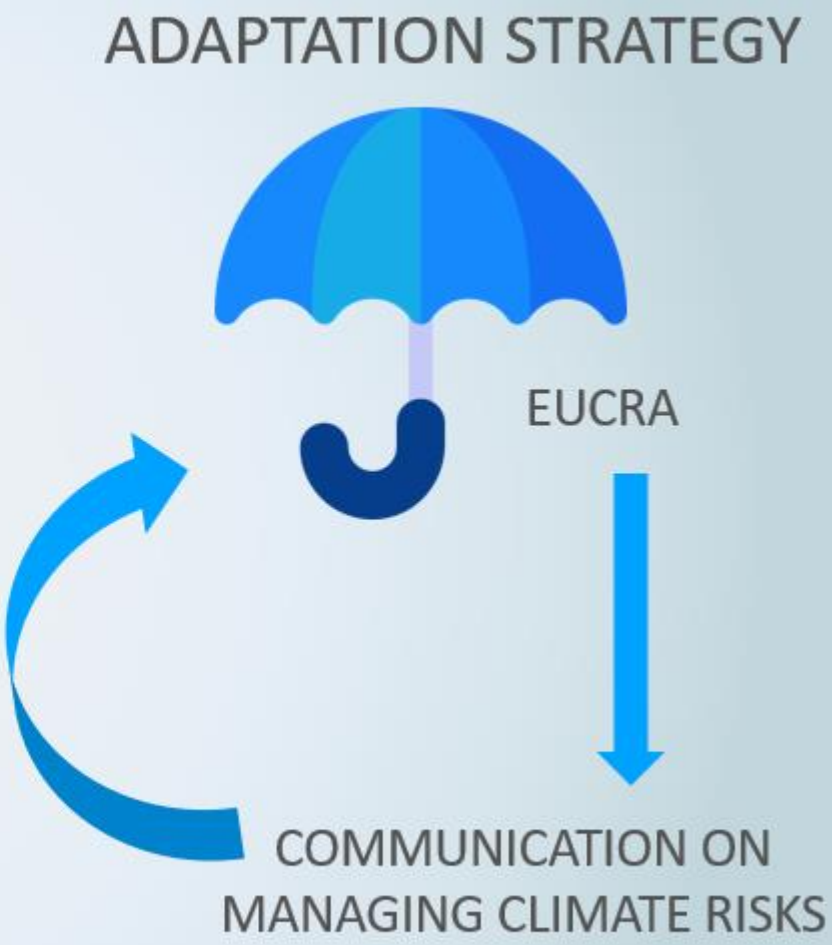
Nature-based solutions (NBS) not sufficiently included at the strategic level and through policy documents: may hamper systemic deployment

International and transnational **cooperation** progressed in 2/3 of MS

Good examples exist on measuring progress, on NBS, cooperation etc

Communication on managing climate risks

European Commission



Drawing on design by TinyPPT.com and Freepik

Communication “Managing climate risks – protecting people and prosperity”

Main parameters of the Communication:

- Demonstrates EU readiness to respond to the evolving reality
- Geographic focus within the EU
- Risk ownership a central concept - identifying responsibility for managing risks, notably between EU and MS level
- Calibrated to the end of mandate, mostly about good decision-making processes and tools.

1. **Introduction**: explains why urgent action is needed and how it builds on existing processes

2. **Analysis/climate science**: Provides a condensed selection of the evidence and the uncertainties.

3. Solutions space (provides key horizontal actions)

3.1. Improved governance
3.2. Tools for empowering risk owners
3.3. Harnessing structural policies
3.4. Right preconditions for financing climate resilience

4. Key actions in in main impact clusters

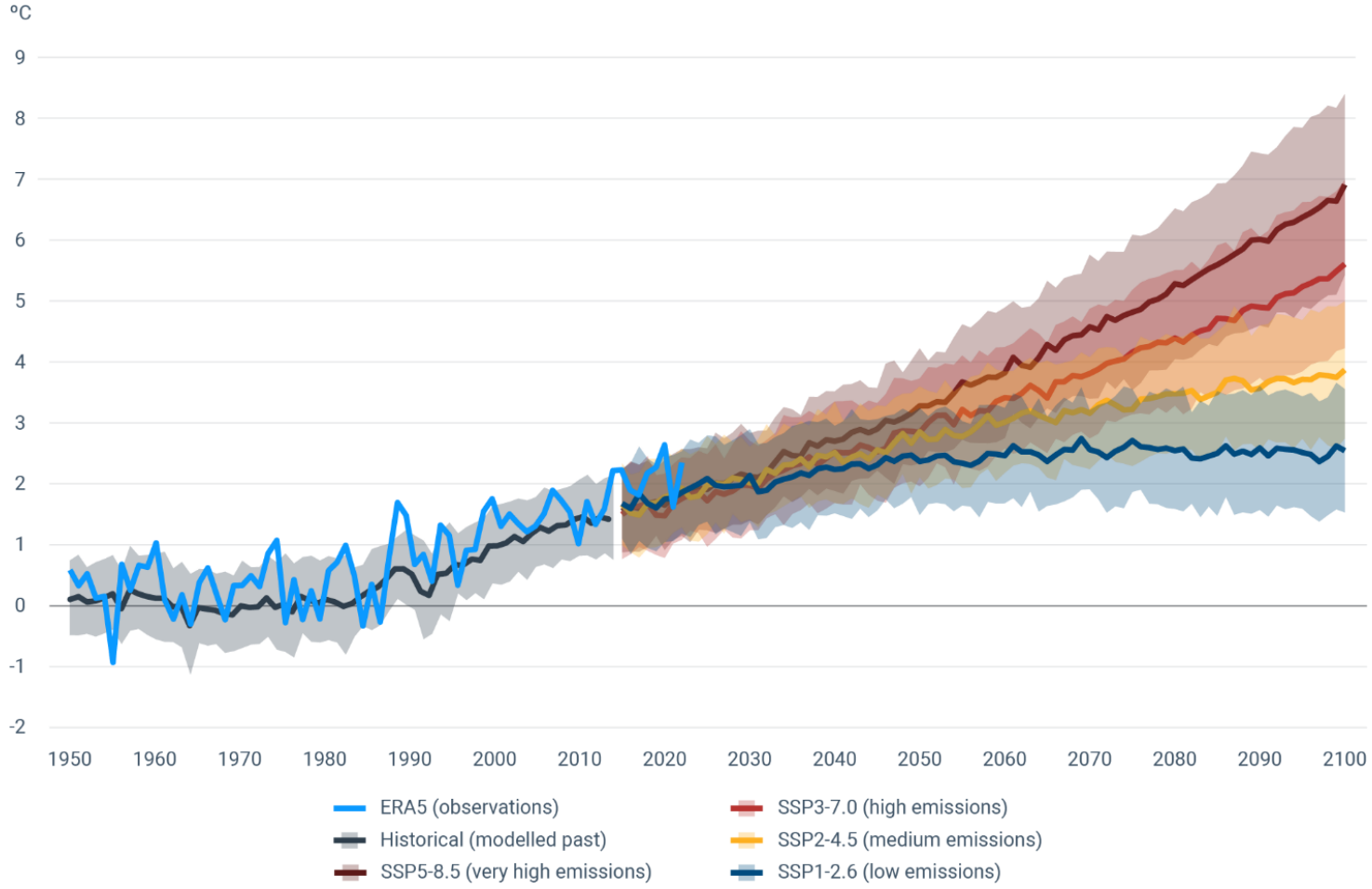
4.1.Natural ecosystems
4.2. Water
4.3.Health
4.4.Food
4.5.Infrastructure
4.6.Economy

5. Next steps

European Commission

Chapter 1: Introduction

- Climate impacts will increase; mitigation & adaptation as part of the response package to the same problem.
- There is public demand for more action of resilience
- Not starting from scratch, but current action not sufficient
- Policy-makers have agency – risks can be managed



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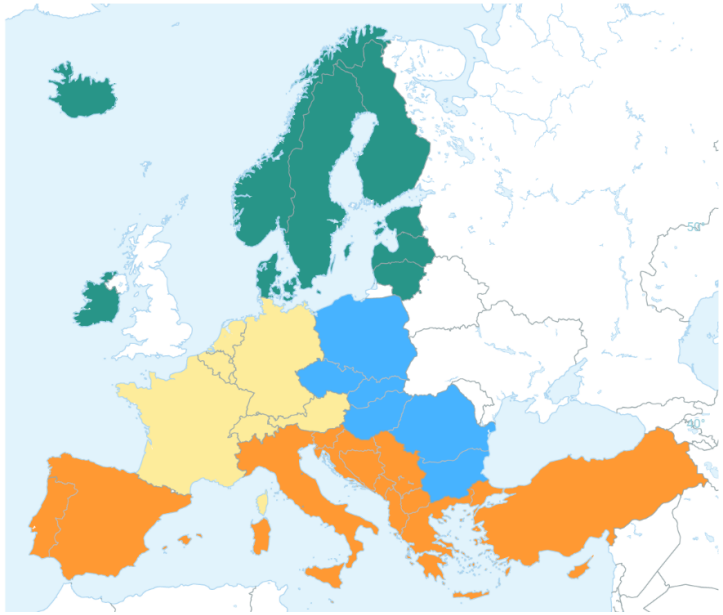
Chapter 2: Diagnostics

Hazards are increasing

Land regions	Northern Europe			Western Europe			Central-Eastern Europe			Southern Europe		
	Past	Future		Past	Future		Past	Future		Past	Future	
		Low	High		Low	High		Low	High		Low	High
Mean temperature	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Heat wave days	□(*)	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Total precipitation	↗	↗	↗	↗	⟋	↘	↗	↗	⟋	↘	↘	↘
Heavy precipitation	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Drought	↗	↘	↘	↗	⟋	↗	↗	⟋	↗	↗	↗	↗

European regional seas	Past	Future
Sea surface temperature	↗	↗
Sea level	↗	↗



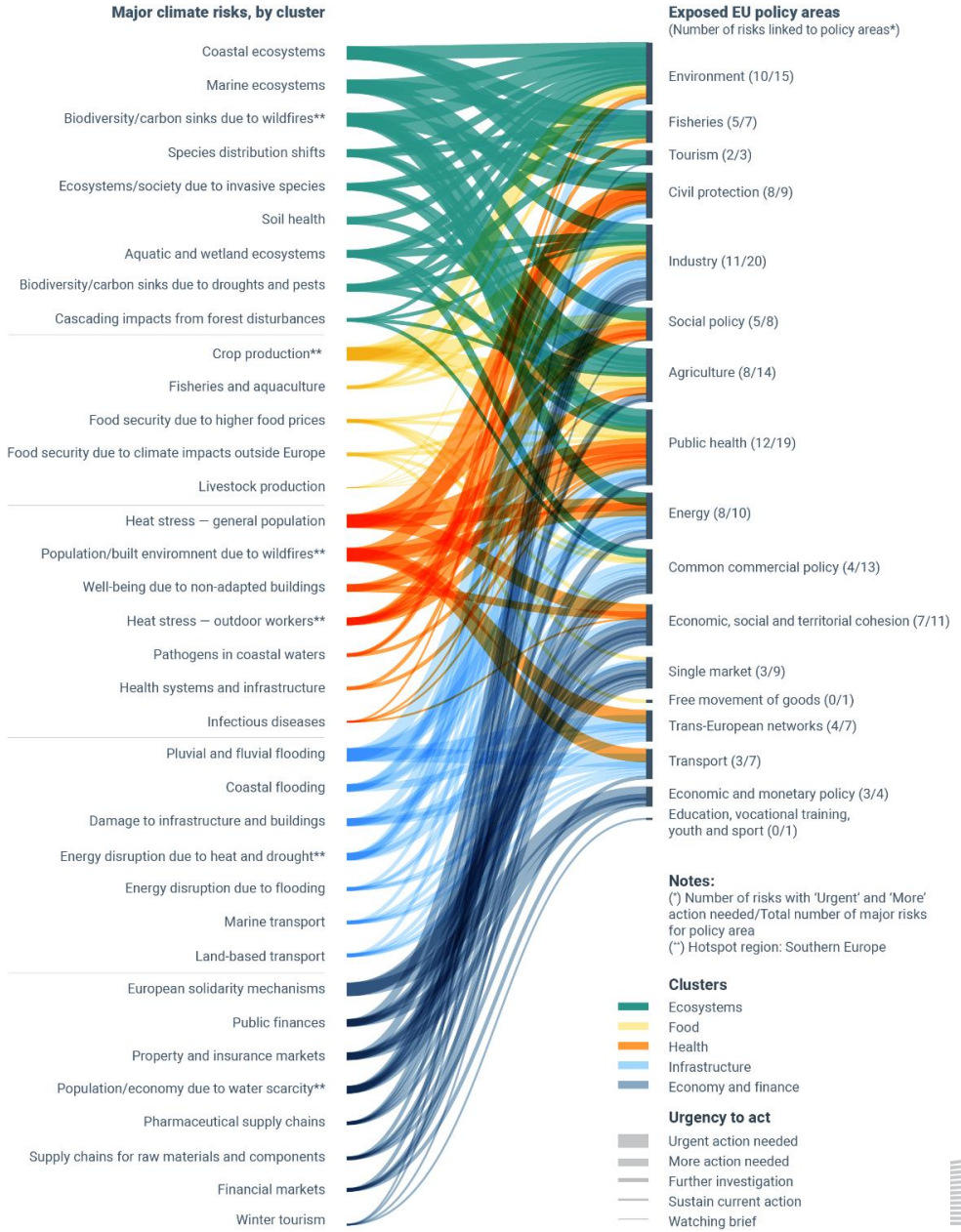
Legend

- ↗ Increase
- ↗ Increase (limited agreement between models, datasets or indices)
- ↘ Decrease
- ↘ Decrease (limited agreement between models, datasets or indices)
- ⟋ Low confidence in direction of change
- □ No change

Note

(*) Other heatwave indices show an increase for the past

Risks and solutions are interconnected

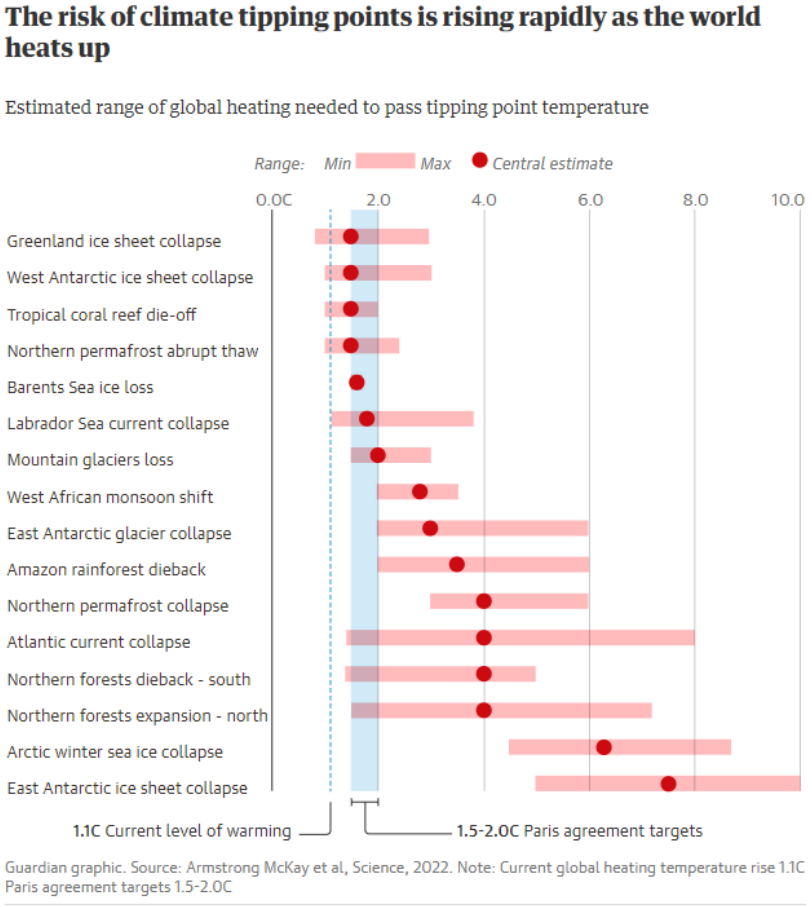


European Commission

Chapter 2: uncertainties

Big ”known unknowns“

- The climate scenarios are a useful indication of the likely outcomes (with confidence intervals), depending on GHG emissions. BUT,
- They don’t account for “tail risks”, the compounding and cascading impacts.
- For policy decision, these are important. The science on climate tipping points underlines the need for preparing.
- Uncertainty is not a valid excuse for inaction.



Chapter 3: Horizontal actions

Governance

Tools

Structural policies

Financial resilience

3.1 Governance

Overall call to implement existing commitments.

- Need clear risk ownership, based on subsidiarity
  - COM calls on sector-processes to check the agreement on how responsibilities are divided between EU-MS levels, notably in implementation choices
- Stronger governance structures
  - Stressing the need to ensure that local-regional-national responsibilities are clear and adequately resourced
  - COM will review its processes, notably the implementation of the climate consistency check in the Better Regulation requirements
- Synergies in EU-level governance processes
  - COM will review whether the implementation of the risk assessment, monitoring and reporting requirements can be facilitated within the current legislative frameworks.

3.2 Tools

Recognising that risk owners may not have appropriate capacities and tools to effectively embed climate risks in their processes.

- **Climate data, modelling tools**, indicators, warning systems, guidance, and better access to these. Notably the upcoming DestinE.
- **Baseline climate scenarios**. The RCP4.5 should be the baseline scenario for considering climate impacts in any models; for stress-testing more adverse should be used.
- **Administrative capacities**. COM will support a consolidate knowledge base and will use the existing programmes to support Member States.
- **Combat disinformation**. COM will use the existing tools to better fight climate disinfo, including in the Digital Services Act compliance.

3.3. Structural policies

Stressing three policy areas that are horizontally important for managing climate (and other) risks across many sectors:

- **Spatial planning**. A MS/local competence, defines a big part of exposures and vulnerability. Decisions on spatial planning should be explicit on how much residual climate risks they accept. COM will also consider if can support better.
- **Critical infrastructure**. The CER directive is the EU level framework, and covers climate risks. How MS choose to implement this determines a lot about residual climate risks.
- **EU-level solidarity mechanisms**. Both UCPM and EUSF are stretched, and may need more topping up. COM will see if there are ways to incentivise preparedness, to reduce pressure on solidarity measures

3.4 Finance

Focus is on the updating the decision-frameworks in a way that makes preventing climate-related disruptions the best choice economically.

- **EU spending***. Implementing the DNSH principle in the revised Financial Regulation for the post-2027 MFF will embed climate risks.
- **Public procurement**. MS should take climate risks into account in tender design and make use of the non-price criteria, so decisions are resilient in the longer term.
- **Mobilising finance**. COM sets up a Reflection Group to gather ideas on how to build better incentives for private investments for resilience.

** National budgets/Econ.GovernanceReview is covered in 4.6*

Chapter 4: Actions in impact clusters

4.1. Natural ecosystems
- Implementation of legislation and better accounting of the value of natural systems
- Forest disturbances and carbon sinks
- Maritime ecosystems
- Climate-resilient landscapes

4.2. Water
- Safeguarding freshwater supplies
- Comprehensive stocktake of water issues

4.3. Health
- Occupational safety and health (linked to heat)
- European Climate and Health Observatory
- Monitoring on cross-border health threats
- Mobilisation of medical personnel and patient transfer
- Critical medical countermeasures

4.4. Food
- Food safety and affordability
- Future-proofing agriculture
- Fisheries policy

4.5. Infrastructure and built environment
- Infrastructure and building standards
- Transport infrastructure
- Energy infrastructure

4.6. Economy
- Resilience of firms, notably SMEs and supply chains
- Fiscal sustainability
- Financial markets stability

Chapter 5: Next steps

International dimension

- EU will exchange with international partners for mutual learning in various fora.
- Possible international event in 2025 about managing climate risks.

Political framing

Not an endpoint: building resilience requires concerted action and Commission will continue to work with all to take this forward.

Thank you

European Commission

The Limits to Climate Change Adaptation

Jean-Pascal van Ypersele

(Université catholique de Louvain)
Former IPCC Vice-Chair (2008-2015)

Chair of Energy & Climate Working Group, Belgian Federal Council for Sustainable Development (FRDO-CFDD)

X/Twitter: @JPvanYpersele

EEAC, FRDO-CFDD, MinaRaad Conference on Resilience and Climate Adaptation, Brussels, 23 April 2024

Thanks to the Walloon Government (funding the Walloon Platform for IPCC) and to my team at the Université catholique de Louvain for their support

Source: @JohnfoCook

IPCC AR6 definition

Limit to adaptation:

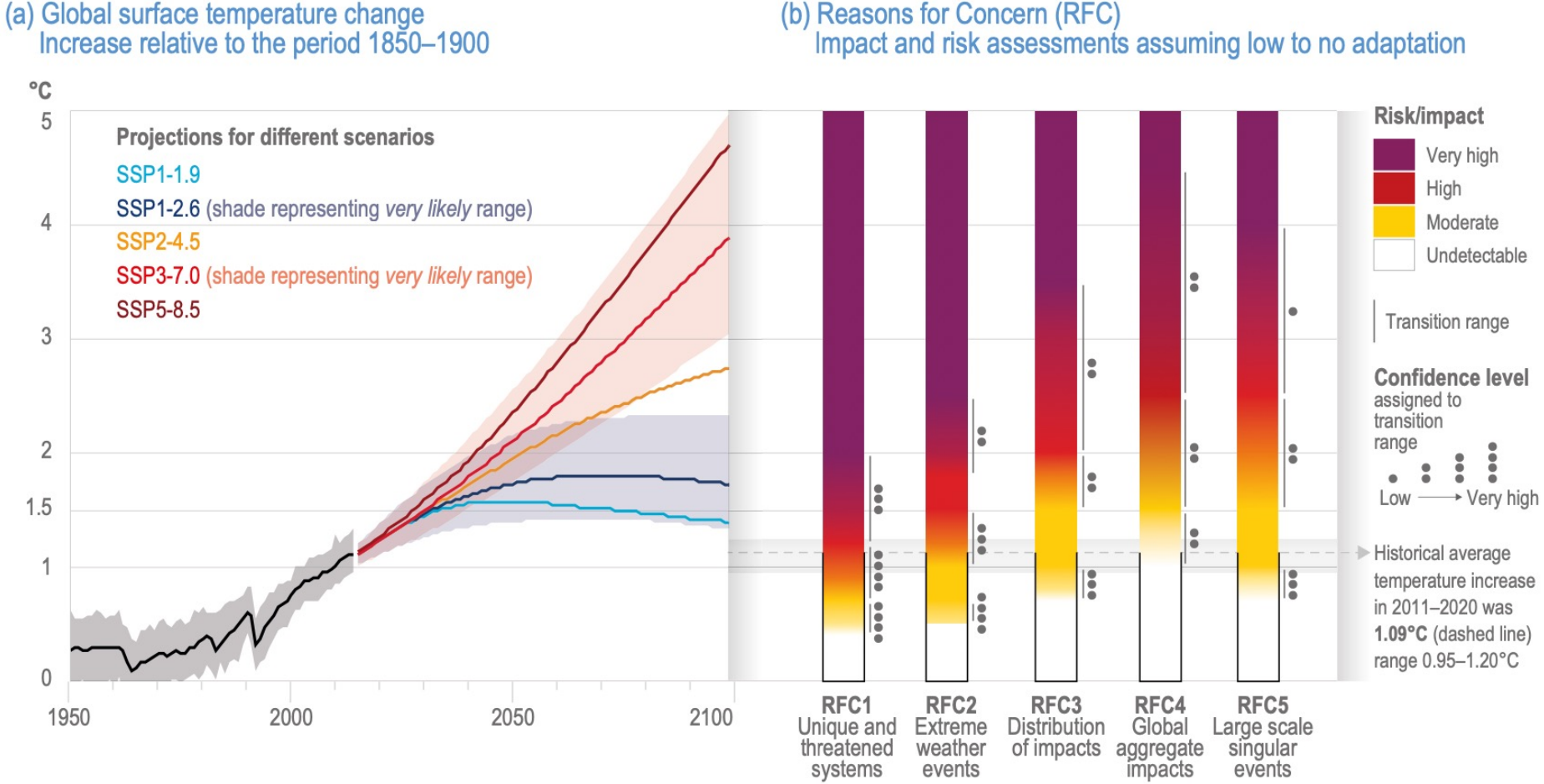
The point at which an actor's objectives (or system needs) cannot be secured from intolerable risks through adaptive actions.

IPCC AR6 definitions

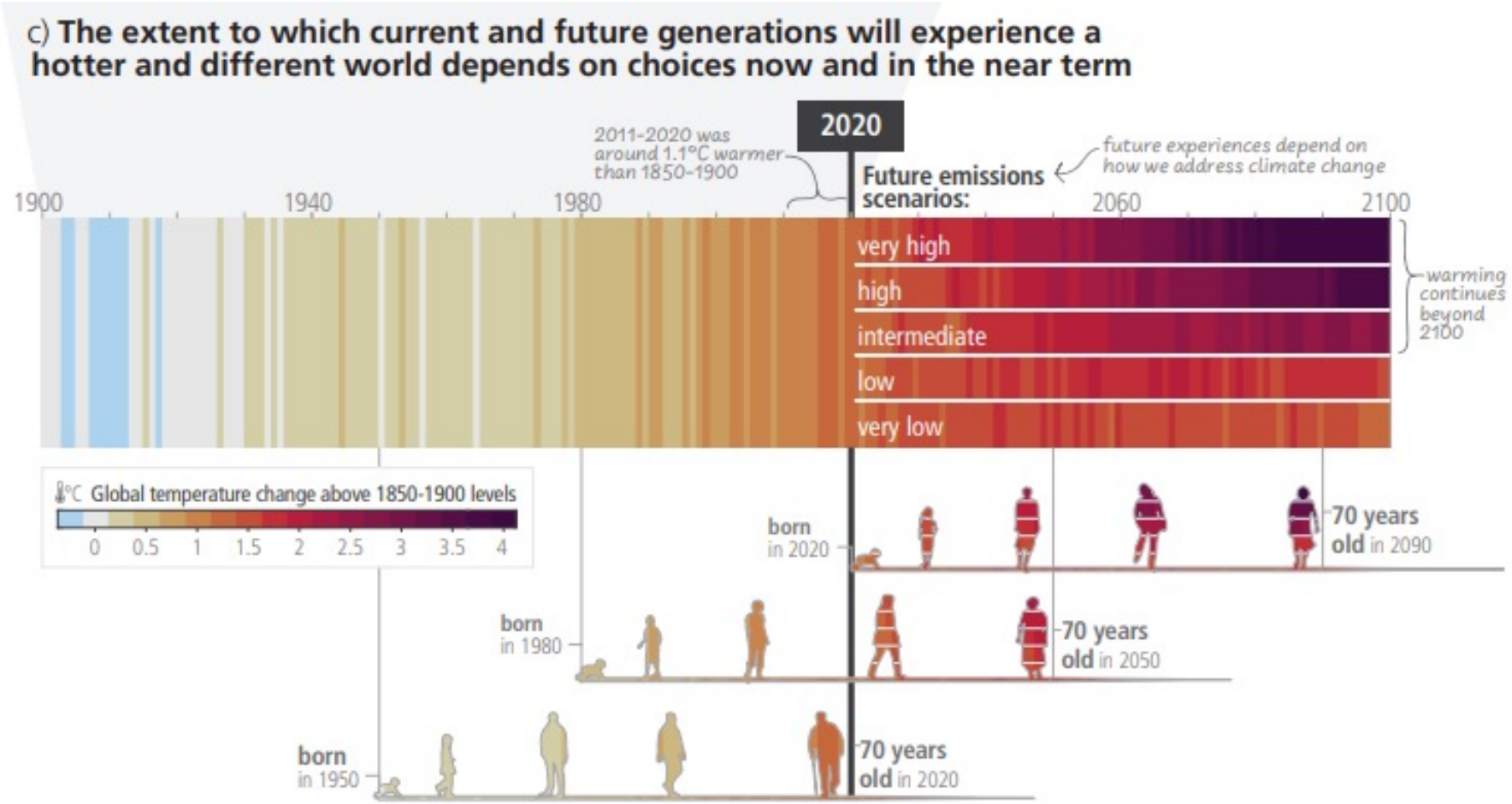
- **Hard** adaptation limit – No adaptive actions are possible to avoid intolerable risks.
- **Soft** adaptation limit – Options may exist but are currently not available to avoid intolerable risks through adaptive action.

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.



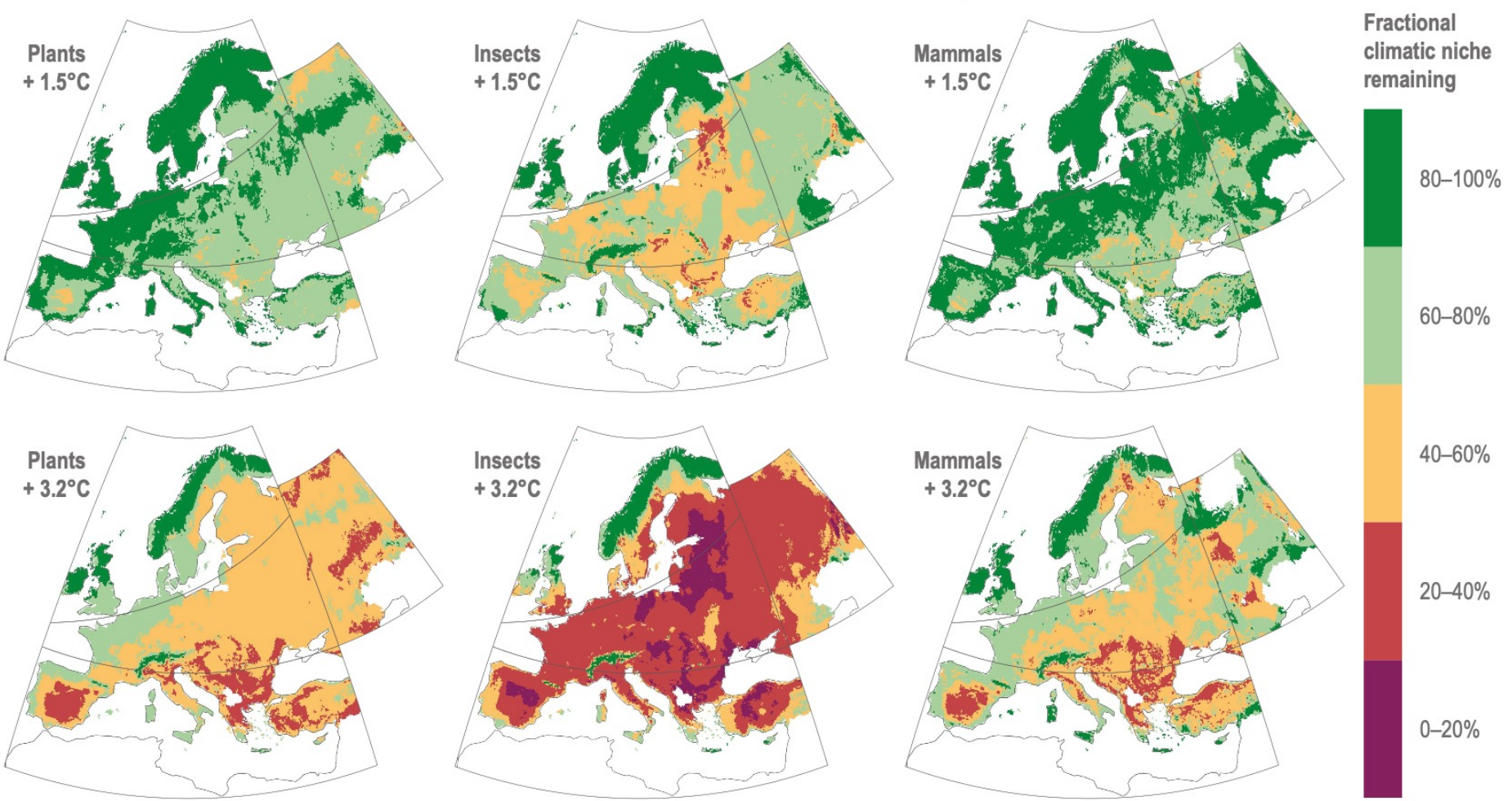
Source: IPCC AR6 WGII SPM, Fig. SPM.3



Source: IPCC AR6 SYR SPM

Species projected to remain in suitable climate conditions in Europe

Source: IPCC AR6 WGII, Chap 13



Indicative adaptation limits in cities, settlements and key infrastructure in Europe

Economic activities and leisure	Supply of energy & water	City / town	Household / Building
Technical limits Limited resources for implementing adaptation Technological limits	**Technical limits** Technical/ management measures not possible due to plant characteristics	**Technical limits** Limited efficacy of measures under high/ rapidly changing climate hazards	**Technical limits** Physical characteristics of building stock
Socio-economic limits High investments needed Small size of enterprises	**Socio-economic limits** High installation costs for large-scale adaptation Too risky investments when in highly vulnerable locations	**Socio-economic limits** High investments to upgrade municipal facilities High installation cost for new infrastructure	**Socio-economic limits** Low probability hazards prohibit adaptation payoff Poverty Comfort and safety
Environmental & regulatory limits Limited water resources Shift to other locations is prohibited Limited areas for expansion	**Environmental & regulatory limits** Limited water resources Competitive water uses	**Environmental & regulatory limits** Space constraints for expanding green infrastructure	**Environmental & regulatory limits** Legislation on buildings and appliances

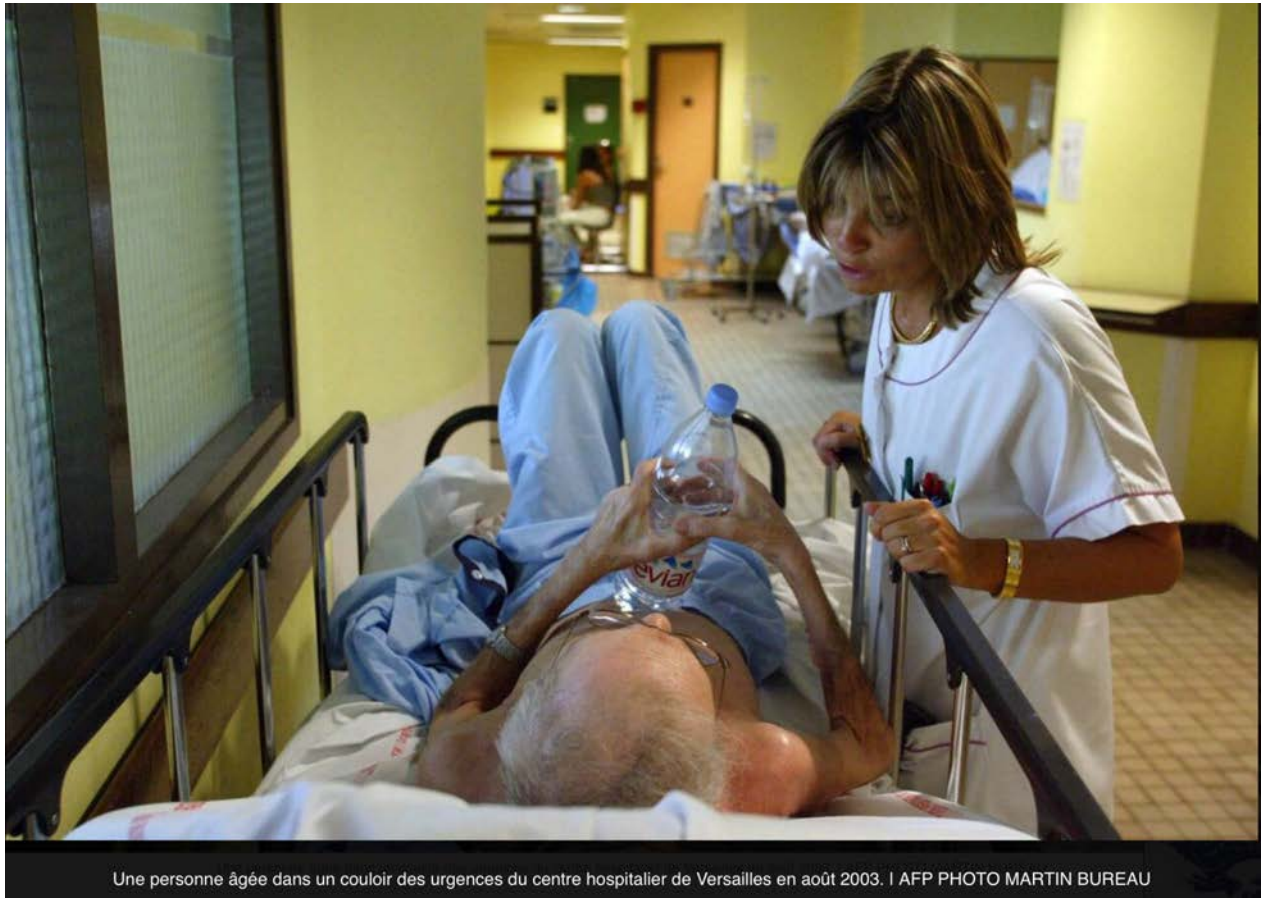
Source: IPCC AR6 WGII, Chap 13

Figure 13.21 | Indicative adaptation limits in cities, settlements and key infrastructures in Europe (Table SM13.16)

Since 1950, extreme hot days and heavy precipitation have become more common

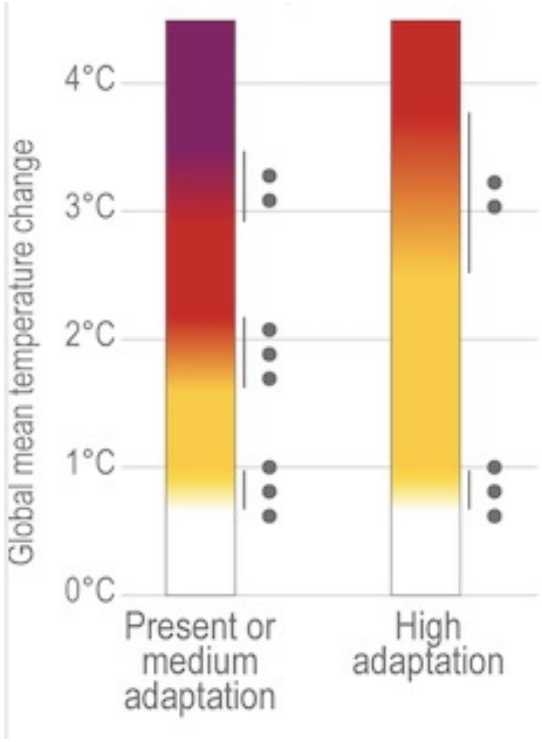
There is evidence that anthropogenic influences, including increasing atmospheric greenhouse gas concentrations, have changed these extremes

Heat waves kill

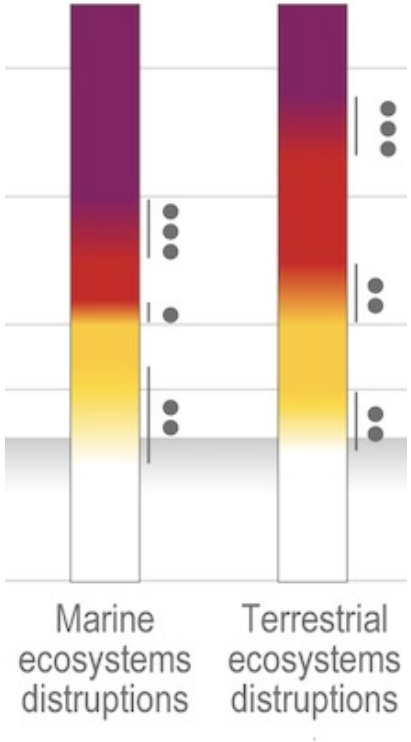


Une personne âgée dans un couloir des urgences du centre hospitalier de Versailles en août 2003. I AFP PHOTO MARTIN BUREAU

Heat stress, mortality and morbidity

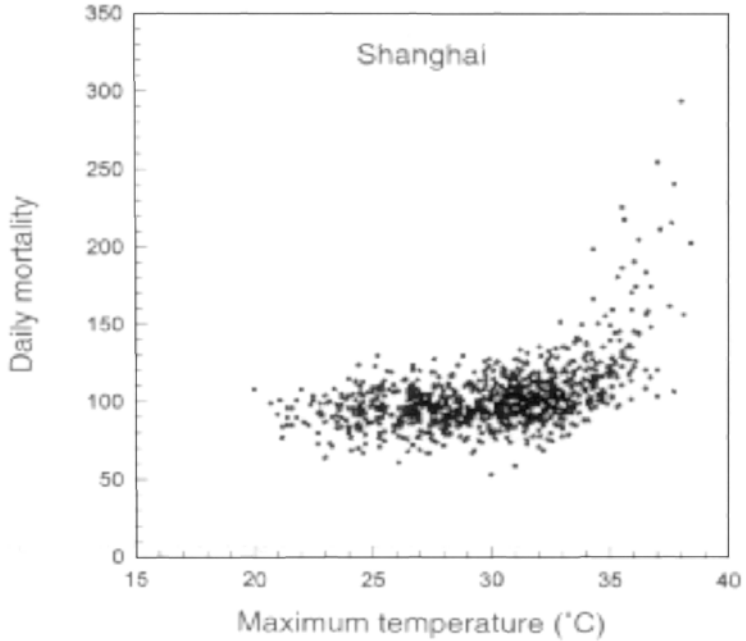


Ecosystems



Source: IPCC AR6 WGII, Chap 13

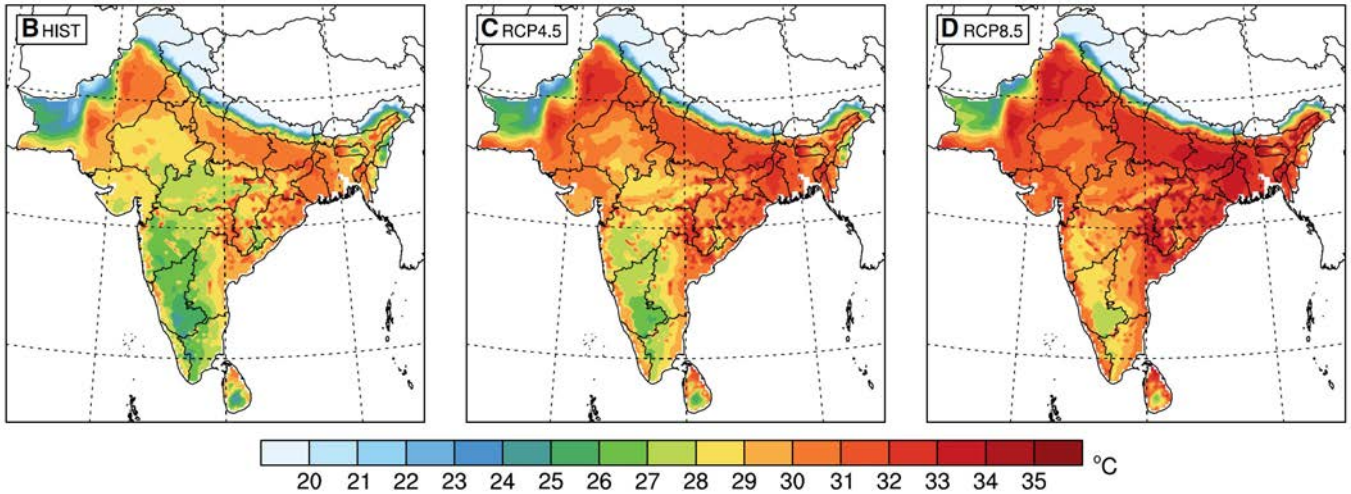
Relationship between maximum temperature and mortality in Shanghai, China, 1980-89



Référence : CILIMATE CHANGE AND HUMAN HEALTH, 1996

Jean-Pascal van Ypersele (vanyp@climate.be)

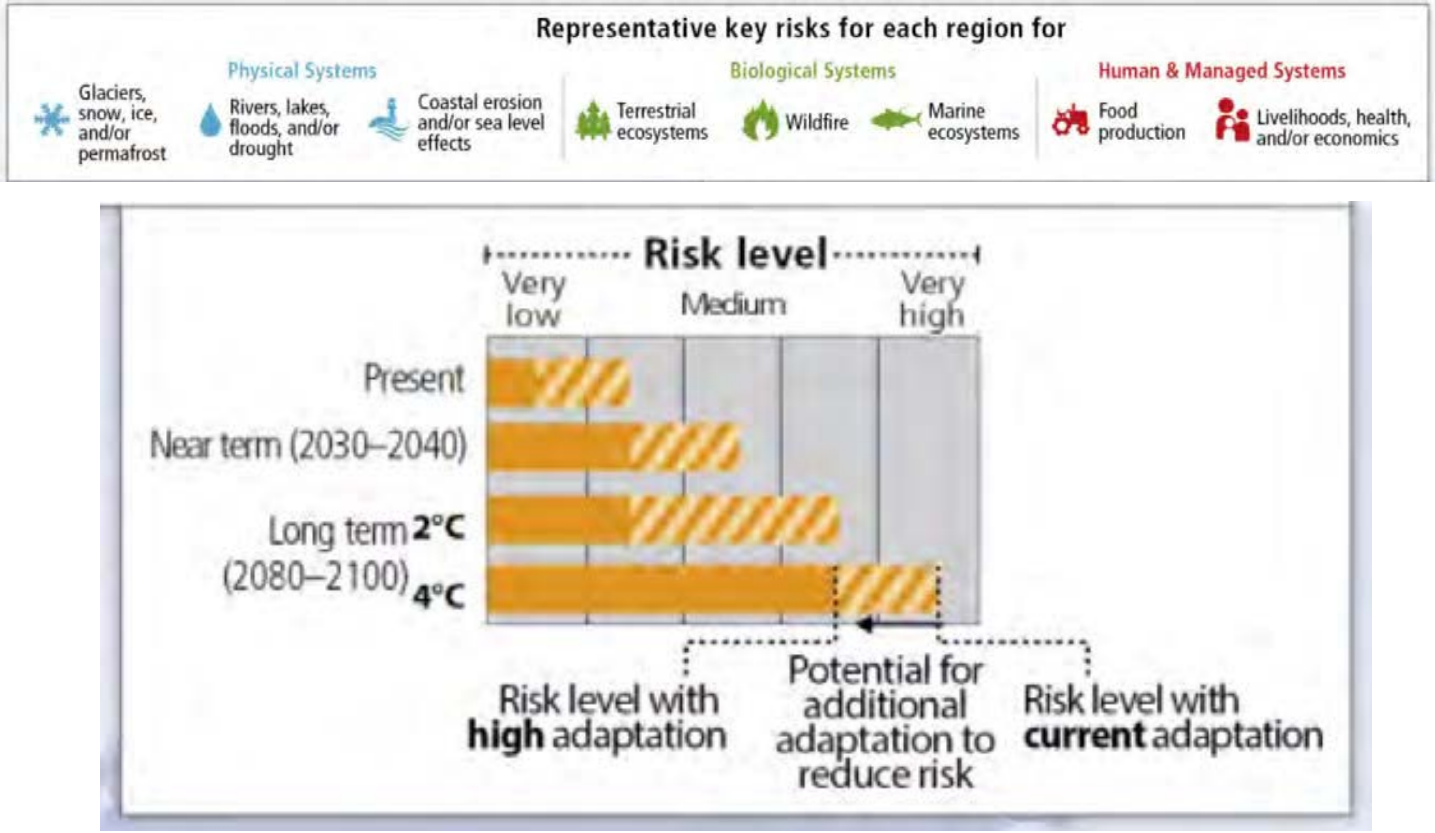
Maximum wet bulb temperature in South Asia (°C) (35°C during 6 hours is considered deadly)



Spatial distributions of bias-corrected ensemble averaged 30-year TWmax for each GHG scenario: HIST (1976–2005) (B), RCP4.5 (2071–2100) (C), and RCP8.5 (2071–2100) (D).

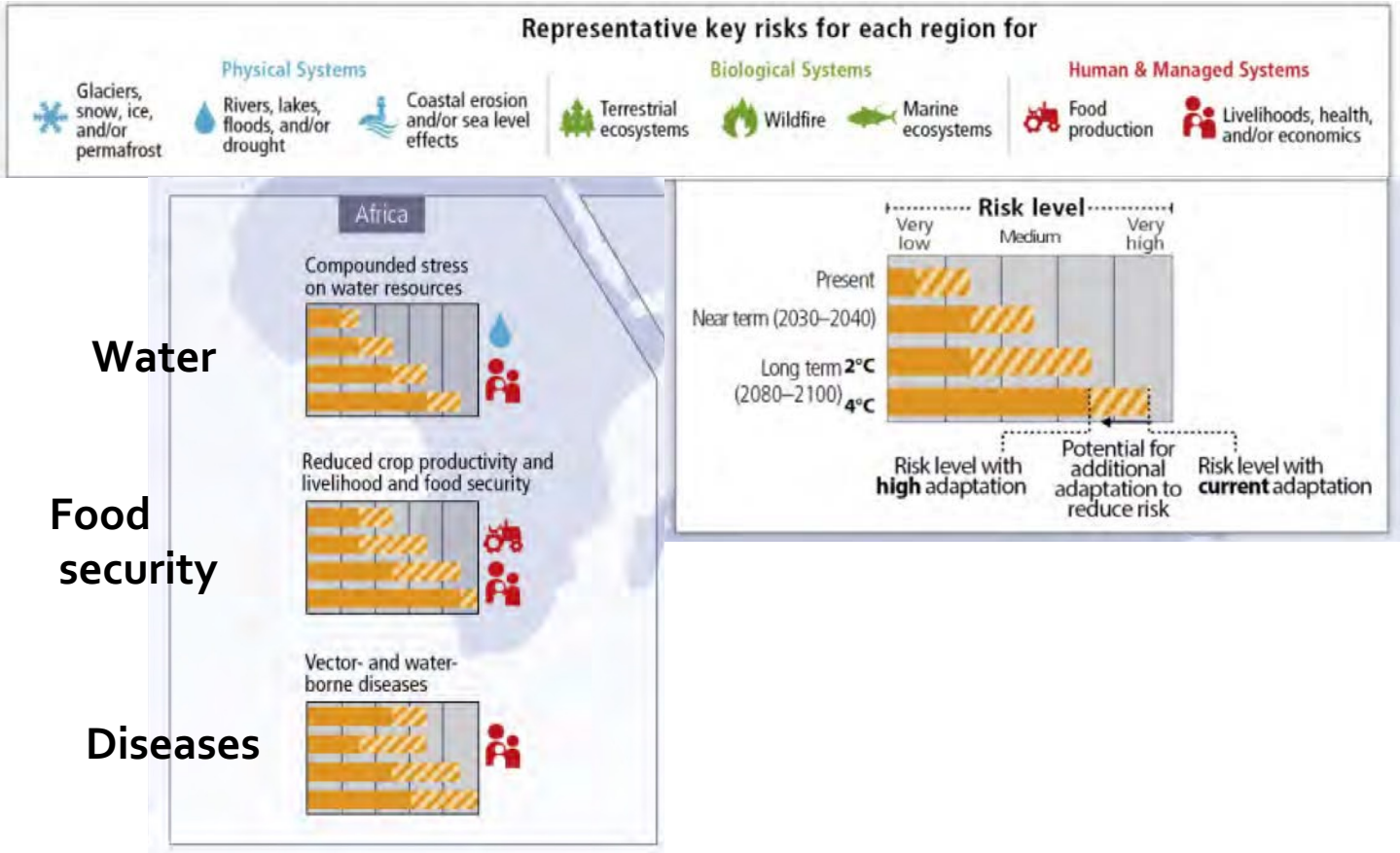
Source: Im et al., 2017 « Deadly heat waves projected in the densely populated agricultural regions of South Asia », Science advances.

Regional key risks and potential for risk reduction through adaptation

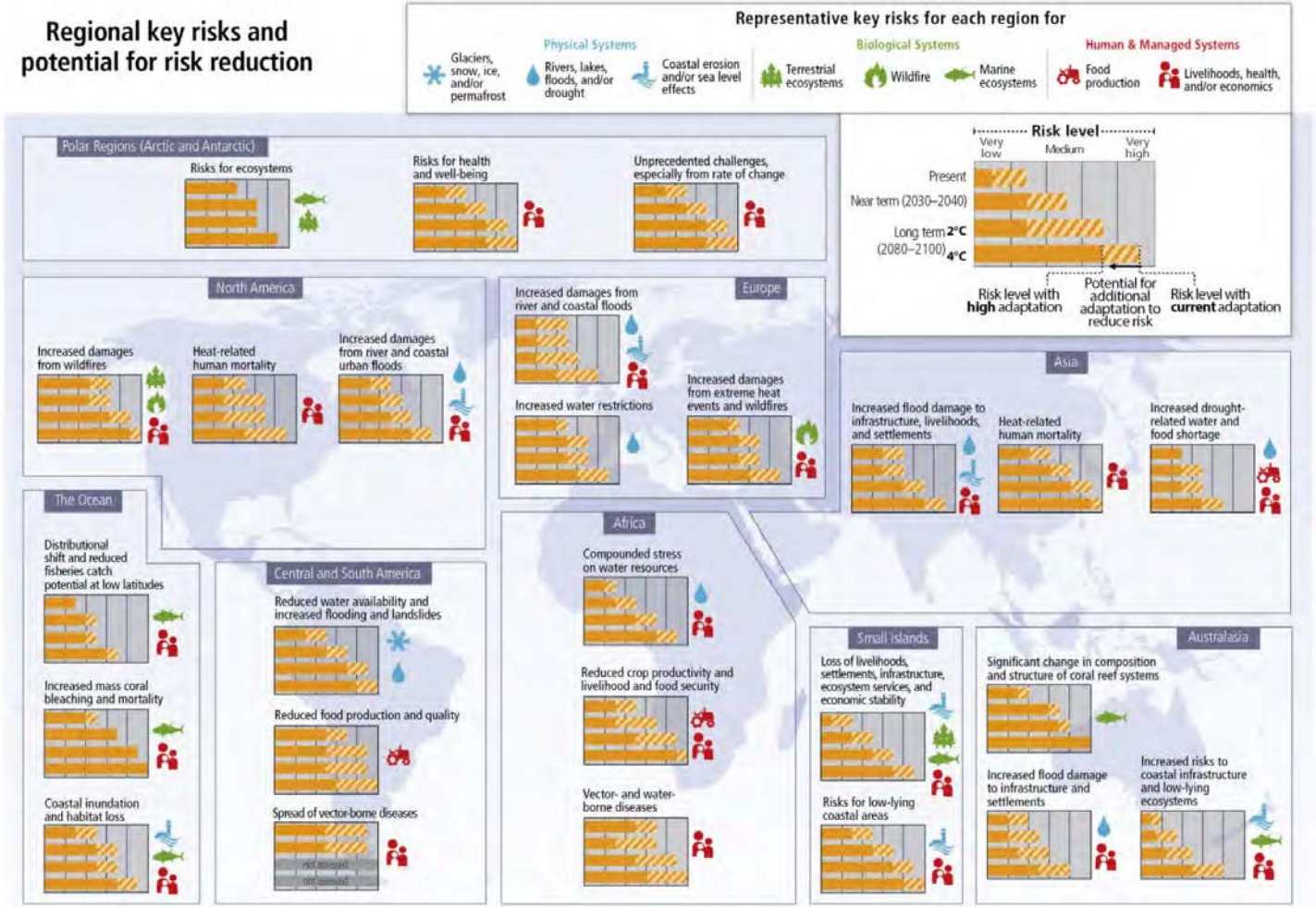


IPCC, AR5, SPM, Figure SPM.8

Regional key risks and risk reduction through adaptation: Africa

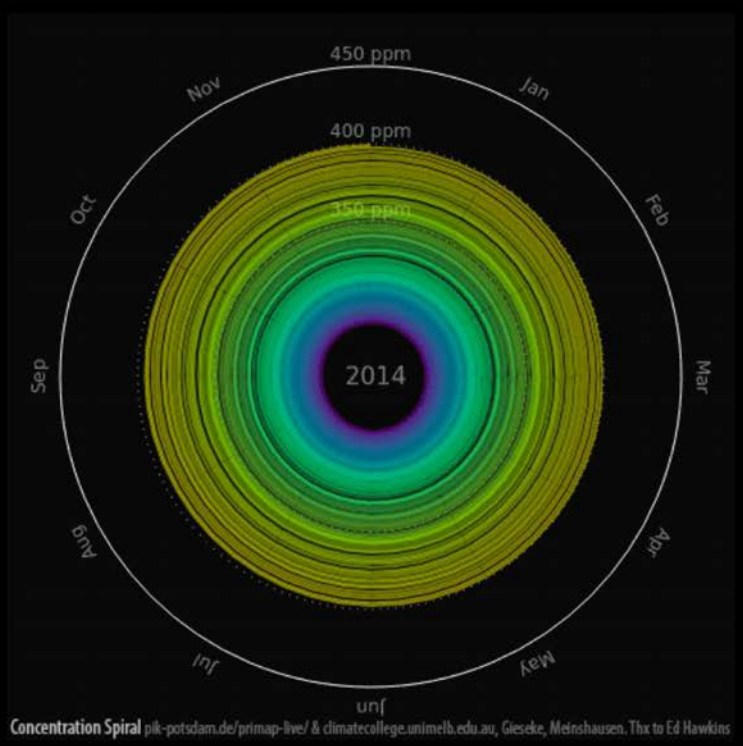


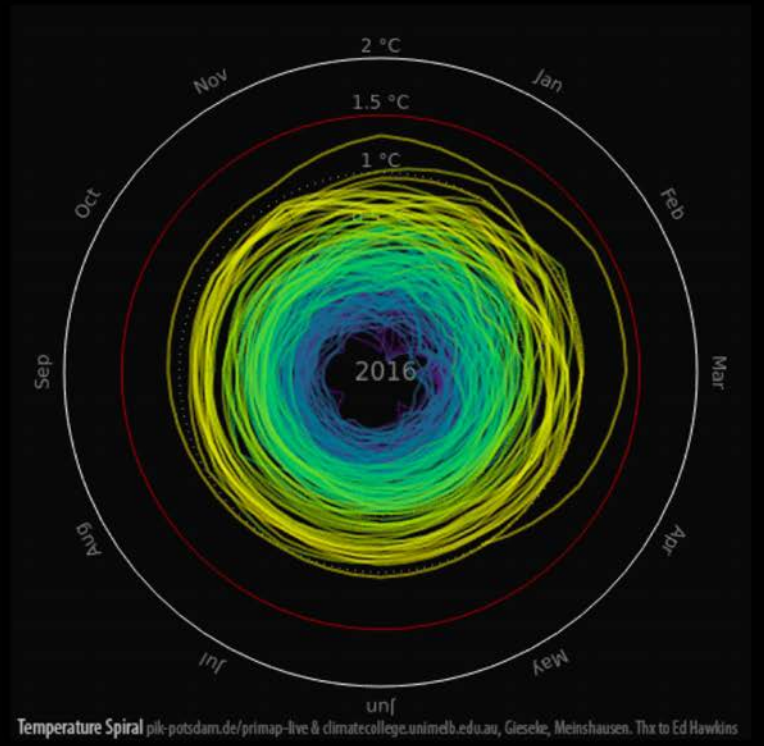
IPCC, AR5, SPM, Figure SPM.8



IPCC, AR5, SPM, Figure SPM.8

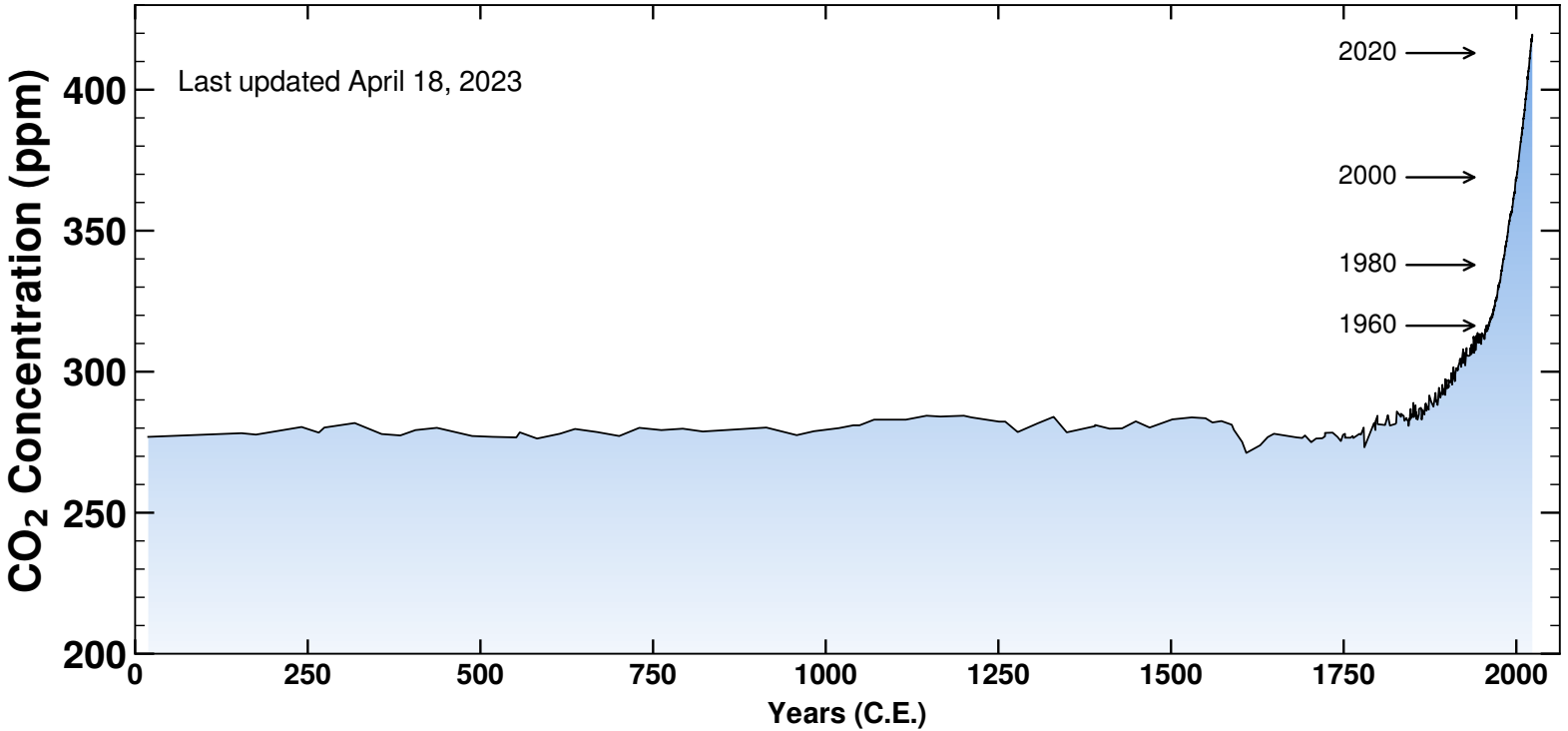
CO_2 Concentration and Temperature spirals





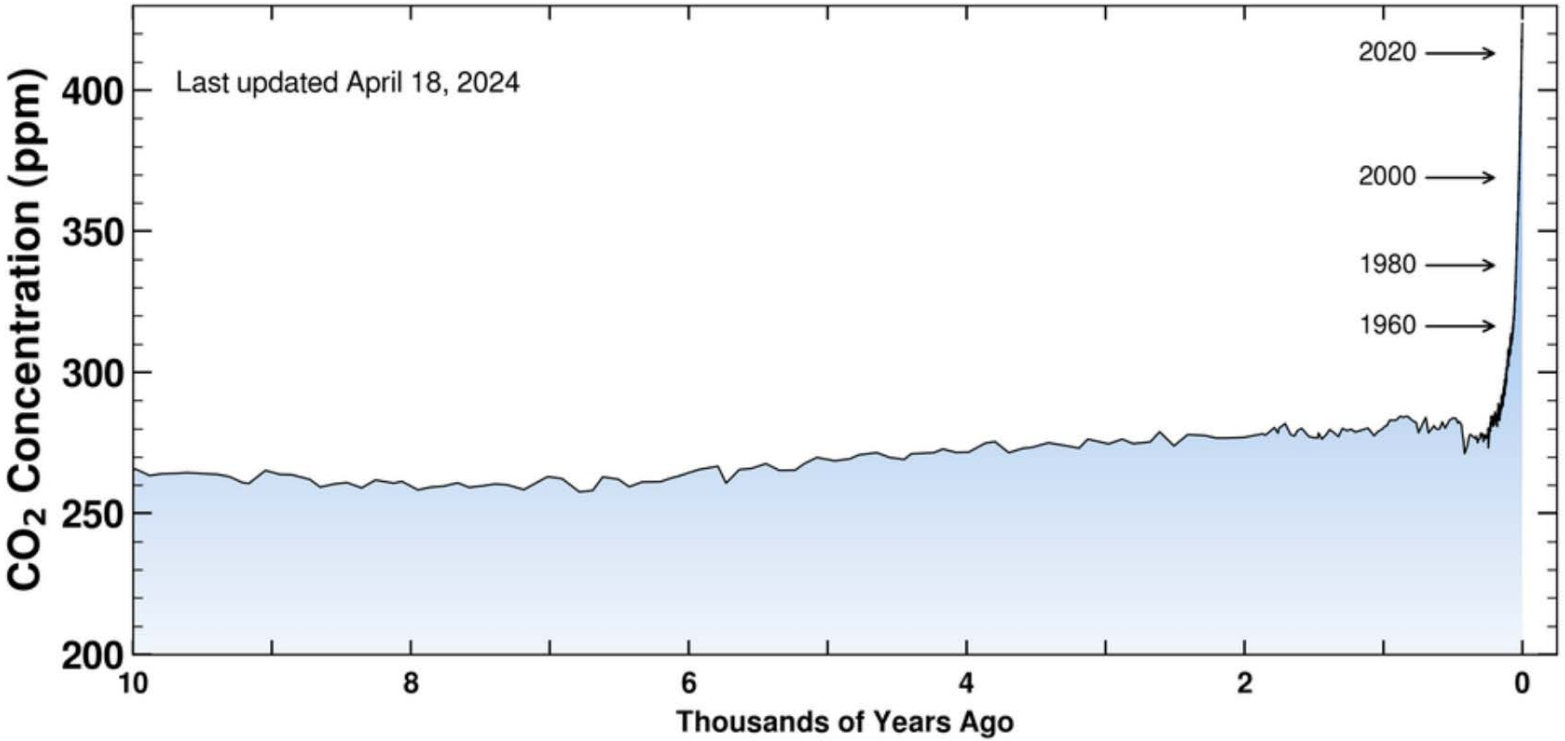
CO_2 Concentration since 1850 and Global Mean Temperature in °C relative to 1850 – 1900
Graph: Ed Hawkins (Climate Lab Book) – Data: HadCRUT4 global temperature dataset
Animation available on http://openclimatedata.net/climate-spirals/concentration-temperature/

CO_2 Concentration 18 April 2023: 424,03 ppm (Keeling curve + last 2000 years)



Source: scripps.ucsd.edu/programs/keelingcurve/

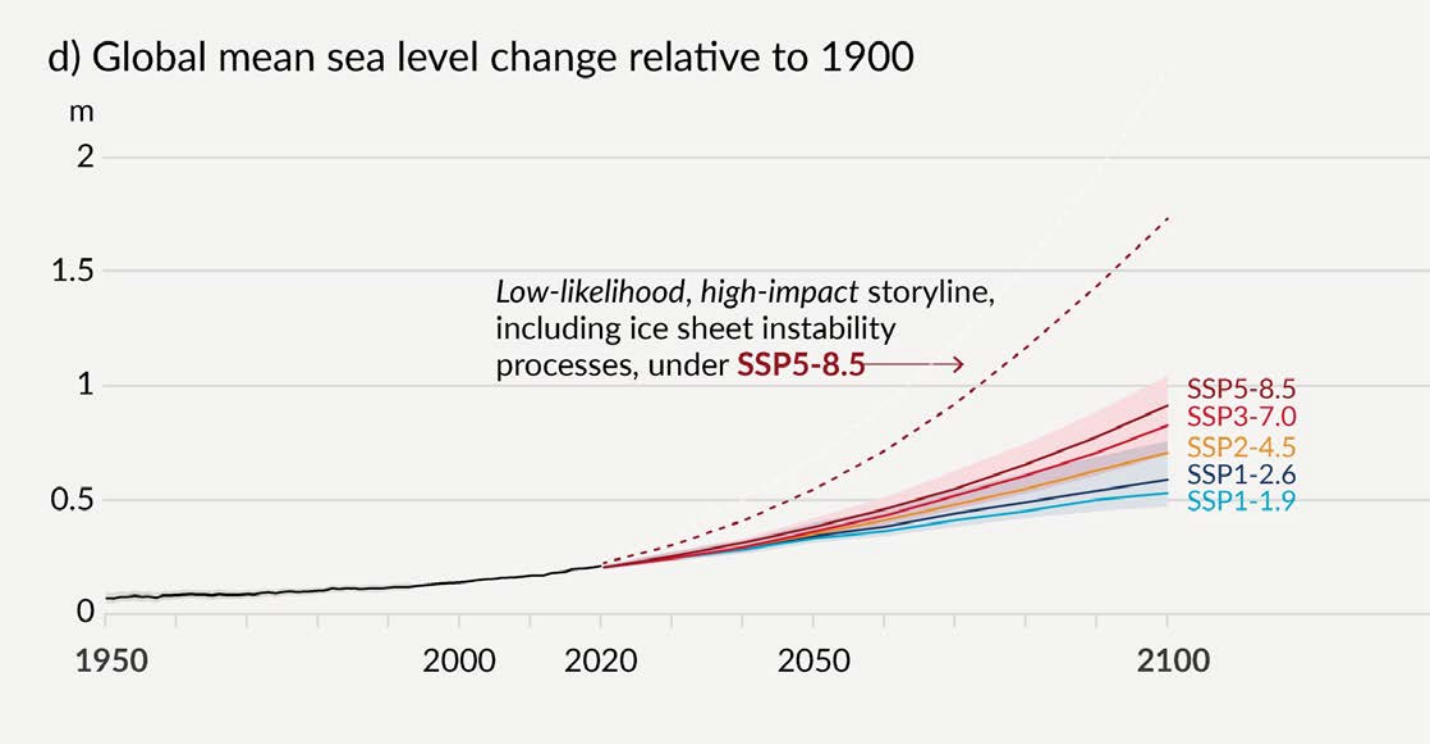
CO_2 Concentration 18 April 2024: 427,14 ppm (Keeling curve + last 10000 years)



Source: scripps.ucsd.edu/programs/keelingcurve/

Human activities affect all the major climate system components, with some responding over decades and others over centuries

Figure SPM.8

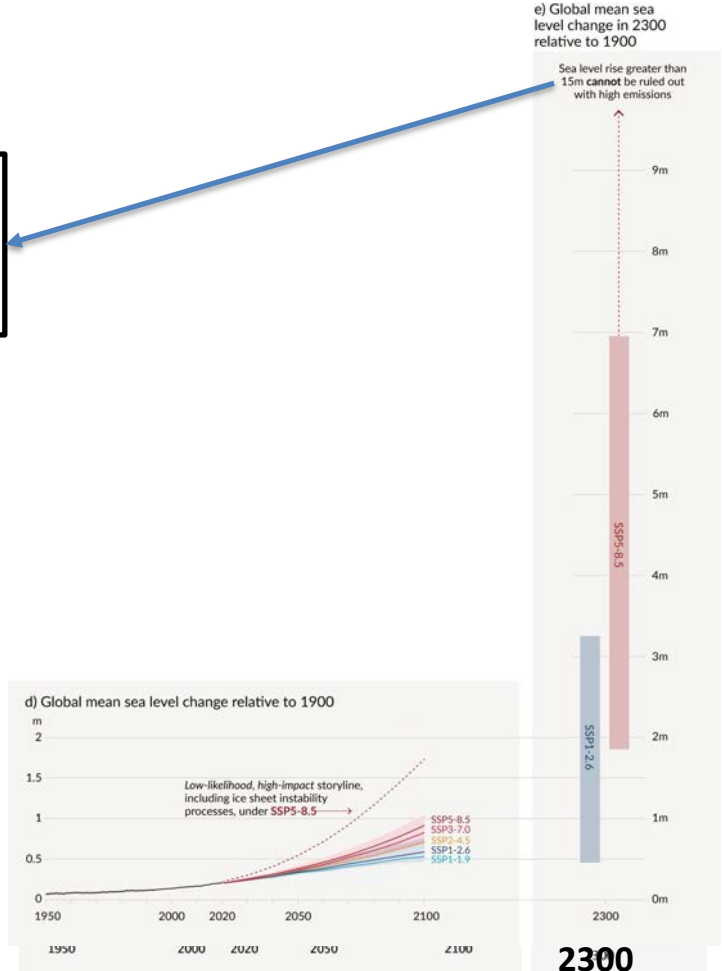


IPCC SIXTH ASSESSMENT REPORT

Working Group I – The Physical Science Basis

Figure SPM.8

« Sea level rise **greater than 15 m**
cannot be ruled out with high emissions » (in 2300)



7 m

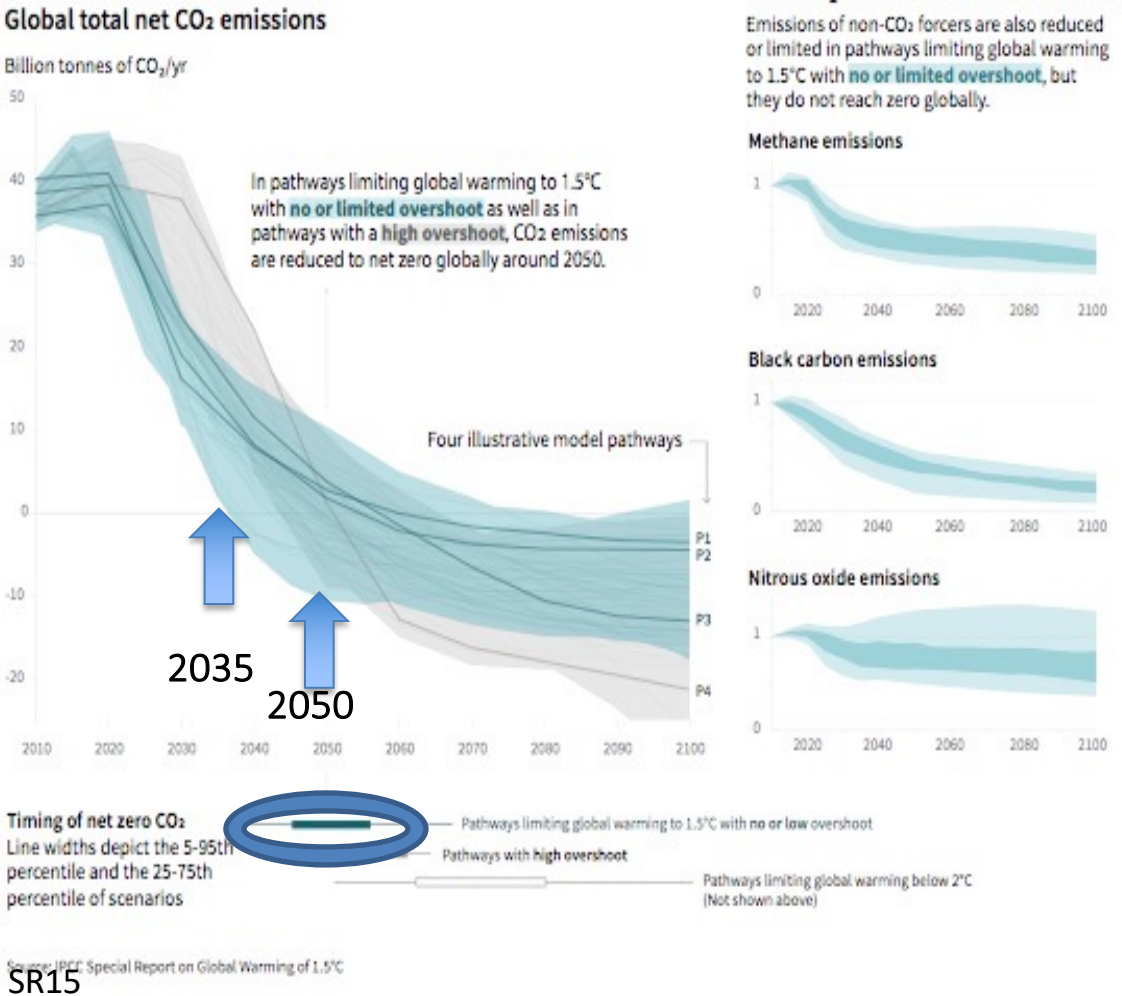
2 m

Why net zero emissions are needed as soon as possible

@JPvanYpersele

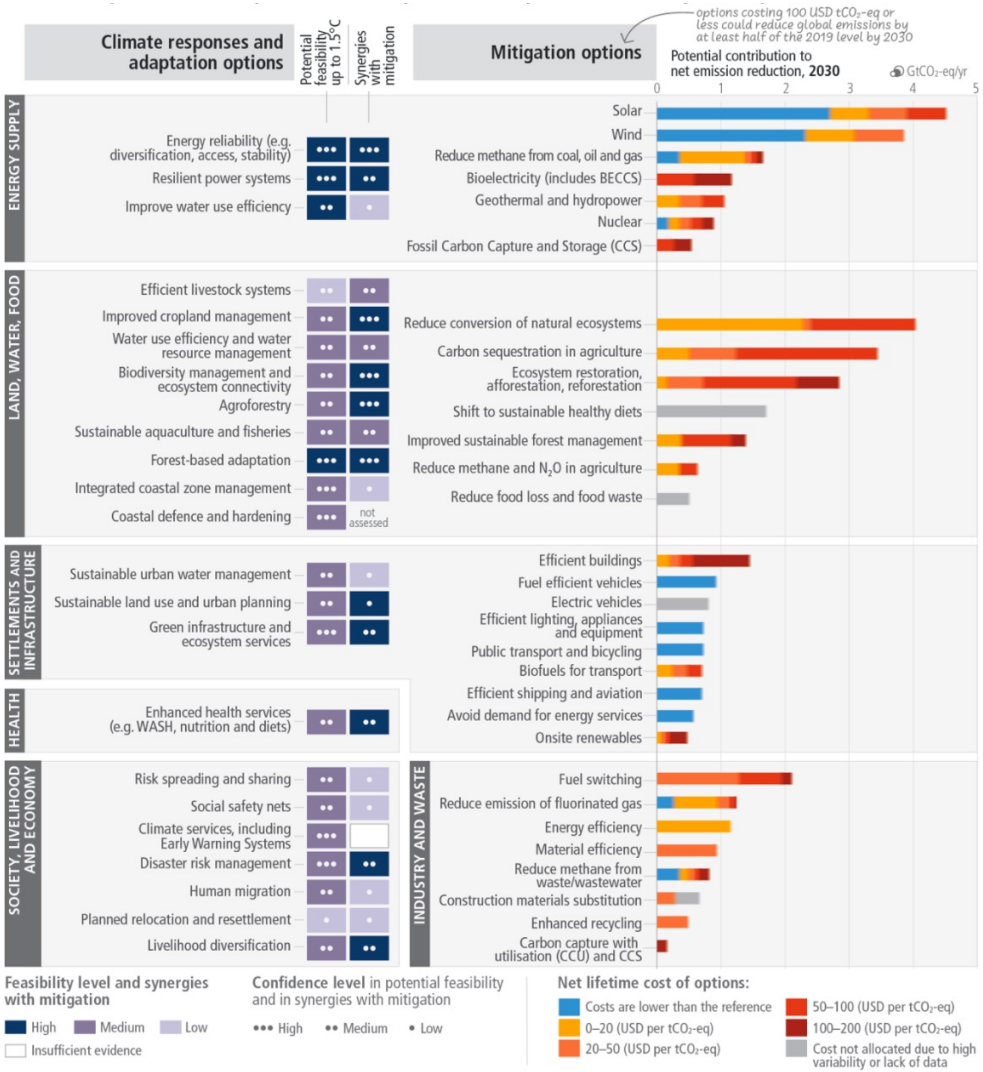
Emission pathways compatible with below 1.5° C warming:

Net ZERO:

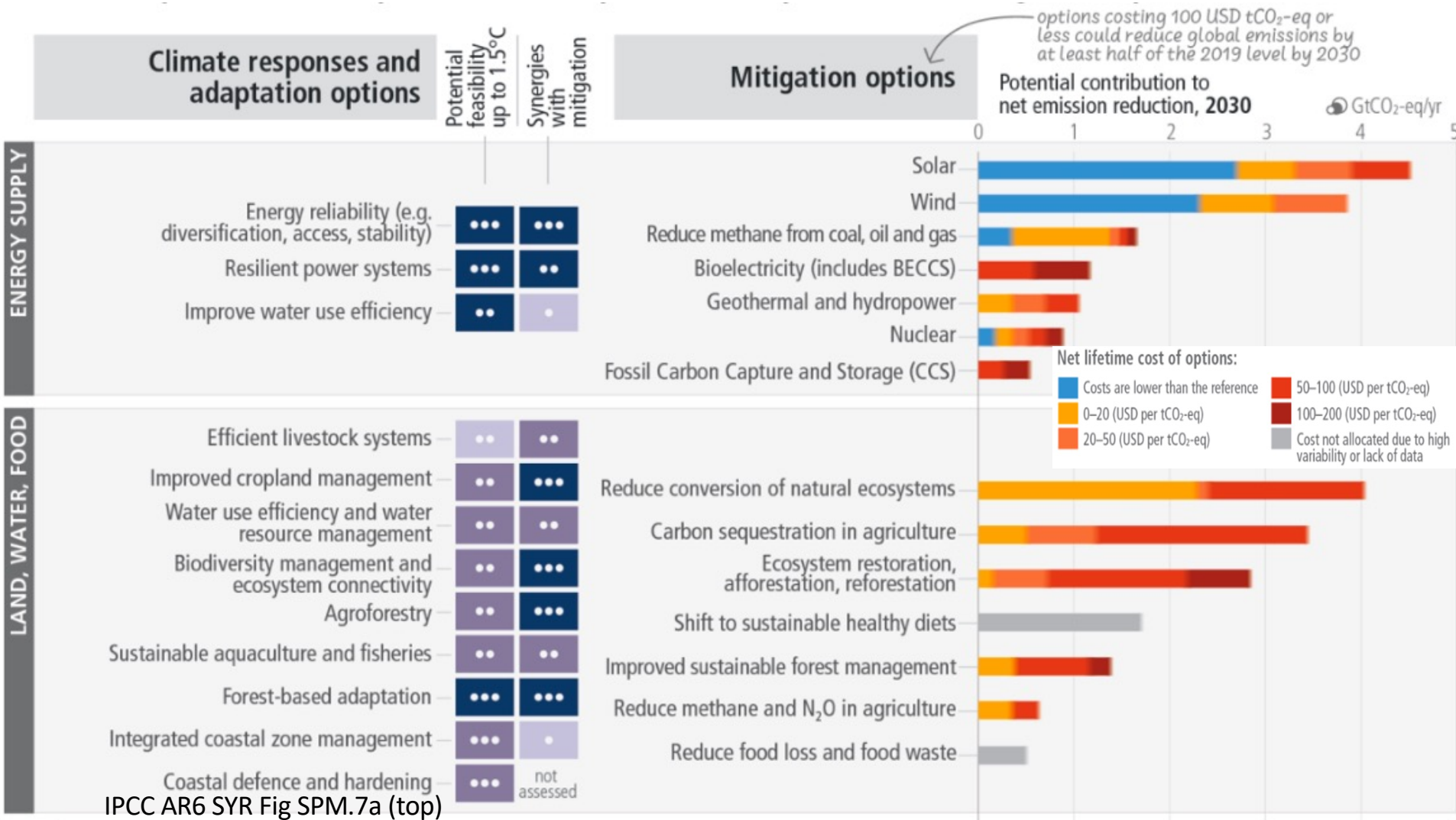


Source: IPCC SR15

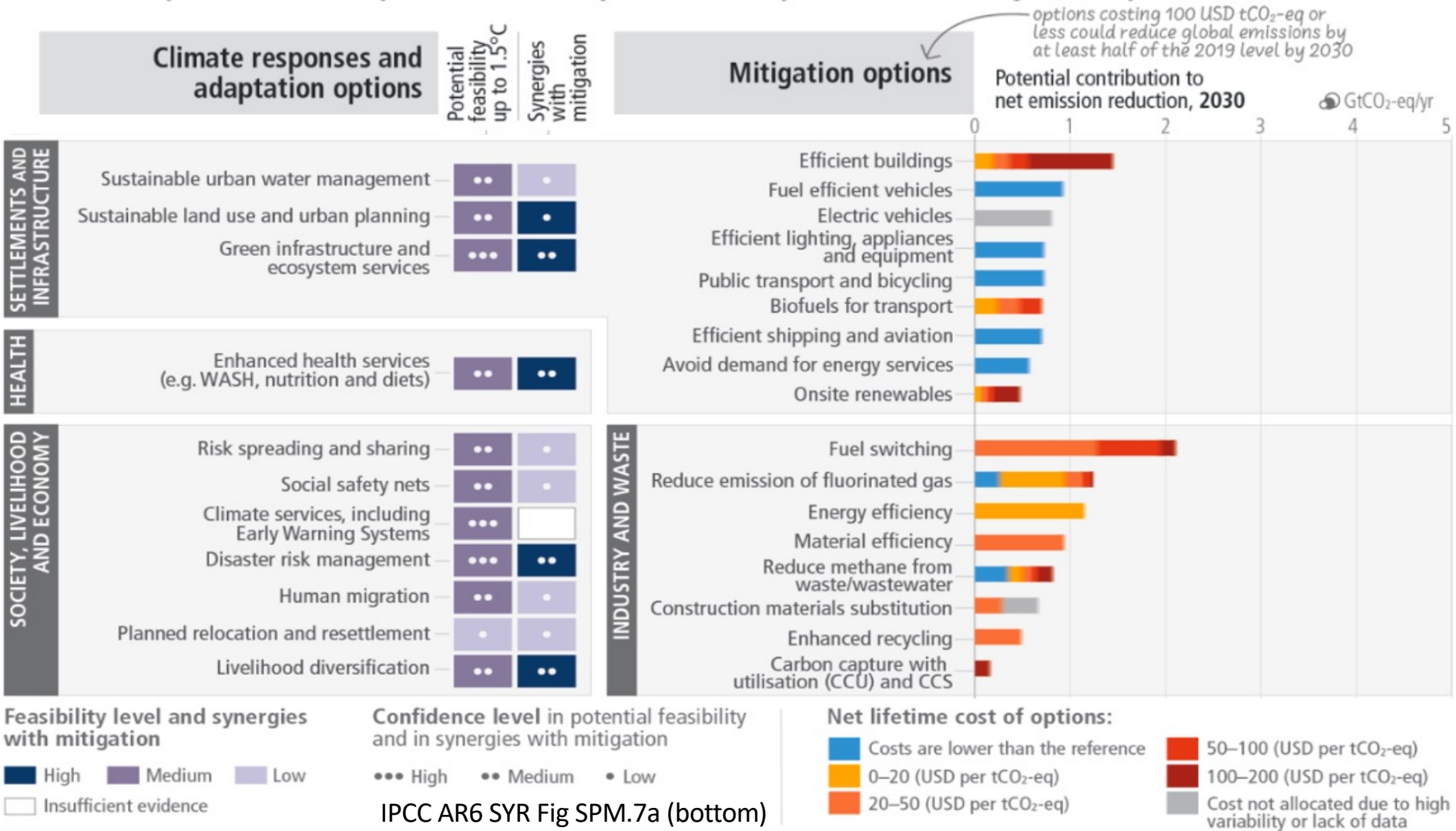
Feasibility of climate responses and adaptation, and potential of mitigation in the near-term



IPCC AR6 SYR Fig SPM.7a



IPCC AR6 SYR Fig SPM.7a (top)



IPCC AR6 SYR Fig SPM.7a (bottom)

Many co-benefits of taking climate action out of its SILO:

RCP2.6 RCP8.5

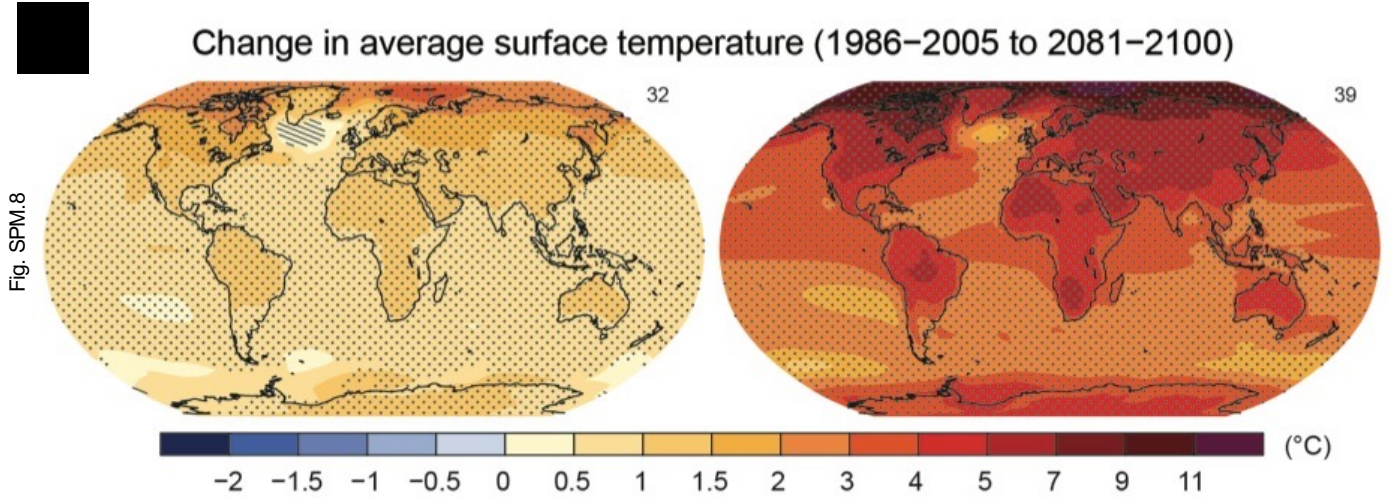
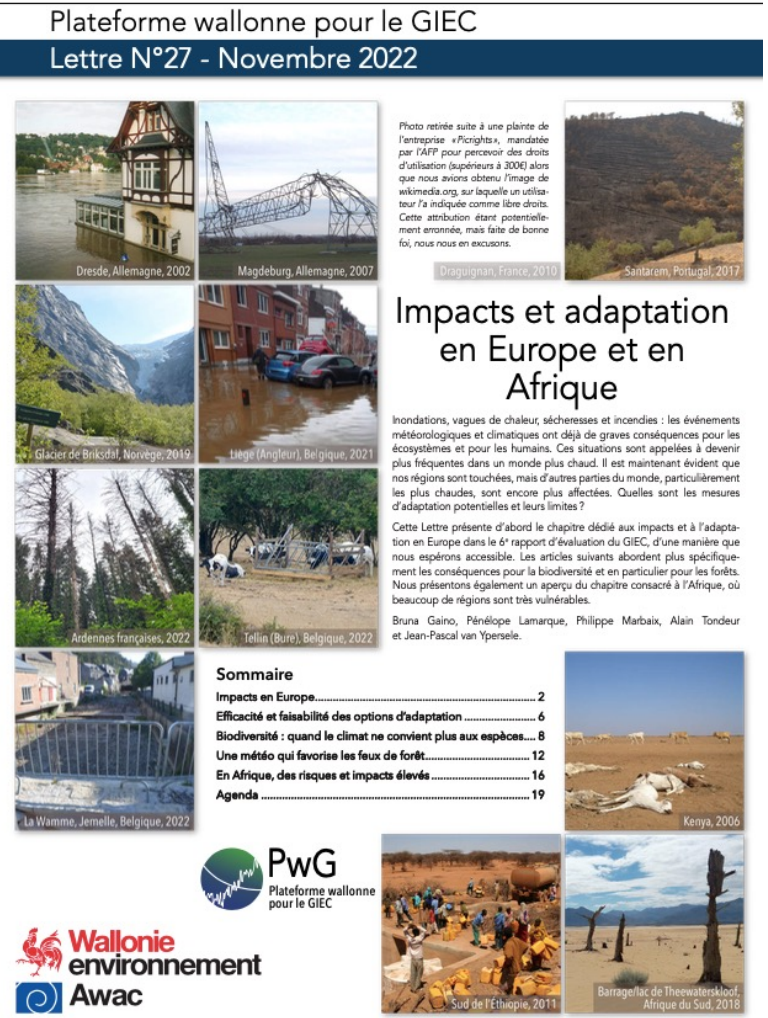


Fig. SPM.8

Humanity has the choice



Lettre N°27:

Impacts et adaptation en Europe et en Afrique

Novembre 2022

PwG
Plateforme wallonne pour le GIEC

- Impacts des changements climatiques sur les systèmes humains et naturels en Europe
- Efficacité et faisabilité des options d'adaptation
- Biodiversité : quand le climat ne convient plus aux espèces
- Une météo qui favorise les feux de forêt
- En Afrique, des risques et impacts élevés

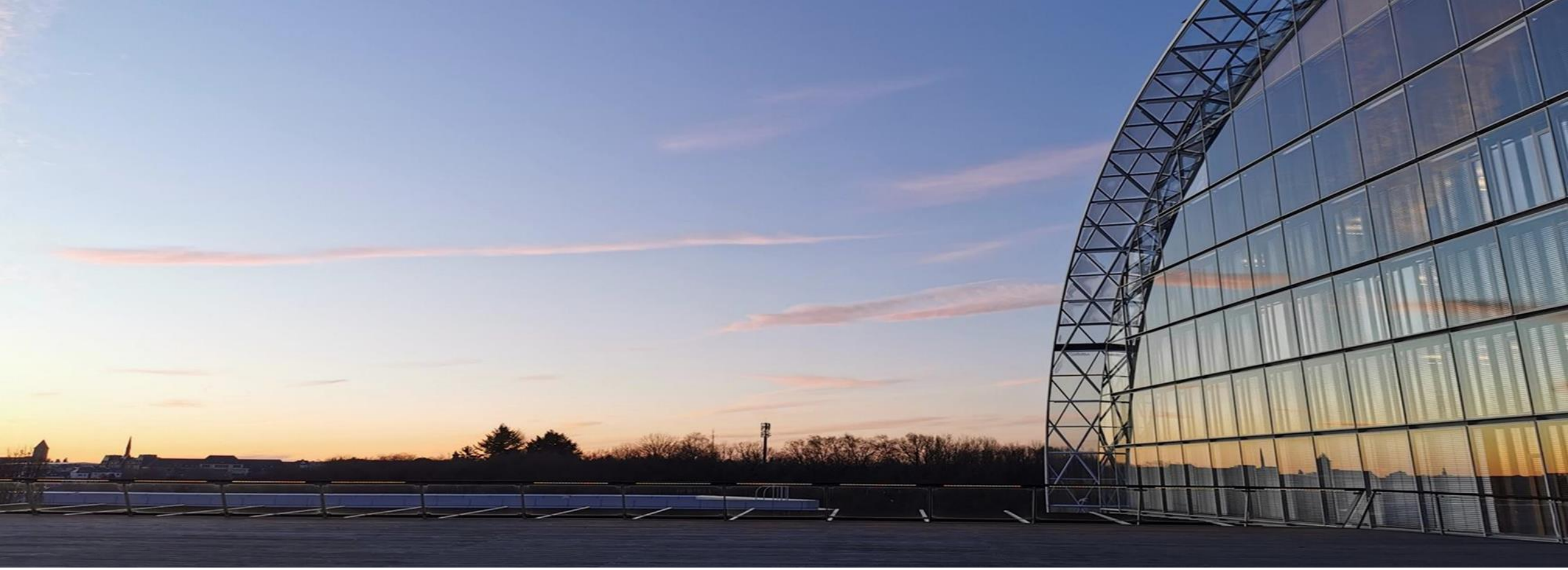
Abonnement digital gratuit:

https://plateforme-wallonne-giec.be/Lettre27.pdf

S'inscrire à la Newletter de la plateforme via le QR code

To go further :

- www.climate.be/vanyp : my slides (under « conferences »)
- www.ipcc.ch : IPCC
- www.realclimate.org : answers to the merchants of doubt arguments
- www.skepticalscience.com : same
- www.plateforme-wallonne-giec.be : IPCC-related in French, Newsletter, latest on permafrost emissions
- **Twitter: @JPvanYpersele & @IPCC_CH**



European Investment Bank

Implementing the EIB Adaptation Plan

Stephen O’Driscoll

EIB AT A GLANCE

Largest multilateral lender and borrower in the world

- We raise our funds on the international capital markets
- We pass on favourable borrowing conditions to clients

Headquartered in Luxembourg

- Around **3,800 staff**: In addition to finance professionals, we have engineers, economists and socio-environmental experts
- **54 offices** around the world

EU Climate Bank

- Goal of 50% of EIB financing for climate action and environmental sustainability by 2025
- Early adopter of practices for managing climate-related risks

European Investment Bank

We need to be better prepared

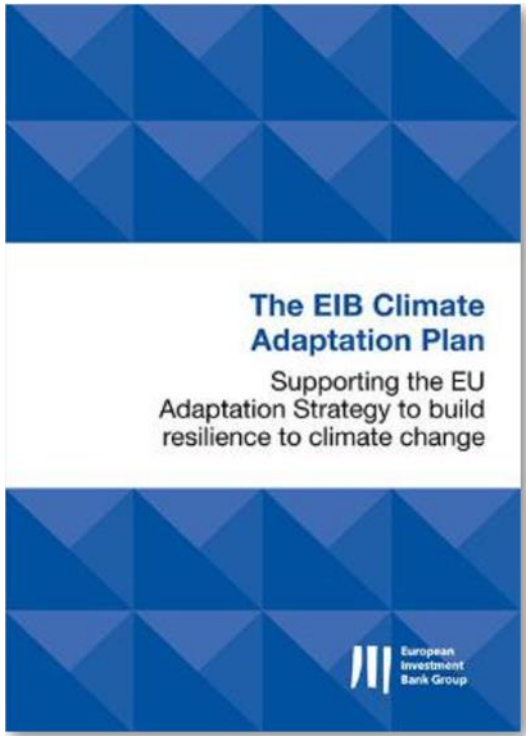
Damages due to extreme weather 2000-2019: **US$143 billion per year, US$16.3 million per hour**
Global cost of climate impacts by 2050: **US$ 1.7 to 3.1 trillion per year**

(Source: Newman et al., Nature Communications, 29 September 2023)

➡ Our shareholders and clients are investing more in adaptation.

The EIB Adaptation Plan (2022-2025)

- Approved by the EIB Board in October 2021
- Mandated to support the EU Adaptation Strategy
- Informed by an evaluation of EIB adaptation finance
- Centered around **3 main goals**:
  - Supporting **smarter** and more **systemic** adaptation
  - Financing **faster** adaptation
  - Accelerating **international action on** adaptation



The EIB Adaptation Plan

Goal 1 - Supporting smarter & more systemic adaptation

- Bridging the knowledge gap in EIB-supported operations
- Focus on upstream dialogue and advisory services

Goal 2 - Financing faster adaptation

- Increasing adaptation finance to 15% of EIB's climate action by 2025
- Increasing the adaptation finance impact over time

Goal 3 – Accelerating international action on adaptation

- Reducing the disproportionate impacts on vulnerable regions and communities

Lending volume

Impact
Knowledge

EIB support to EU Adaptation
Strategy

European
Investment Bank

Focus investment areas: increasing finance impact

WATER

Coping with too much and too little water

FOOD SYSTEMS

Strengthening the climate resilience of food systems, forest and ecosystems

URBAN DEVELOPMENT

Building resilience in cities and regions

TRANSPORT & ENERGY

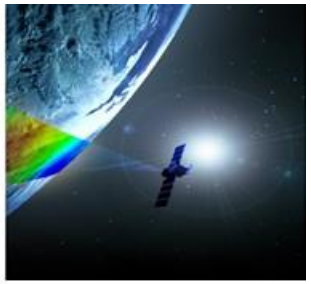
Protecting infrastructure for energy and transport

EDUCATION, R&D

Supporting education and public research on observation and analysis of climatic changes

HEALTH

Responding to climate induced effects on health and well-being



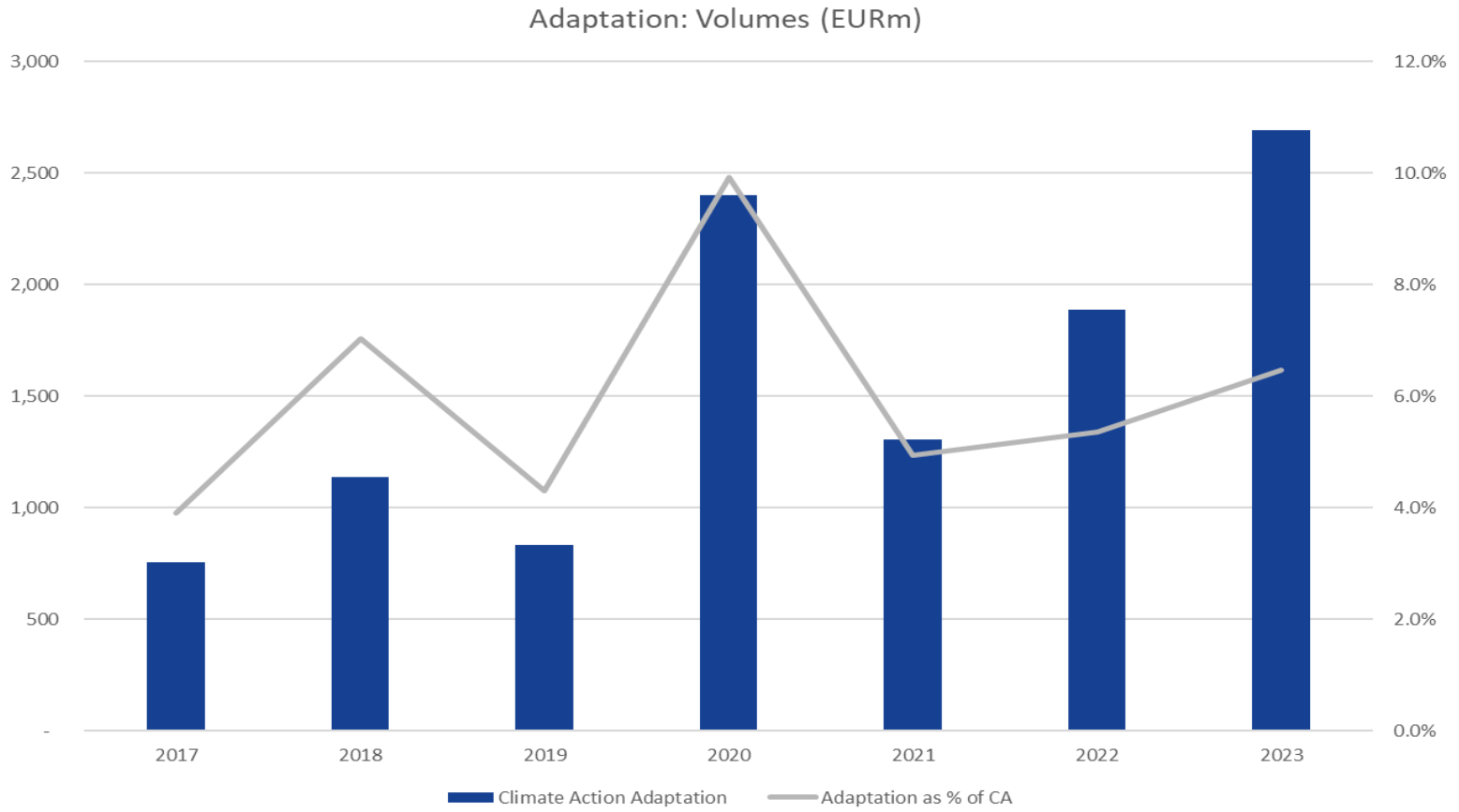
INNOVATION

Boosting climate resilience innovation

European Investment Bank

The Challenge Ahead – 15% of CA in 2025

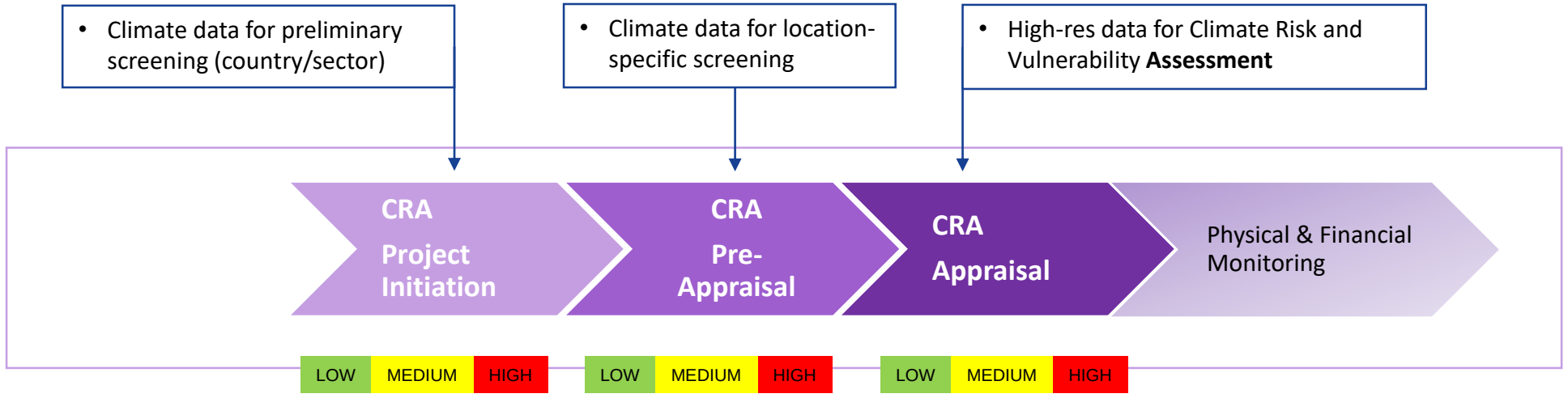
- How are we **performing?**
  - Progress in 2023 = 6.5% of CA, record total volume
  - 24% of all operations contribute to CA adaptation



European Investment Bank

Ensuring all EIB projects are fit for a changing climate

- Since 2019, physical climate risk integrated in routine due diligence for projects
- Climate Risk Assessment System as cornerstone of Paris alignment commitment for adaptation/resilience
- Partnership with Copernicus Climate Change Service, facilitating EIB and our clients' use of climate data



EIB value added to support adaptation

- **Inside EU**

Advisory support throughout the project cycle - ADAPT	Financing higher share of the PICs	Targeted Investment areas
• Upstream support, • Project preparation, development and implementation • Capacity building and awareness raising	• Financing 75% of PICs for operations with 50% or more of costs supporting adaptation • Financing 100% of PICs for post-disaster recovery operations	• Identification of key investment areas contributing to adaptation • Thorough work on capital expenditures per type of sector/projects

ADAPT in action: Climate Risk and Vulnerability Assessment for the island of Ischia

- In November 2022, Ischia was hit by devastating landslides, triggered by an extreme precipitation event
- To inform climate-resilient post-disaster reconstruction, EIB carried out an assessment of the potential impacts of climate change
- Identification of adaptation investment options for key sectors, focusing on floods and landslides
- Recommendations on technical design


THANK YOU
European
Investment Bank

Emergency services in Greece

- **Client:** Hellenic Republic
- **Financial product**: framework loan
- **Approach to assess physical climate risk**: available assessment of observed and expected incidence of wildfires and floods
- **Key climate vulnerabilities**:
  - Extreme rainfall events and flooding
  - Extreme heat, wildfires
- **Adaptation activities**: aviation fire-fighting assets, fire detection systems in forest areas, and sensors for real-time flood monitoring
- **Adaptation finance**: 80% of project investment cost

Flood protection in the Netherlands

- **Client:** NWB Bank
- **Financial product**: intermediated loan for on-lending to Water Boards
- **Approach to assess physical climate risk**: promoter's analysis of climate vulnerabilities
- **Key climate vulnerabilities**: seal level rise, storm surge, extreme rainfall events and flooding
- **Adaptation activities**: small and medium-sized flood control and water resources management projects promoted
- **Adaptation finance**: 50% of project investment cost

Water supply in Austria

- **Client:** Northern Burgenland Water Supply Association (public law entity composed of more than 60 municipalities)
- **Financial product**: investment loan
- **Approach to assess physical climate risk**: available assessment of observed and expected incidence of droughts
- **Key climate vulnerabilities**: temperature increase, reduced rainfall, extreme heat, droughts
- **Adaptation activities**: investments in new wells and development of alternative source, reduction of non revenue water, network improvements
- **Adaptation finance**: 50% of project investment cost

ENHANCING THE INSURANCE SECTOR'S CONTRIBUTION TO CLIMATE ADAPTATION

EEAC Conference on Climate Adaptation and Resilience

23 April 2024 (Brussels)

Leigh Wolfrom, Policy Analyst, OECD

OCDE
DES POLITIQUES MEILLEURES POUR UNE VIE MEILLEURE

Potential contributions of insurance to climate adaptation

Developing climate risk analytics

Incentivising adaptation by households and businesses (risk-based pricing/discounts)

Providing climate risk information and advice and expertise on effective adaptation

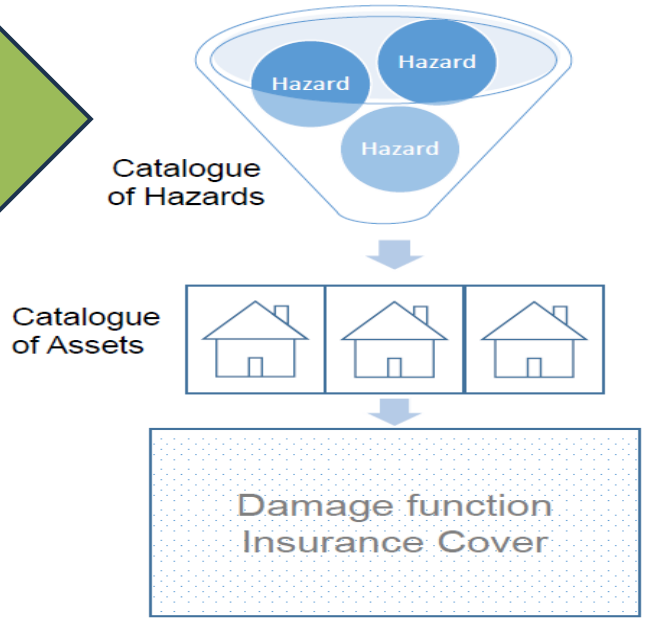
Supporting resilient reinstatement (or build back better) in the aftermath of climate events

Developing climate risk analytics

Context: the insurance sector invests significant resources in assessing natural hazard risks to manage (and price) the exposure that they assume in providing insurance coverage to households and businesses

Climate-conditioning

Catastrophe modelling



Challenges:

- Uncertainty (future emissions, future adaptation, climate change impacts)
- Short-term contracts may limit demand for longer-term climate perspective
- Regulatory constraints may limit incentives for applying new technologies or assessment approaches

Could regulators and supervisors require insurers to undertake longer-term climate risk assesments?

Providing climate risk information and advice on adaptation

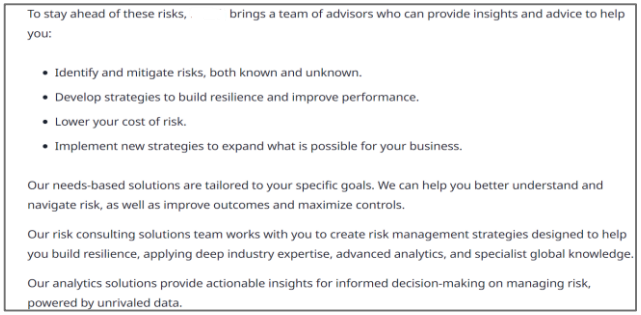
Context: the insurance sector has significant expertise on risk management and risk reduction that is (often) provided to (some) clients

SERVICES

Others may treat property loss as inevitable. Work with us and start seeing it as preventable. By investing in property risk management today, you can increase your company's ability to withstand loss in the future.

With access to cutting-edge research and on-the-ground engineering expertise, you'll be better able to identify and assess risk. That's the first step to developing proactive, cost-effective property loss prevention programs.

For example, our claims services professionals work closely with you before, during and after a loss, so that you can avoid major business setbacks or interruptions. Our project services team can help you minimize risk during new construction or renovation, while ensuring you have the right coverage. And our Business Risk Consulting services can help you identify potential exposures that can affect your company's ability to operate profitably after a loss.



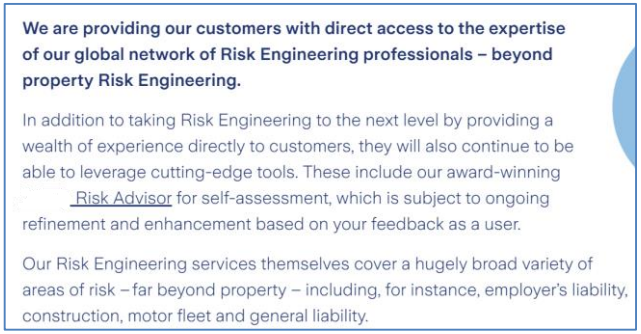
To stay ahead of these risks, brings a team of advisors who can provide insights and advice to help you:

- Identify and mitigate risks, both known and unknown.
- Develop strategies to build resilience and improve performance.
- Lower your cost of risk.
- Implement new strategies to expand what is possible for your business.

Our needs-based solutions are tailored to your specific goals. We can help you better understand and navigate risk, as well as improve outcomes and maximize controls.

Our risk consulting solutions team works with you to create risk management strategies designed to help you build resilience, applying deep industry expertise, advanced analytics, and specialist global knowledge.

Our analytics solutions provide actionable insights for informed decision-making on managing risk, powered by unrivaled data.



We are providing our customers with direct access to the expertise of our global network of Risk Engineering professionals – beyond property Risk Engineering.

In addition to taking Risk Engineering to the next level by providing a wealth of experience directly to customers, they will also continue to be able to leverage cutting-edge tools. These include our award-winning Risk Advisor for self-assessment, which is subject to ongoing refinement and enhancement based on your feedback as a user.

Our Risk Engineering services themselves cover a hugely broad variety of areas of risk – far beyond property – including, for instance, employer's liability, construction, motor fleet and general liability.

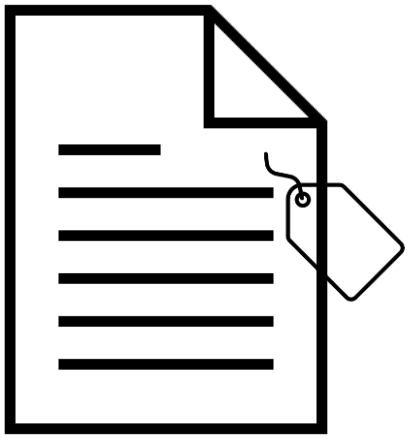
Challenges:

- Some evidence that policyholders are not receiving (or absorbing) information on risk reduction options
- Tailored adaptation advice may not be cost-effective for retail policyholders

Could regulators and supervisors require insurers to (effectively) communicate climate risk information and adaptation options to all policyholders?

Incentivising policyholder adaptation

Context: by setting premiums based on risk – and offering premium discounts for risk reduction - the insurance sector should be able to provide significant incentives for policyholder risk reduction



Challenges:

- Policy, regulatory and business constraints to full risk-based pricing
- Policyholders may not have (financial) capacity to invest in risk reduction)
- Insurers may not be sufficiently confident in effectiveness of measures implemented by policyholders (to provide discounts)
- Short-term outlook in property insurance coverage may dampen price signals and reduce incentives for adaptation
- Most effective adaptation investments may need to be made at community-level

Could regulators and supervisors require insurers to provide more effective (longer-term, climate-relevant) pricing incentives for adaptation

Supporting resilient reinstatement

Context: post-damage reinstatement provides a cost-effective opportunity to enhance property resilience against future risk

Challenges:

- Few incentives for insurers to take-on additional cost of more resilient reinstatement

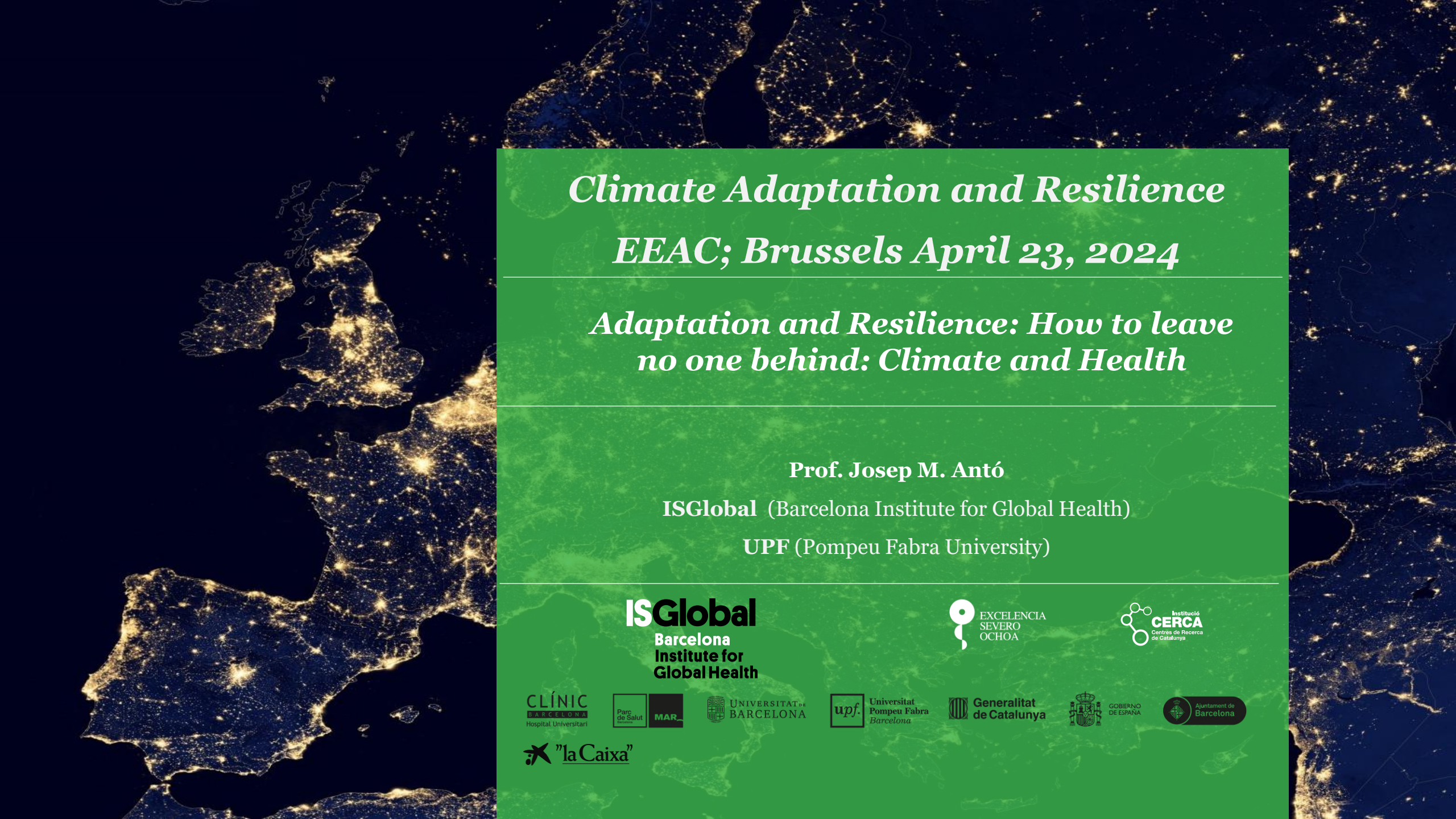
Could regulators and supervisors require insurers to optional coverage for resilient reinstatement

Could governments provide complementary support for resilient reinstatement (to supplement insurance payments)

Explore our findings

Insurance coverage plays an important role in protecting households, businesses and governments from the financial impacts of climate-related disasters. However, climate change is expected to increase the frequency and/or intensity of a range of climate-related (weather) perils and could potentially limit the availability of affordable insurance in the future. Risk reduction through adaptation to climate change will be the only sustainable means to limit the increase in future climate damages and losses and potential disruptions to insurance markets. This paper examines the contribution of the insurance sector to climate adaptation. It outlines some of the challenges to assessing future climate risks, encouraging policyholder risk reduction and supporting resilient reinstatement. The paper also identifies potential approaches that policymakers, regulators and supervisors could consider to support a greater contribution of the insurance sector to climate adaptation.

https://www.oecd.org/publications/enhancing-the-insurance-sector-s-contribution-to-climate-adaptation-0951dfcd-en.htm



Climate Adaptation and Resilience

EEAC; Brussels April 23, 2024

Adaptation and Resilience: How to leave no one behind: Climate and Health

Prof. Josep M. Antó

ISGlobal (Barcelona Institute for Global Health)

UPF (Pompeu Fabra University)

ISGlobal Barcelona Institute for Global Health

EXCELENCIA SEVERO OCHOA

Institució CERCA Centres de Recerca de Catalunya

CLÍNIC BARCELONA Hospital Universitari

Parc de Salut Barcelona MAR

UNIVERSITAT DE BARCELONA

upf. Universitat Pompeu Fabra Barcelona

Generalitat de Catalunya

GOBIERNO DE ESPAÑA

Ajuntament de Barcelona

"la Caixa"

Outline

1. Climate change impact on human health: the need of adaptation.

2. Limited presence of national adaptation plans for health.

3. Adaptation is decreasing the risk of mortality due to heat exposure.

4. Insufficient adaptation in the context of rising temperatures.

5. Urgent need of new approaches with a focus on equity.

1.1.4 Heat related mortality

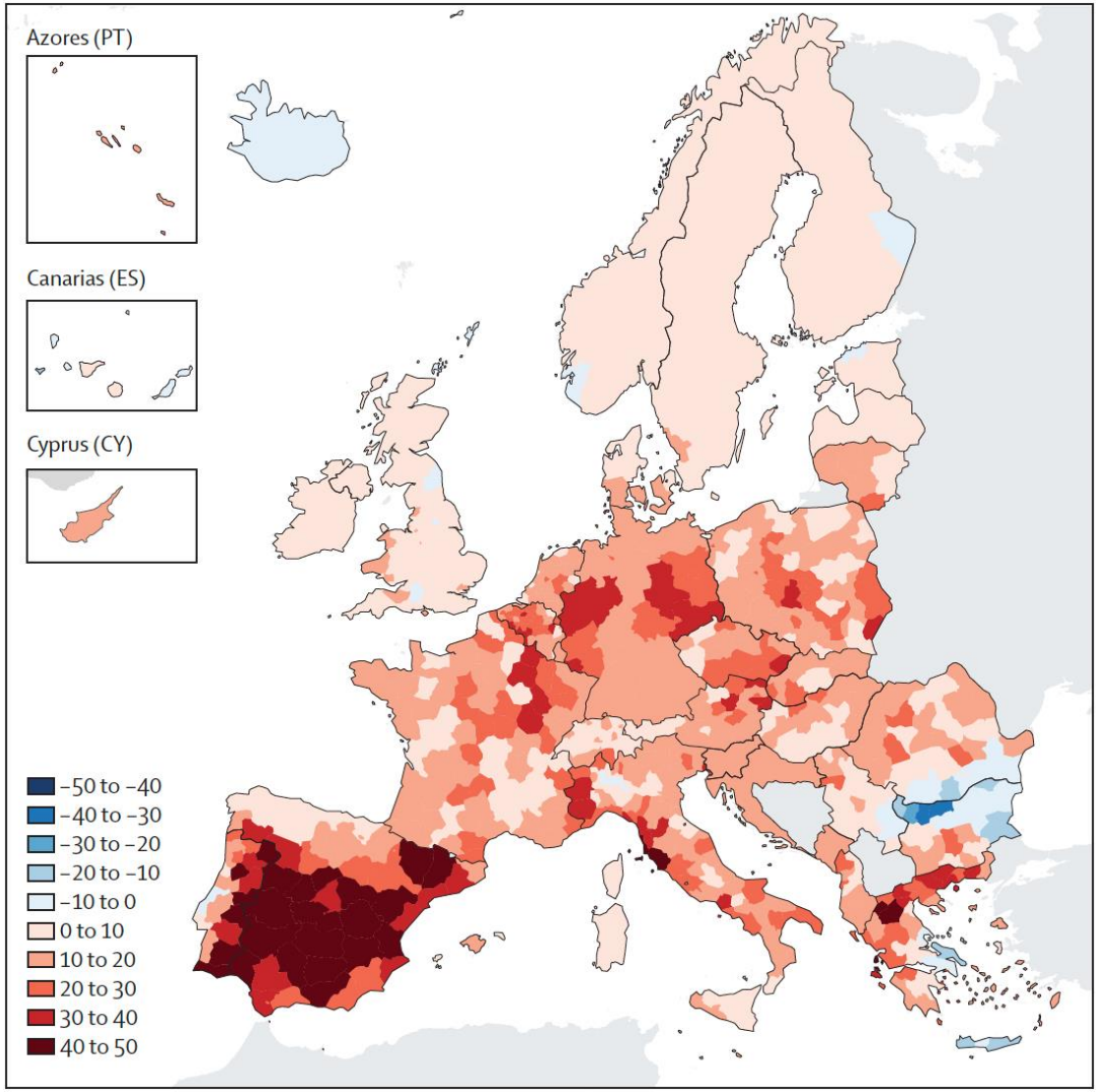
LANCET COUNTDOWN: HEALTH AND CLIMATE CHANGE IN EUROPE

Headline finding(s):

Heat-related deaths are estimated to have increased in 94% of the 990 regions monitored from 2000 to 2020,

with an overall average increase of 15.1 (95%CI: -1.51, 31.6) annual deaths per million inhabitants per decade for the general population

and 60.4 (-17.8, 138.6) extra deaths per million inhabitants per decade for the elderly (over 65 of age).



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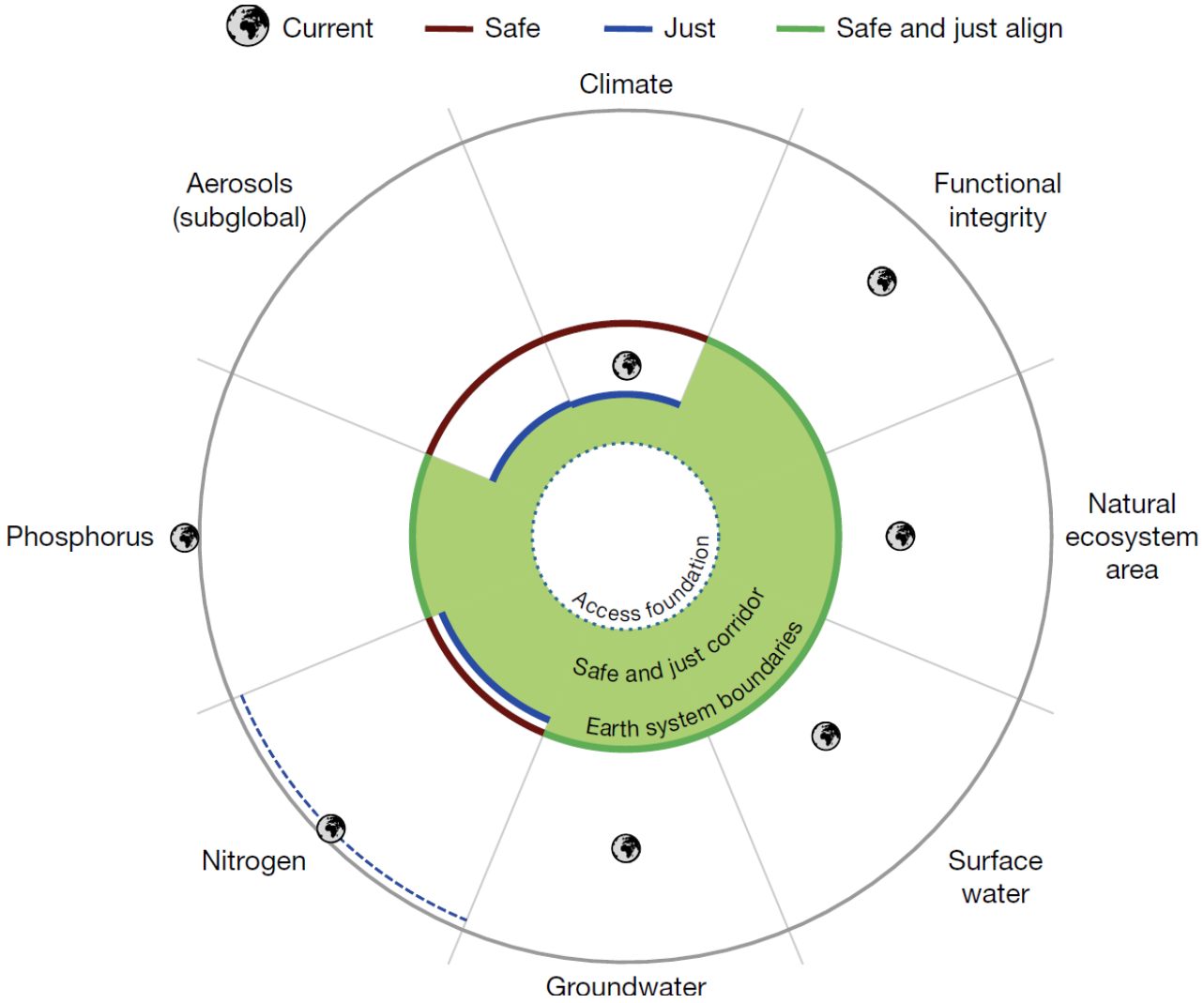
Safe and Just Earth Systems Boundaries (ESBs). Rockström J et al. Nature May 31, 2023



CLIMATE: We conclude that if exposure of tens of millions of people to significant harm is to be avoided, the just (NSH) boundary should be set at or below 1.0 °C.

Since returning within this boundary may not be achievable in the foreseeable future, adaptations and compensations to reduce sensitivity to harm and vulnerability will be necessary.

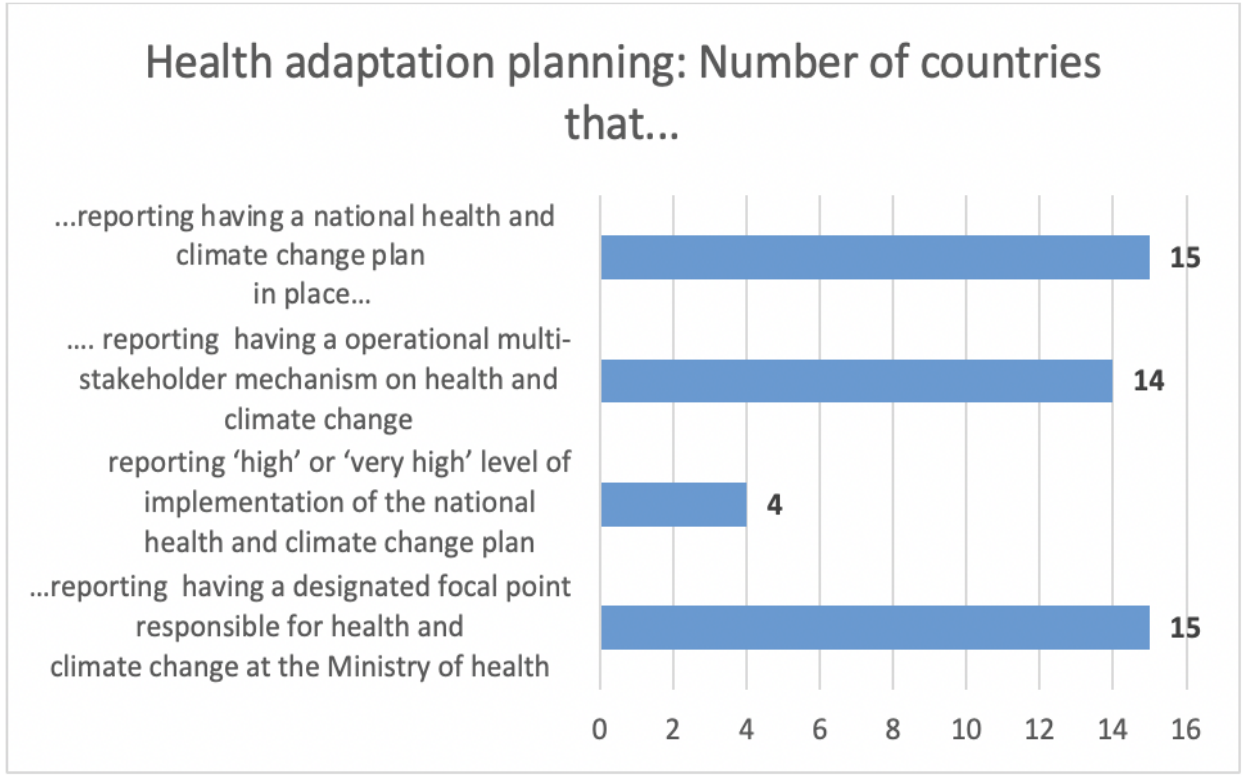
2.1.2 National adaptation plans for health

LANCET COUNTDOWN: HEALTH AND CLIMATE CHANGE IN EUROPE

Headline finding(s):

In 2021, 15 (68%) of 22 assessed European countries reported having national health and climate change strategies or plans in place.

36% (8/22) of these countries reported having 'moderate' or 'low' levels of implementations, with only 3 countries reporting 'very high' implementation.



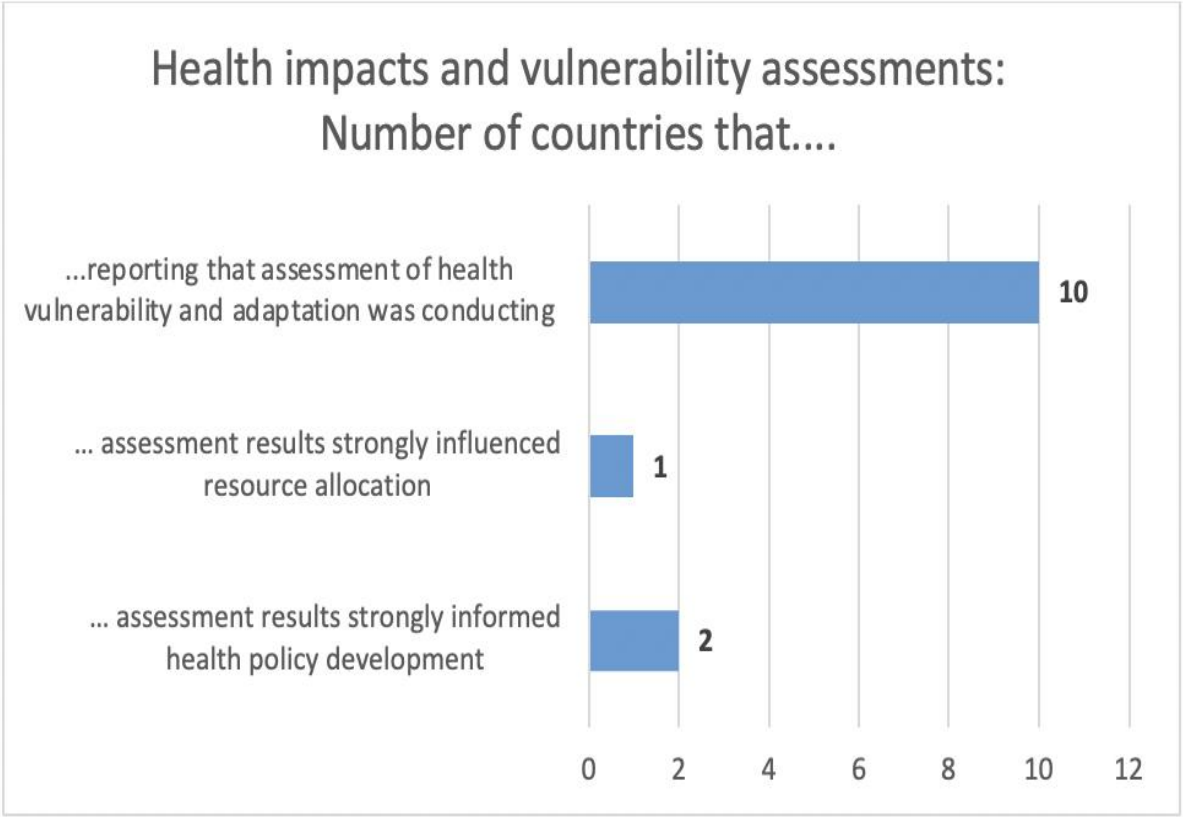
2.1.1 National assessments of climate change impacts, vulnerability, and adaptation for health

LANCET COUNTDOWN: HEALTH AND CLIMATE CHANGE IN EUROPE

Headline finding(s):

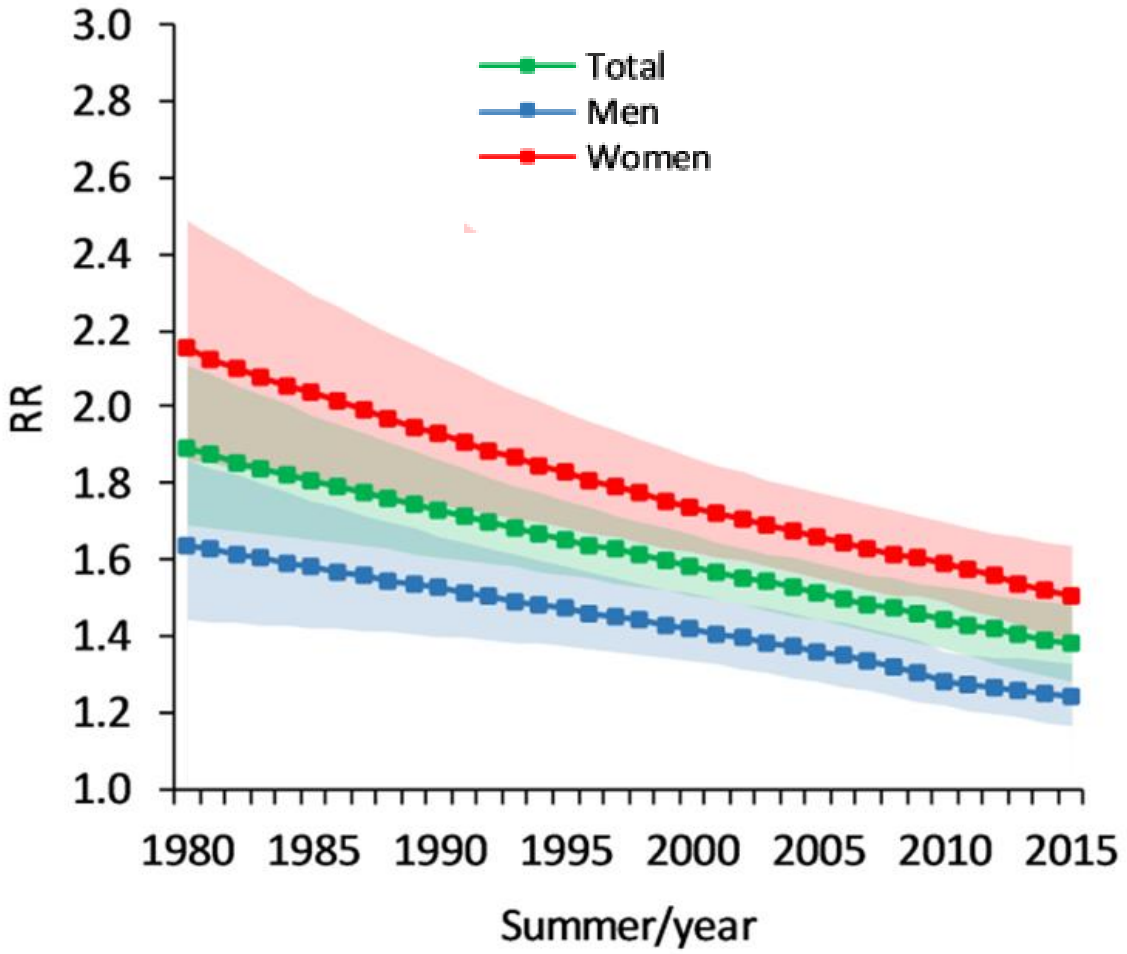
In 2021, 10 (45%) of 22 countries reported having undertaken a climate change and health vulnerability and adaptation assessment.

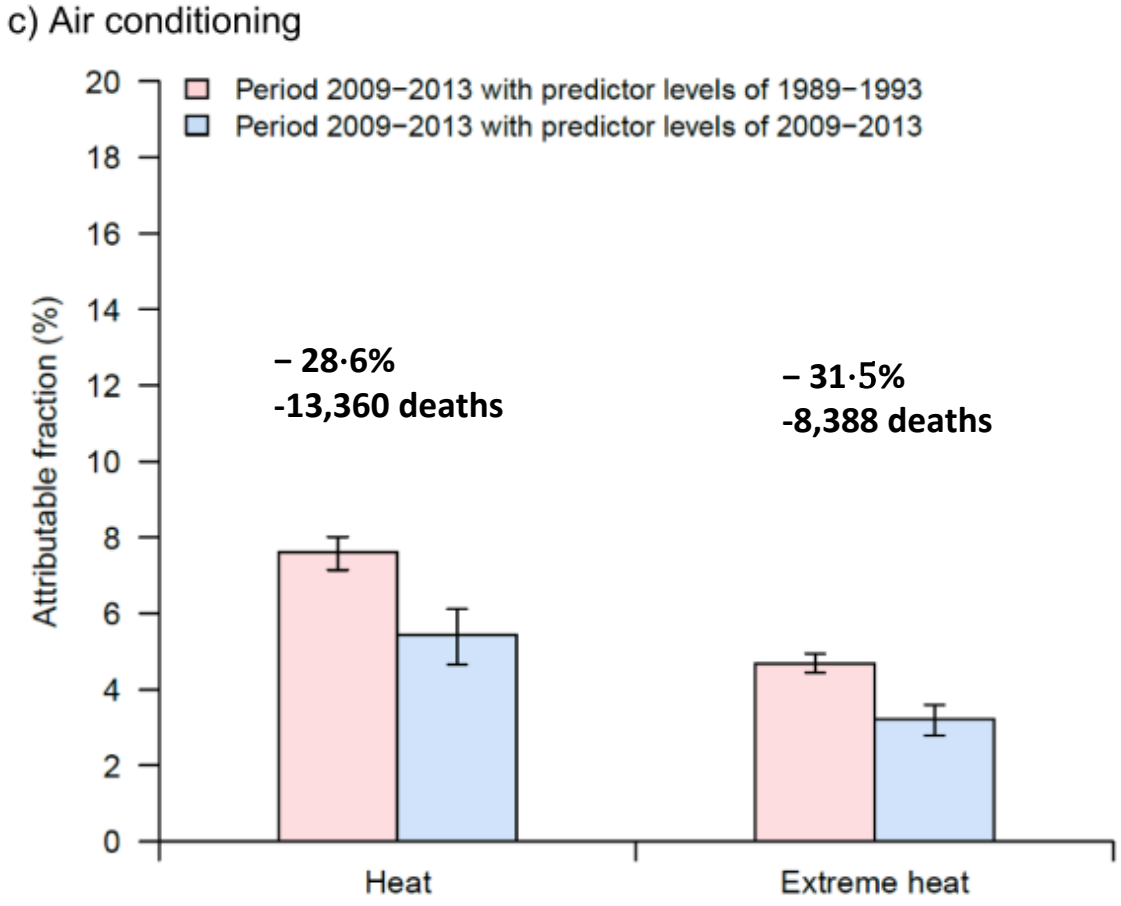
14 (64%) of 22 countries reported having a multi-stakeholder mechanism on health and climate change that is currently operational.



Heat-related mortality in Spain. Achebak H et al.

PLOS Medicine 2018 & Env Int 2023





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nature medicine

Article

https://doi.org/10.1038/s41591-023-024

Heat-related mortality in Europe during the summer of 2022

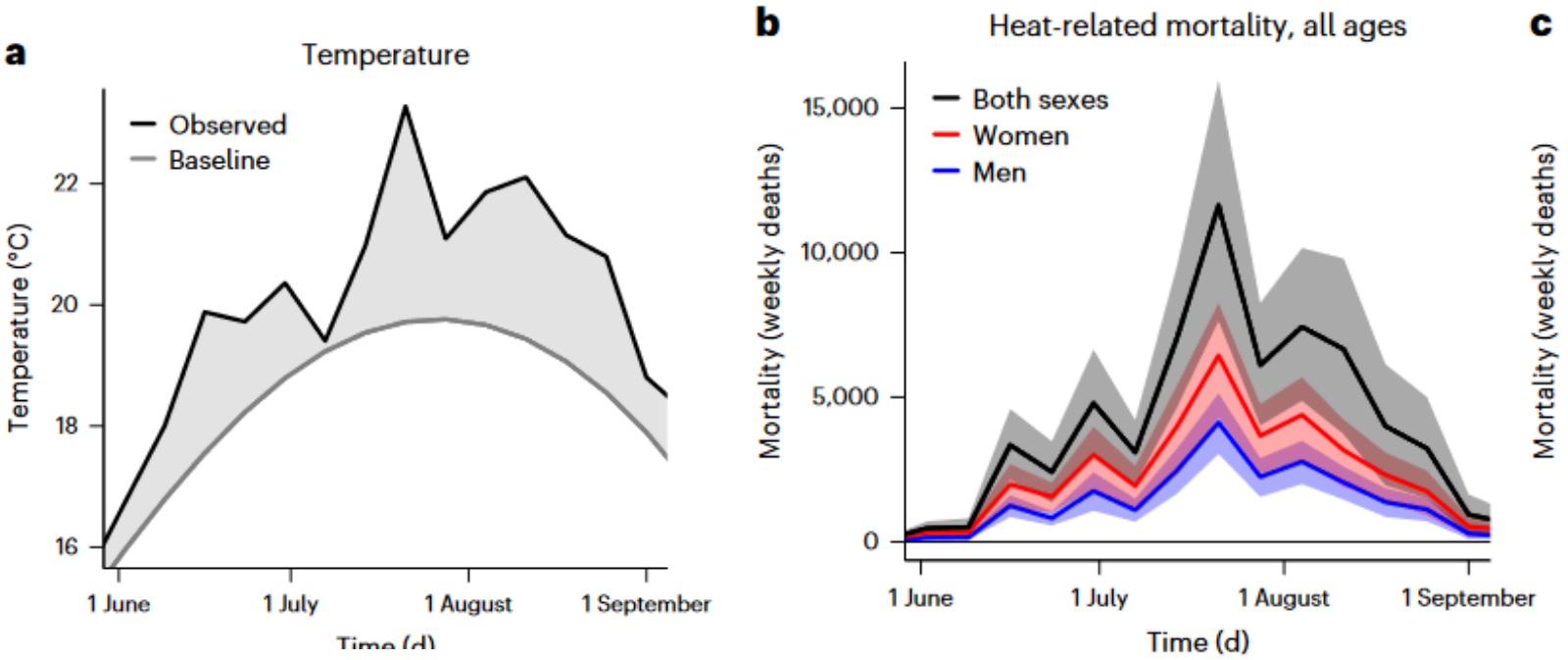
Received: 5 January 2023

Accepted: 24 May 2023

Published online: 10 July 2023

Check for updates

Joan Ballester[1], Marcos Quijal-Zamorano[1,2], Raúl Fernando Méndez Turrubiates[1], Ferran Pegenaute[1], François R. Herrmann[3,4], Jean Marie Robine[5,6,7], Xavier Basagaña[1,2,8], Cathryn Tonne[1,2,8], Josep M. Antó[1,2,8] & Hicham Achebak[1,9]



Heat-related mortality burden during the summer of 2022 (2nd hottest season in Europe)

Eurostat database: 543 M people, 45M deaths, 823 regions, 35 European countries

30 May to 4 September 2022: 61,672 heat-related deaths

Italy (18,010 deaths) Spain (11,324) and Germany (8,173) had the highest mortality

60% (36848) were 80 or more years old and **57% (35,406) were women**

With current adaptation levels we would expect 68,116 heat-related deaths on average every summer by the year 2030, 94,363 deaths by 2040 and **120,610 deaths by 2050**

Results call for a re-evaluation and strengthening of existing heat surveillance platforms, prevention plans and long-term adaptation strategies.

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Policy and action measures to reduce the impacts of high and low temperatures on various vulnerable groups. From: Unequal exposure and unequal impacts. EEA 2018

• Identifying vulnerable people and communities through mapping to inform policy and action;

> *lack of knowledge and tools to map and monitor inequalities*

• Heatwave and cold wave response plans originating in the public health sector;

> *lack of robust before/after evaluations*

• Adaptation to climate change strategies and plans;

> *need to strengthen and generalize its implementation*

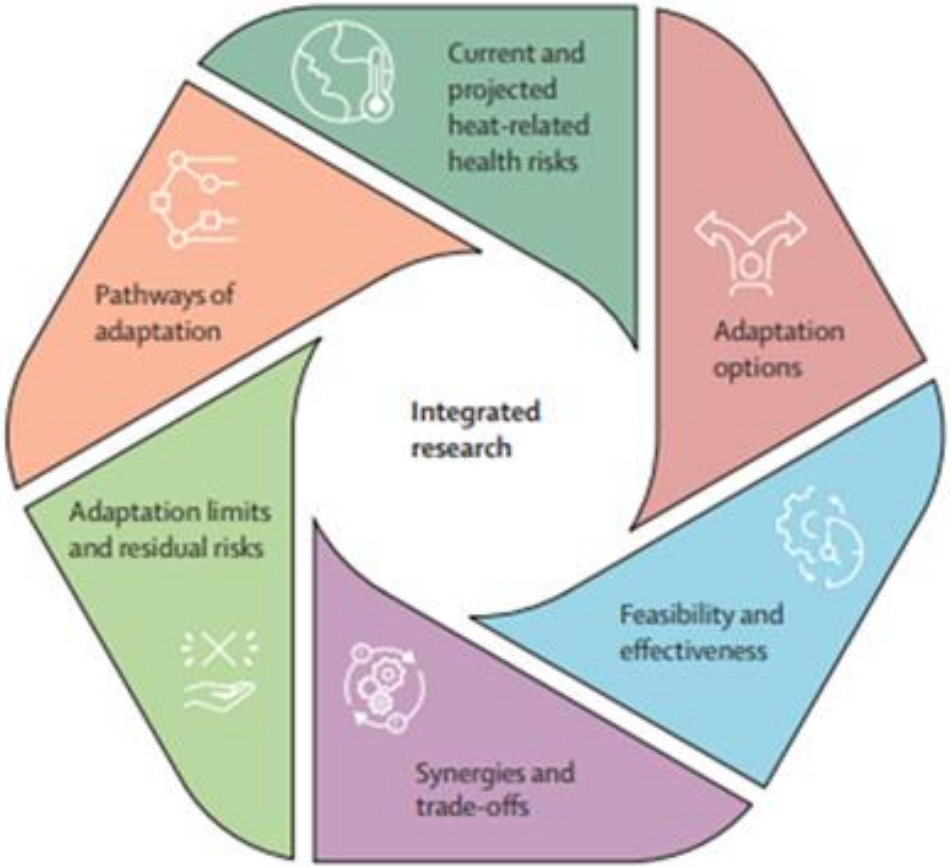
• Actions aimed at reducing exposure to heat through improvements to the living environment (housing and neighbourhood) and also through urban planning;

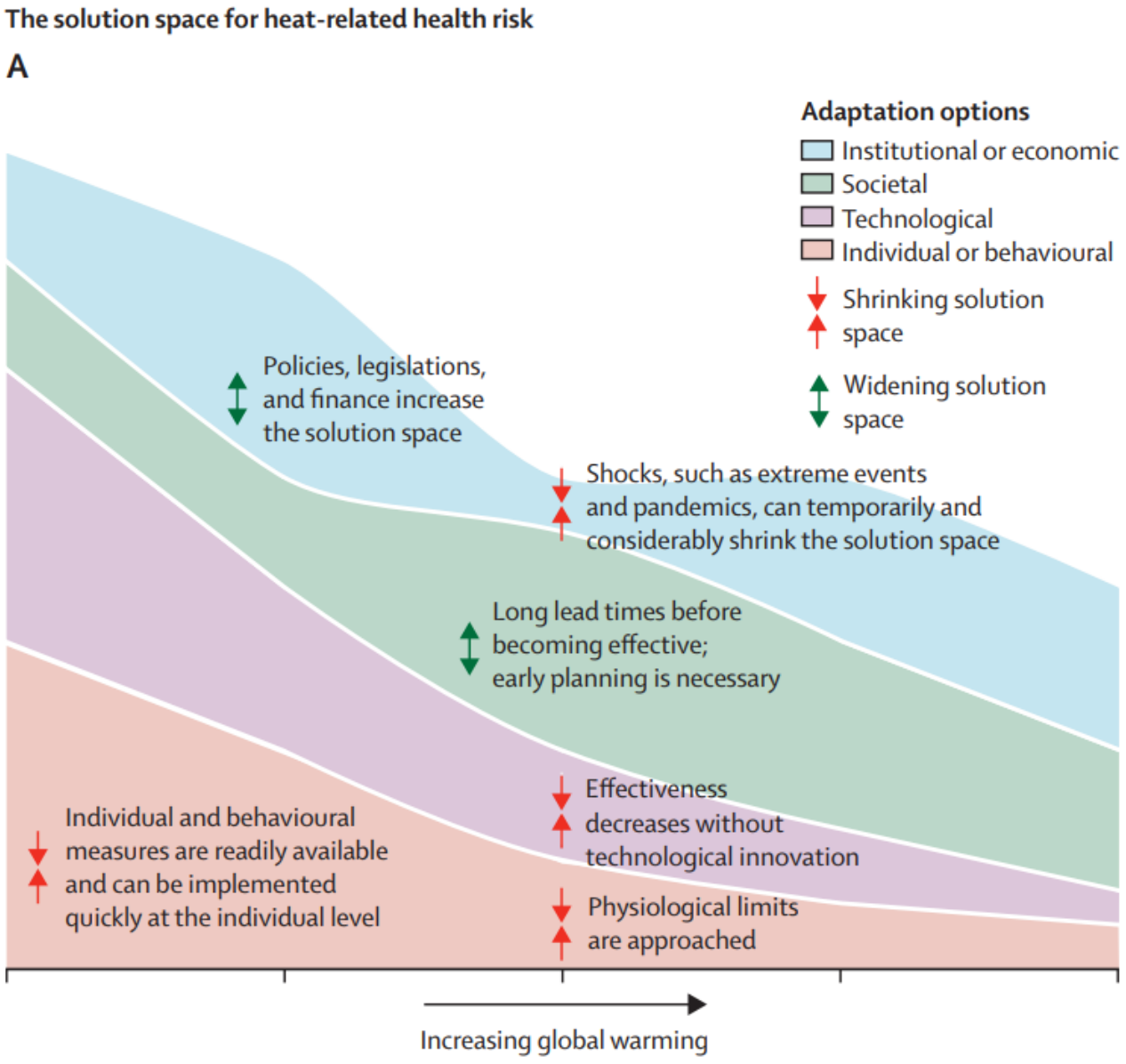
> *need of feasible and sustainable transformative changes*

• Community-driven self-help initiatives.

> support individual and community empowerment

Two archetypes of stylized solution space showing how solution space (ie, the total colored area) changes with increasing global warming





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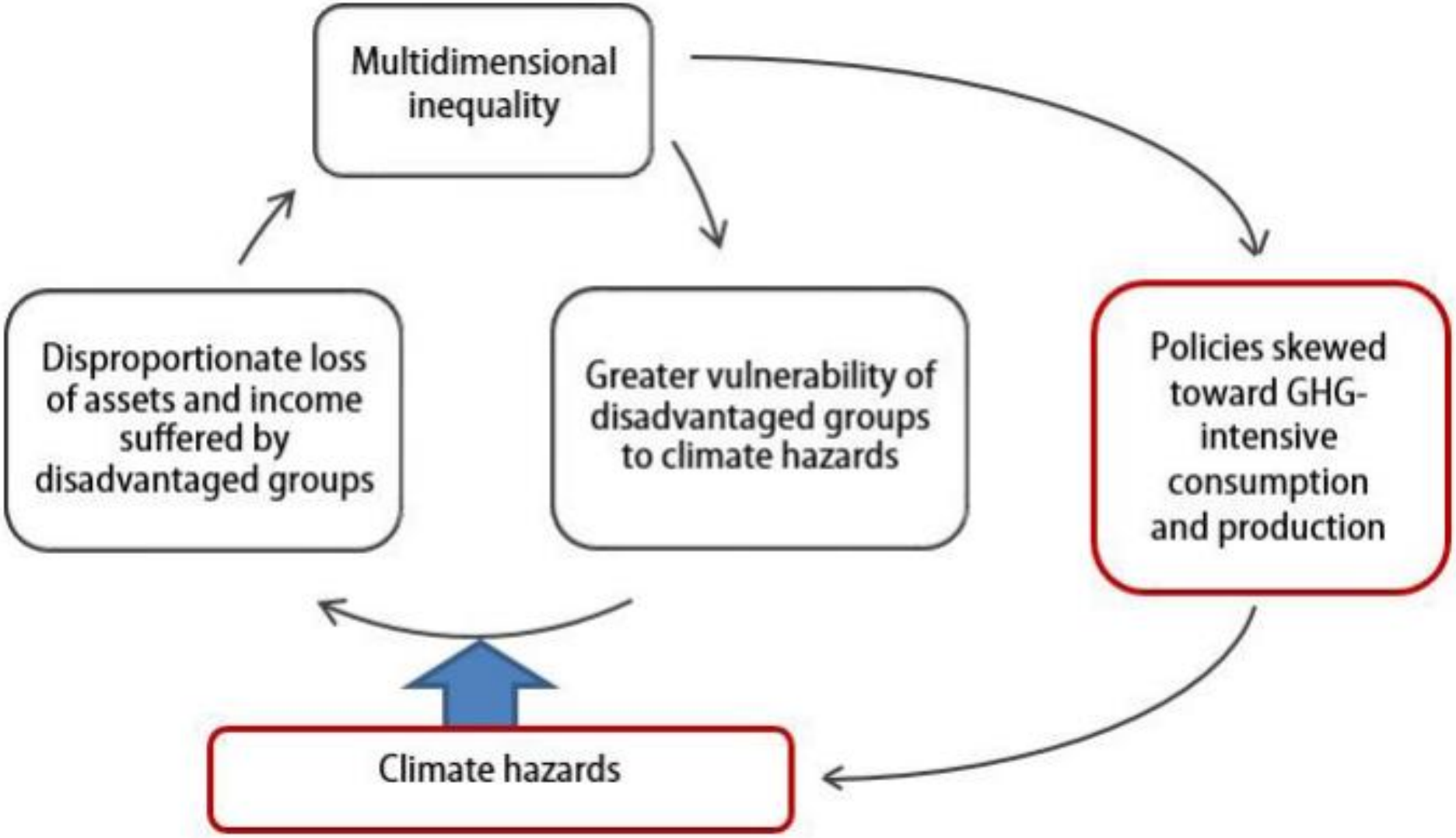
Reinforced vicious cycle between inequality and climate change. From: Climate Change and Social Inequality. DESA Working Paper No. 152. 2017



climate-health cluster

Climate Health Cluster at the Research Perspectives on the Health Impacts of Climate Change Conference

CLUSTER

The European Climate Health Cluster attended the 'Research Perspectives on the Health Impacts of Climate Change' Conference in Brussels, on 19 and 20 February. The high-level conference, organised by the Directorate-General for Research and Innovation of the European...

Blue Adapt

CATALYSE

CLIMOS

HIGH HORIZONS

iDAlert

trigger

https://climate-health.eu/

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Issac Cordal: “Follow the leaders” series (http://creartivism.com/5-climate-change-art-projects/)