

EUROPEAN CLIMATE RISK ASSESSMENT (EUCRA)

A comprehensive assessment of current
and future climate risks in Europe

A photograph of a lighthouse on a rocky island. The lighthouse is a tall, cylindrical stone tower with a red lantern room and a red door. A massive, white, foamy wave is crashing against the lighthouse, creating a large splash of water. The sky is overcast and grey.

Leena Ylä-Mononen
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23 April 2024



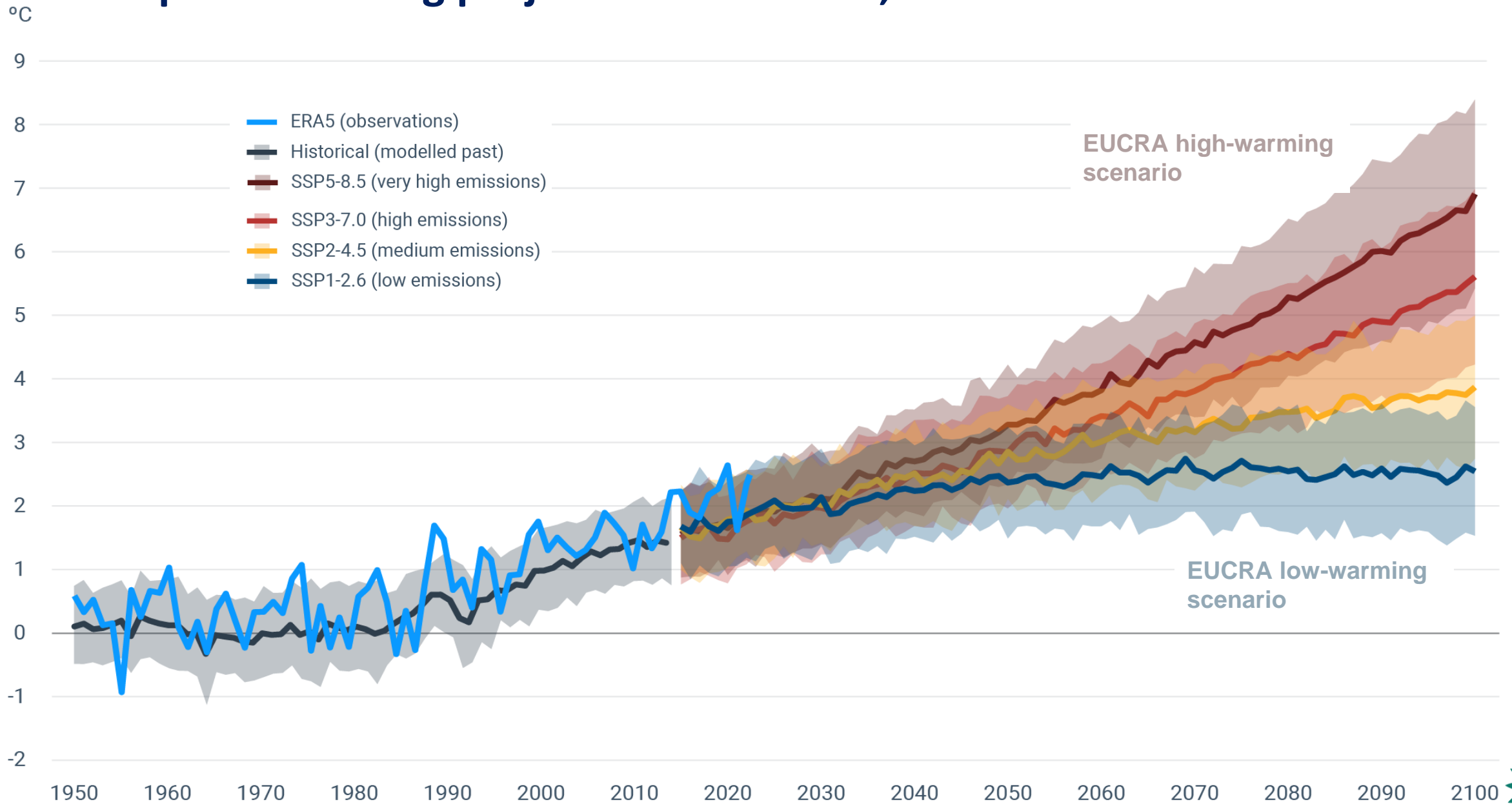
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2023: a glimpse of 1.5°C



©Antonio Masiello via Getty Images

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



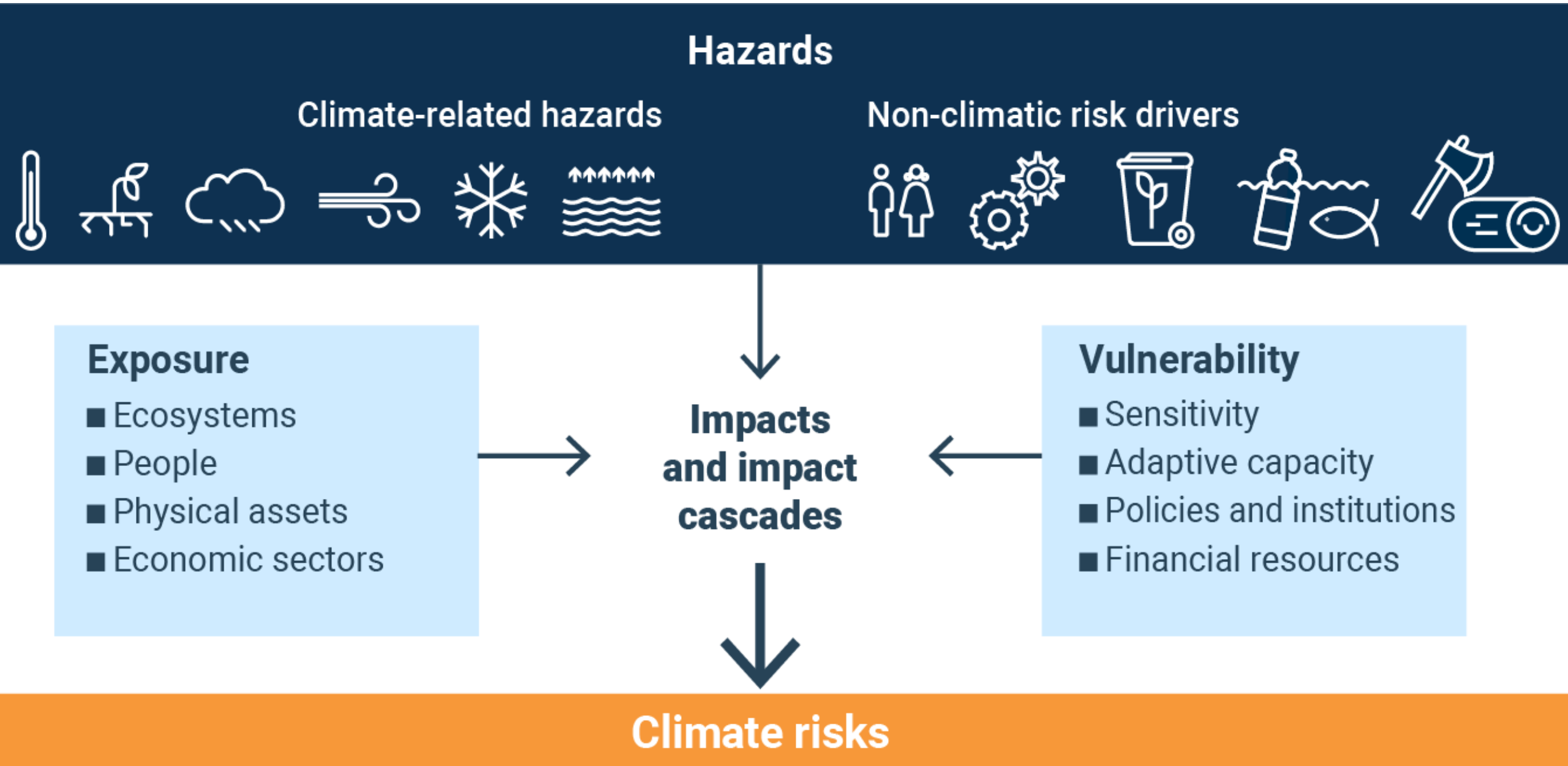
EUCRA thematic factsheets

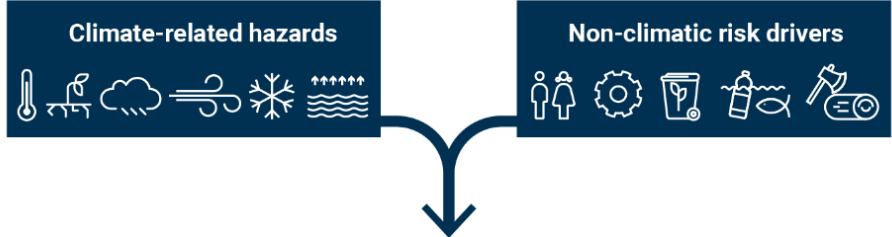
Terrestrial & freshwater ecosystems	Marine & coastal ecosystems	Water security	Food production & food security
Human health	Energy	Built environment	EU Outermost regions

EUCRA risk storylines

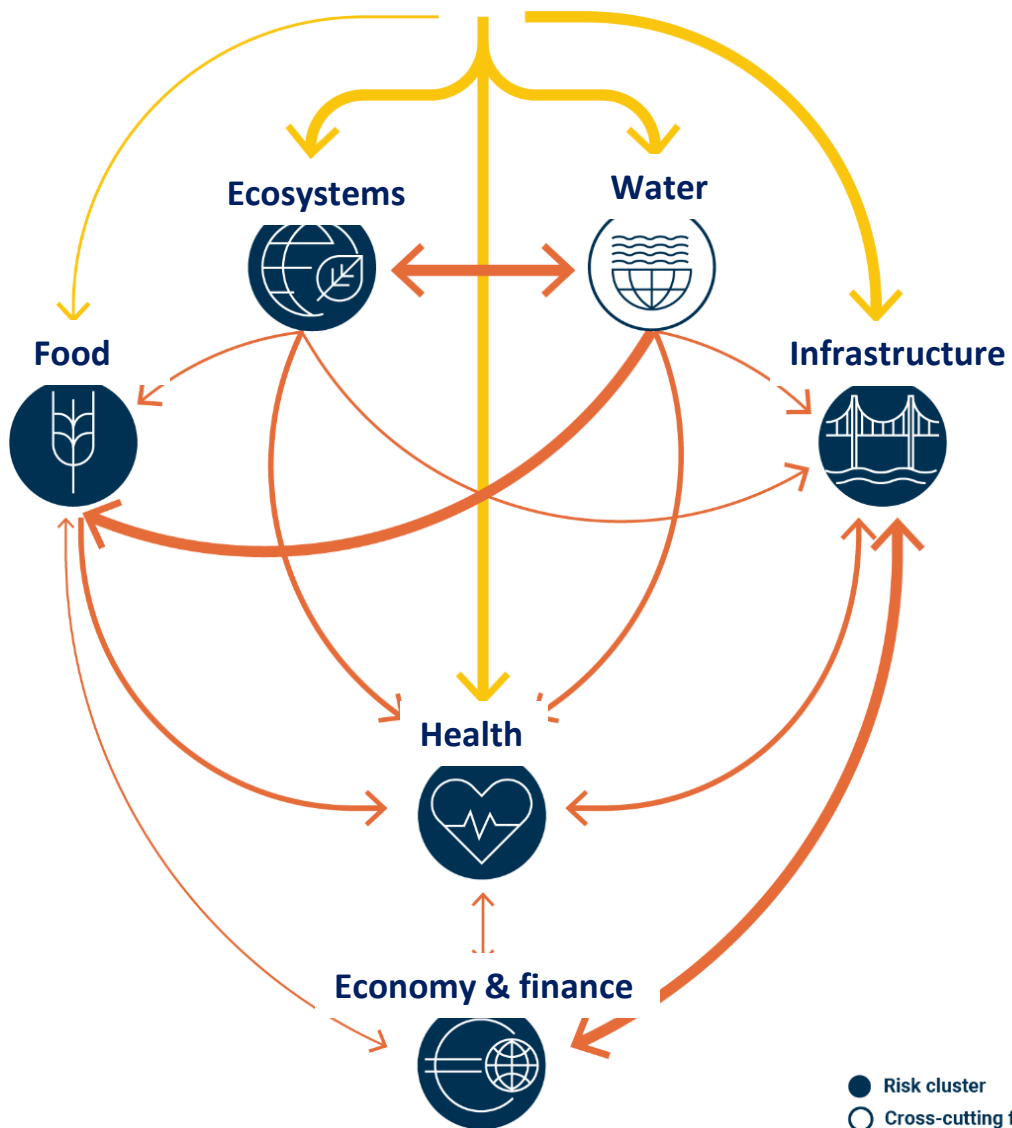
Extreme heat and prolonged drought	Large-scale flooding	Infectious diseases	Forest disturbances and carbon sinks
Major disruption of critical infrastructure	Disruption of international supply chains	Stability of financial markets & public finances	

Hazards do not occur in isolation



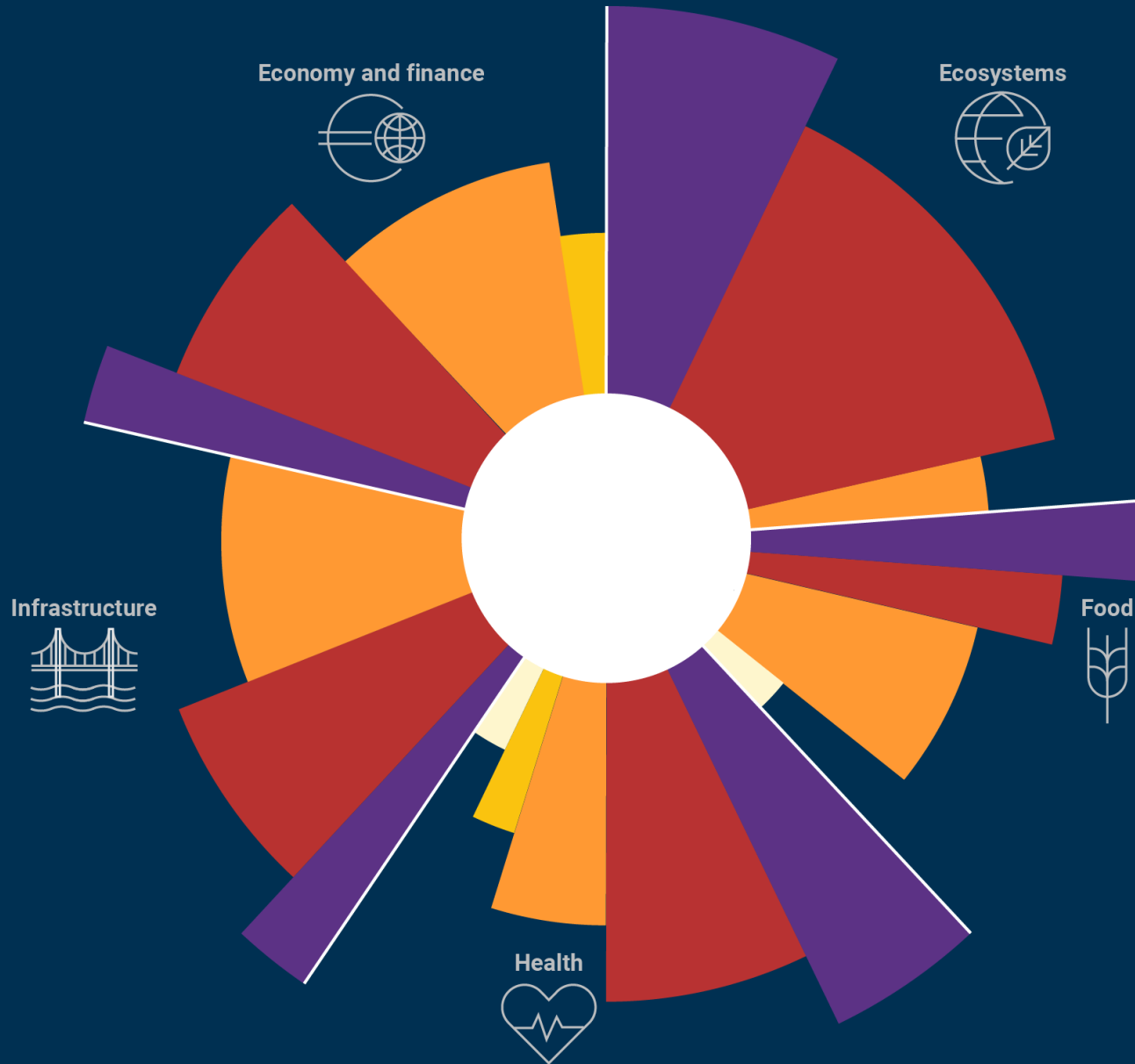


Direct impacts and cascading impacts and risks



Climate risks can cascade across systems

Priorities for EU policy on climate adaptation



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



Climate risks for 'Ecosystems' cluster

Urgency to act

Risk severity

Current Mid-century Late century (low/high warming scenario)

Risk Category	Urgency to act	Current	Mid-century	Late century (low/high warming scenario)
Coastal ecosystems	Urgent action needed	+++	+++	+++
Marine ecosystems	Urgent action needed	+++	+++	++
Biodiversity/carbon sinks due to wildfires (hotspot region: southern Europe)	Urgent action needed	+++	++	++
Biodiversity/carbon sinks due to wildfires	More action needed	+++	++	++
Biodiversity/carbon sinks due to droughts and pests	More action needed	+++	++	++
Species distribution shifts (*)	More action needed	+++	++	++
Ecosystems/society due to invasive species	More action needed	+++	++	++
Aquatic and wetland ecosystems	More action needed	+++	++	++
Soil health (*)	More action needed	+++	++	++
Cascading impacts from forest disturbances	Further investigation	+	+	+

Legends and notes

- | | | |
|------------------------|----------------------|-------------------|
| Urgency to act | Risk severity | Confidence |
| Urgent action needed | Catastrophic | Low: + |
| More action needed | Critical | Medium: ++ |
| Further investigation | Substantial | High: +++ |
| Sustain current action | Limited | |
| Watching brief | | |

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



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)	Urgent action needed	+++	++	++
Crop production	More action needed	+++	++	++
Food security due to climate impacts outside Europe (*)	Further investigation	++	++	+
Food security due to higher food prices	Further investigation	++	+	+
Fisheries and aquaculture	Further investigation	++	+	+
Livestock production	Sustain current action	++	++	+

Legends and notes

Urgency to act	Risk severity	Confidence	
Urgent action needed	Catastrophic	Low: +	(*) Wide range of evaluations by authors and risk reviewers. (**) Urgency based on high warming scenario (late century).
More action needed	Critical	Medium: ++	
Further investigation	Substantial	High: +++	
Sustain current action	Limited		
Watching brief			



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

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).





Climate risks for 'Infrastructure' cluster

Urgency to act

Risk severity

Current

Mid-century

Late century
(low/high
warming scenario)

	Urgency to act	Current	Mid-century	Late century (low/high warming scenario)
Pluvial and fluvial flooding	Urgent action needed	High	Critical	Medium
Coastal flooding	More action needed	High	Critical	Urgent action needed
Damage to infrastructure and buildings (*)	More action needed	Medium	Medium	Medium
Energy disruption due to heat and drought (hotspot region: southern Europe)	More action needed	Medium	Critical	Critical
Energy disruption due to heat and drought	Further investigation	Medium	Medium	Low
Energy disruption due to flooding	Further investigation	Medium	Critical	Medium
Marine transport	Further investigation	Medium	Medium	Medium
Land-based transport	Further investigation	Medium	Medium	Medium

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).



Climate risks for 'Economy and finance' cluster

Urgency to act

Risk severity

Economy and finance



Current

Mid-century

Late century
(low/high
warming scenario)

	Urgency to act	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

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

Risk severity

- Catastrophic
- Critical
- Substantial
- Limited

Confidence

- Low: +
- Medium: ++
- High: +++

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(**) Urgency based on high warming scenario (late century).

European Environment Agency





Societal resilience: preparing for a changing climate

Thank you

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