



**European Climate Risk Assessment  
for businesses: preparing for a  
resilient and competitive business  
in 2025**

**19 February, Brussels**

**Organised by**



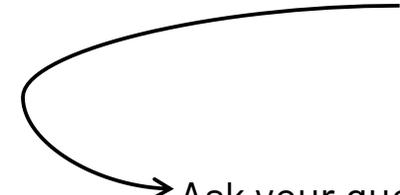
**With the support  
and contribution**



# European Climate Risk Assessment for businesses: preparing for a resilient and competitive business in



**Welcome**  
**Mercedes Sanchez Varela**  
Member of the Board  
Institute for European Environmental Policy  
(IEEP)



Ask your questions on  
**Slido.com #1005658**



**Welcome and introduction to the day**  
**Antoine Oger**  
Executive Director  
Institute for European Environmental Policy  
(IEEP)

Welcome by the host  
Isabelle Putseys on behalf of  
**Sweco Group President Åsa Bergman**  
Director  
Urban Insight Lab - Sweco



# European Climate Risk Assessment for businesses: preparing for a resilient and competitive business in



## **Keynote speech – EUCRA relevance for private sector businesses**

**Leena Ylä-Mononen**

Executive Director

European Environmental Agency

## **National implementation effort in Belgium following the EUCRA**

**Luc Bas**

Director of the Climate Risk Assessment Center (CERAC) and  
Chair of IEEP Strategic Advisory Council



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.

# European climate risk assessment (EUCRA)

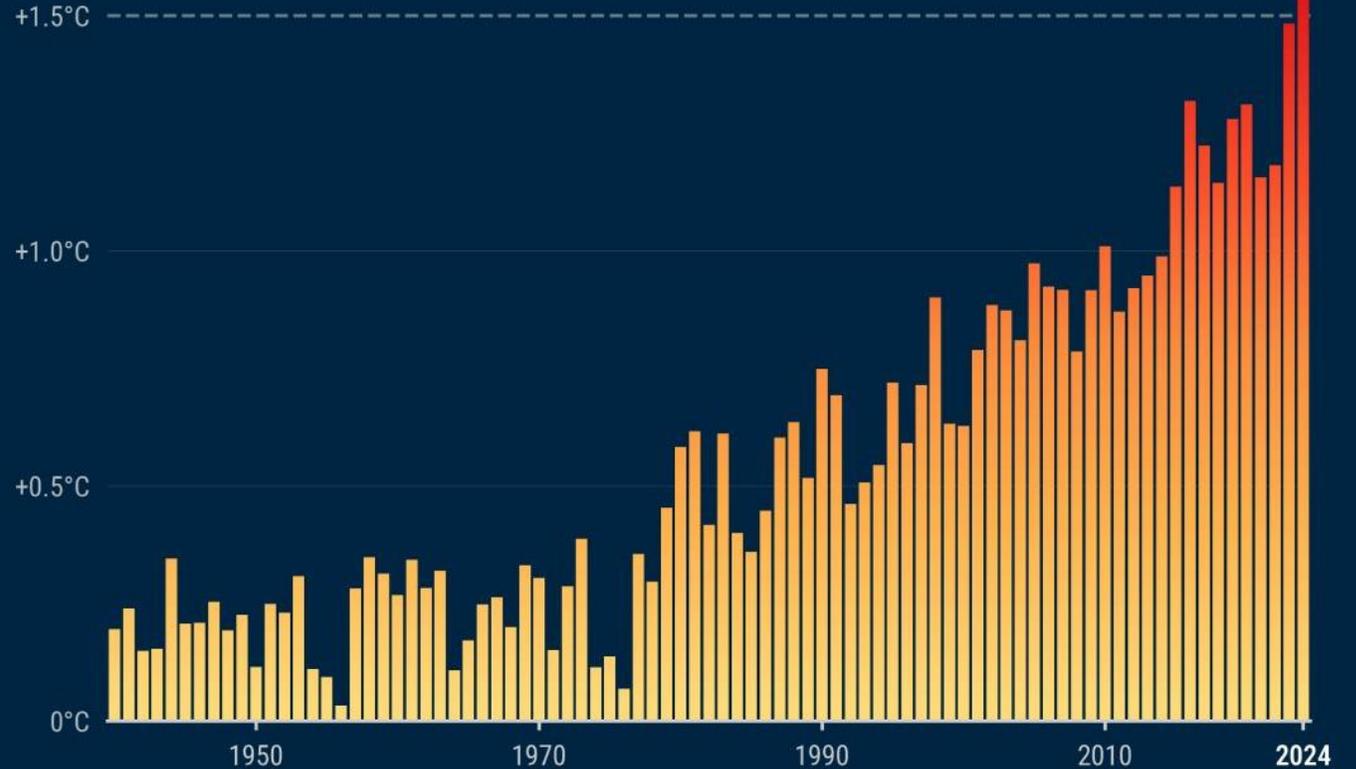
## Climate risks and what they mean for business

**Leena Ylä-Mononen**  
**Executive Director, European Environment Agency**  
**19 February 2025**

# Global climate change and associated risks: our current reality



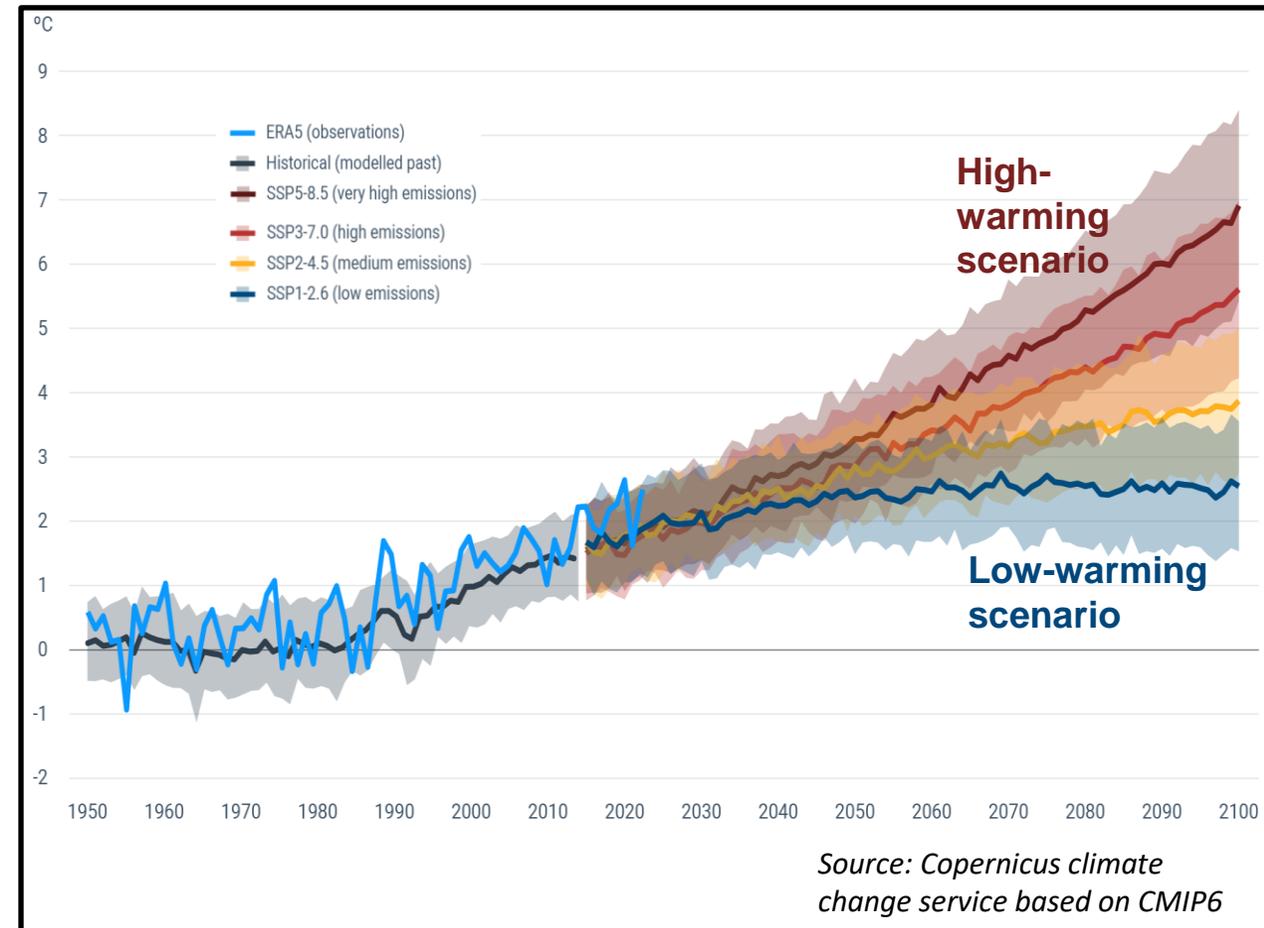
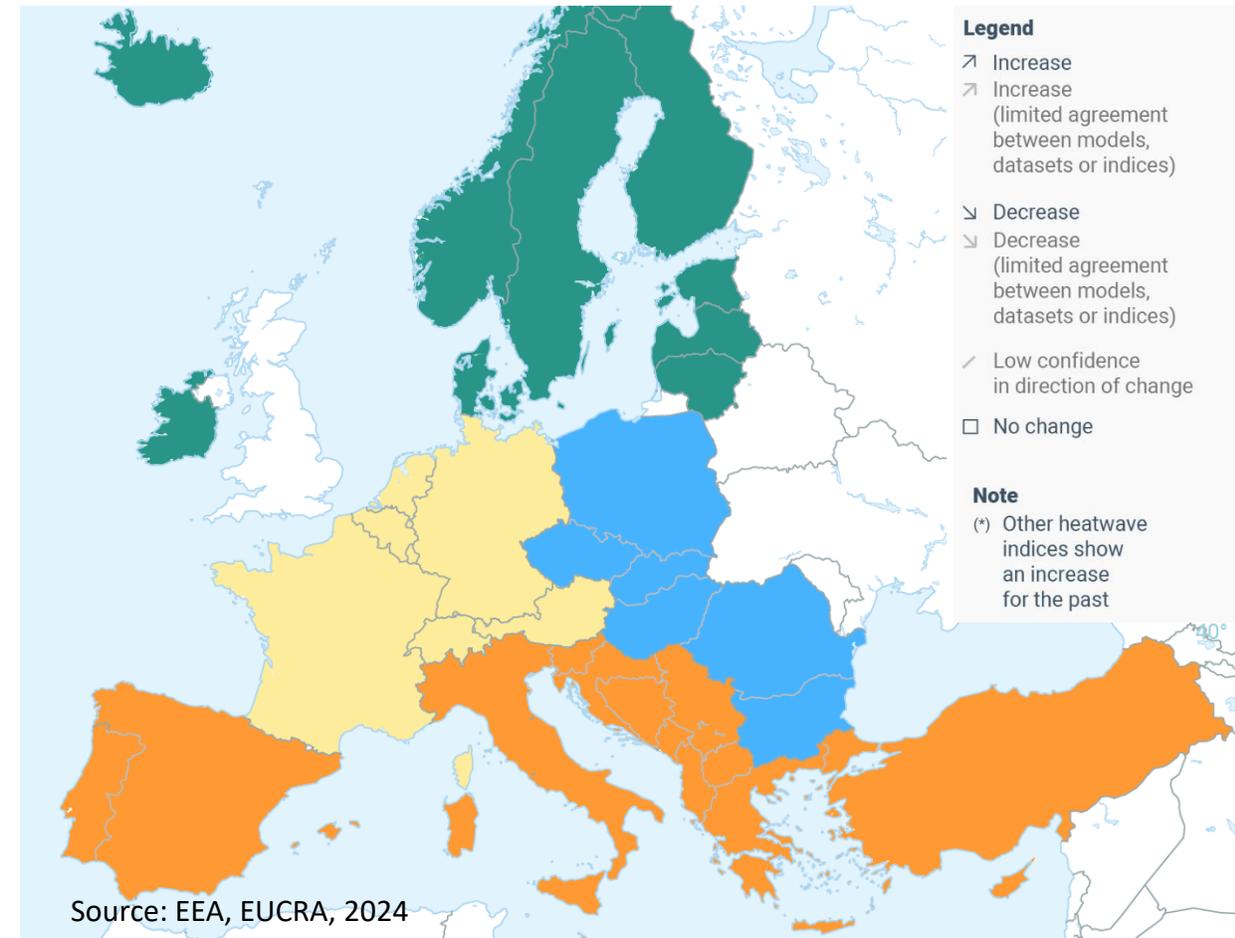
Annual global temperature anomalies relative to pre-industrial (1850-1900)  
Data: ERA5 (1940-2024) • Credit: C3S/ECMWF



PROGRAMME OF THE EUROPEAN UNION

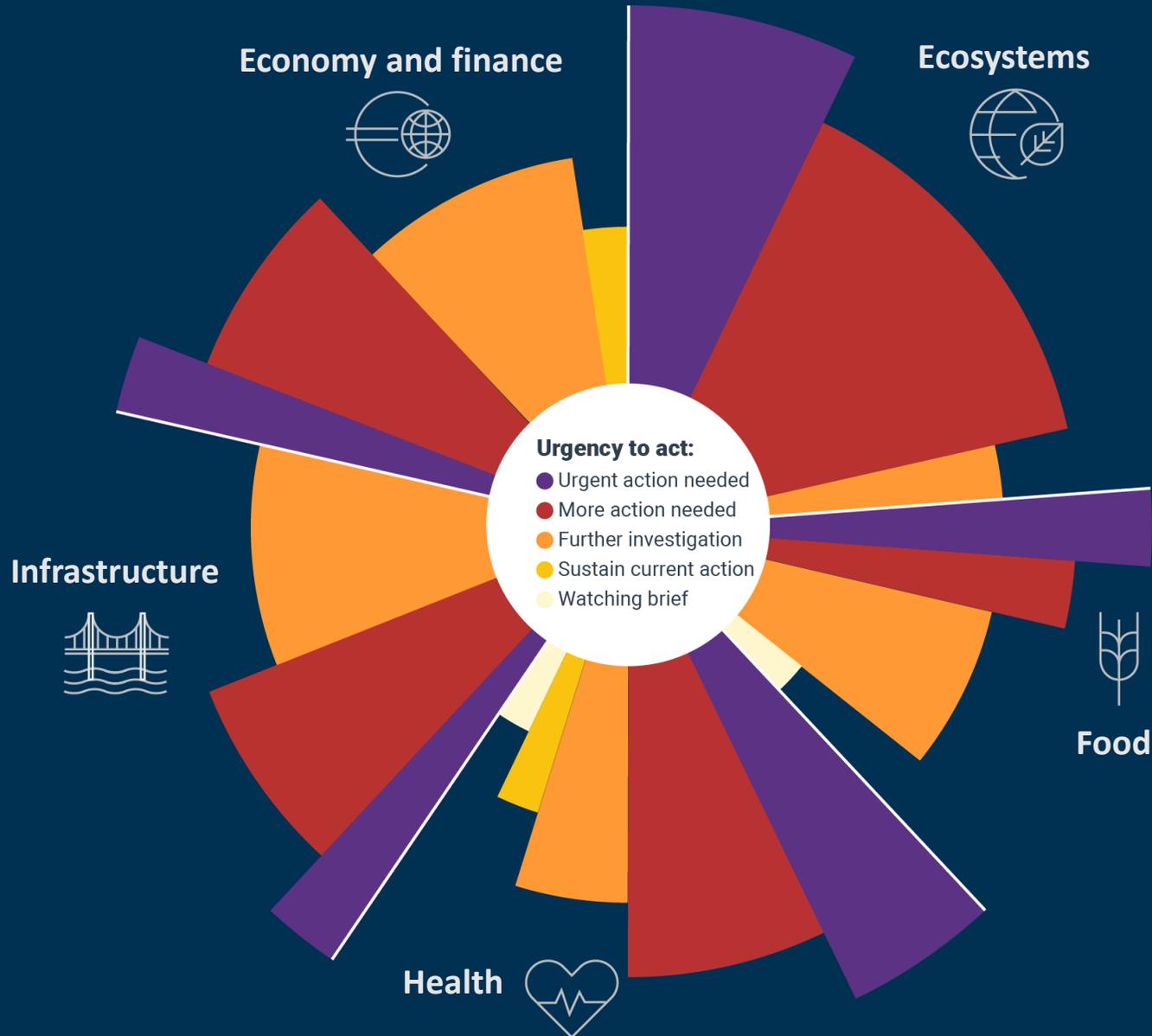


# All Europe's regions will experience increasing climatic risk drivers incl. heatwaves, heavy precipitation and drought

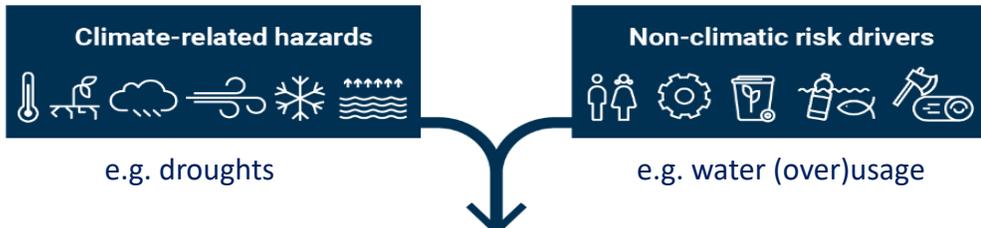


Land regions	Northern Europe		Western Europe			Central-eastern Europe			Southern Europe			
	Past	Future		Past	Future		Past	Future		Past	Future	
		Low	High		Low	High		Low	High		Low	High
Mean temperature	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Heatwave days	□(*)	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Total precipitation	↗	↗	↗	↗	↘	↘	↗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

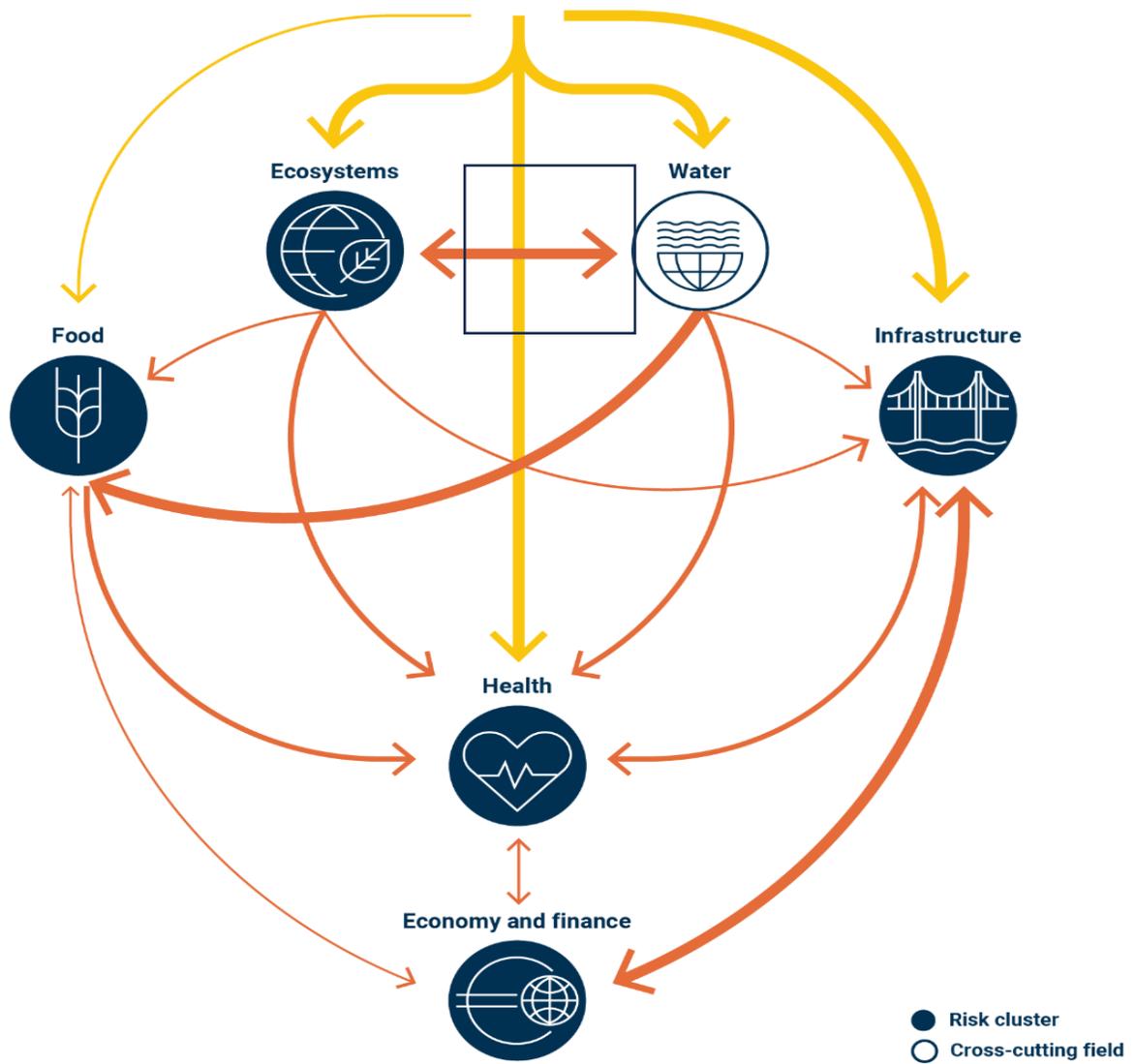
# EUCRA: major climate risks for Europe in five clusters



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



**Direct impacts and cascading impacts and risks**

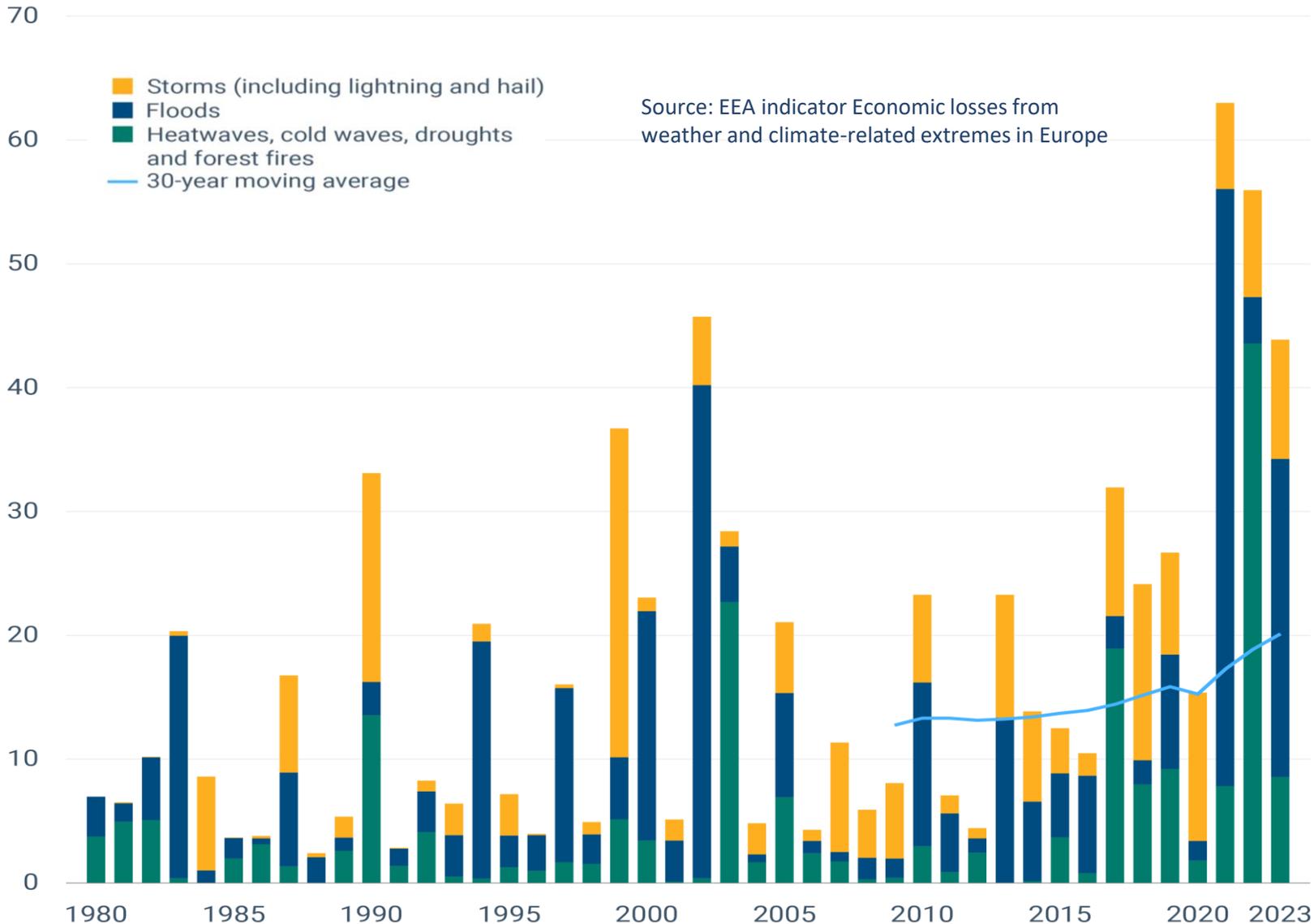


# Climate risks can cascade across societal systems

- Climate risks can cascade across systems, leading to unexpected impacts
- Water resilience is vital
- Systemic approach to adaptation and preparedness required

# Extreme weather 1980-2023: economic losses on the rise

Billion EUR (2023 prices)



**EU27, 1980-2023:**  
**EUR 738 billion in economic losses**

**2021:** EUR 64b (40 b floods BE/NL/DE)

**2022:** EUR 57b (forest fires, droughts, heat waves)

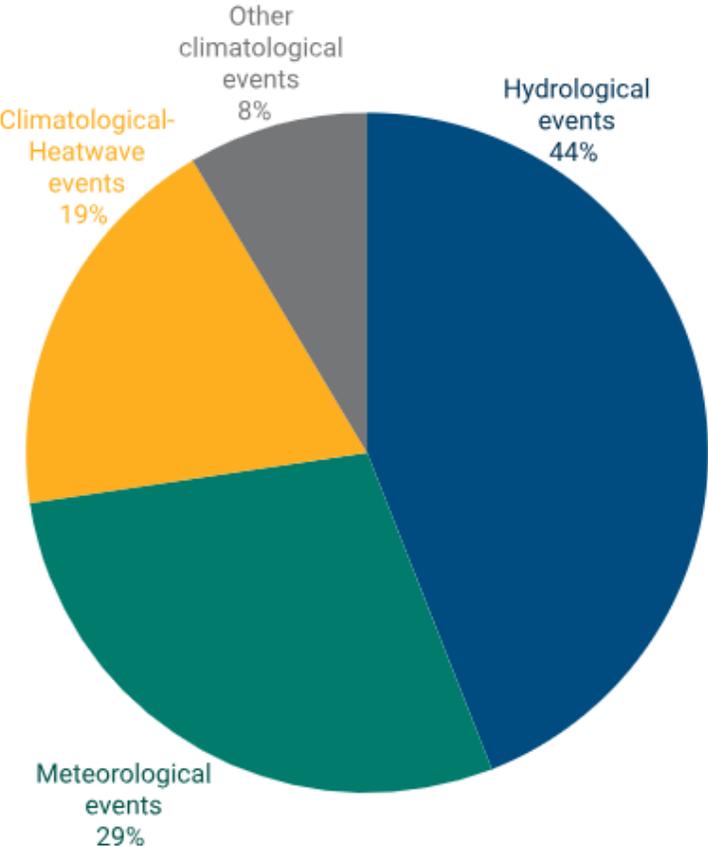
**2023:** EUR 44b (floods, forest fires, droughts)

**2024:** first estimates already  
+EUR 30b (Valencia and Central Europe floods)

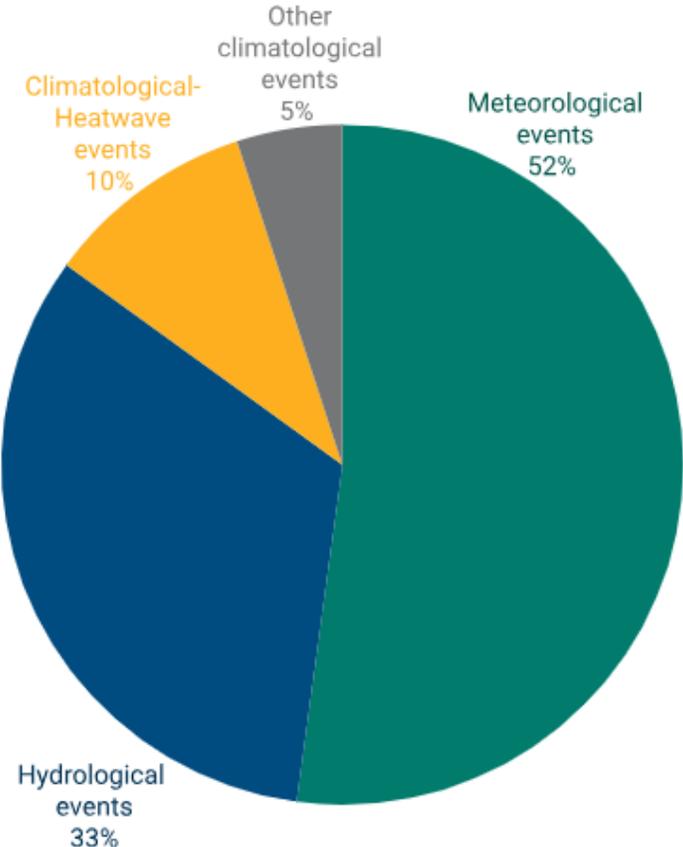


# Climate- and weather-related losses 1980-2023: most are uninsured

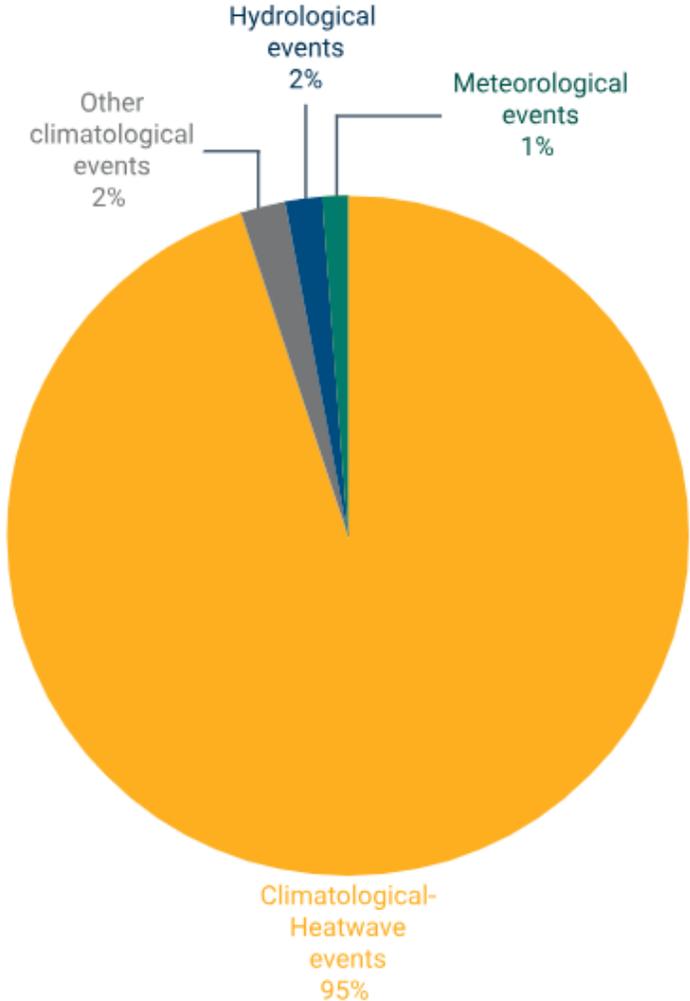
**Total economic losses**  
EUR 738 billion



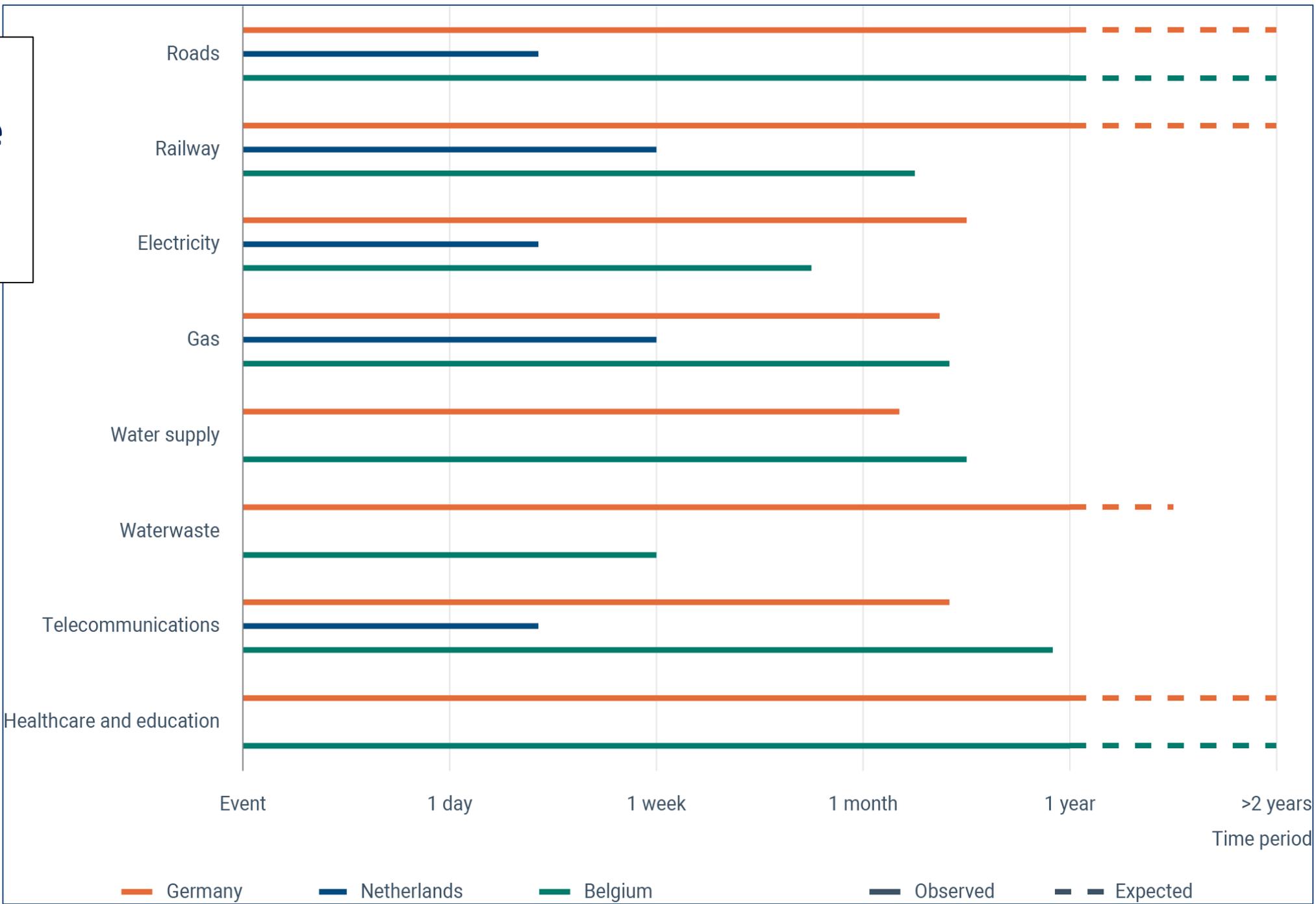
**Insured economic losses**  
EUR 140 billion



**Fatalities**  
241,587



# Long infrastructure recovery times



Infrastructure recovery after 2021 floods Belgium, Germany, Netherlands

EUCRA, based on Koks et al., 2022

A hand holding a pen pointing at a financial candlestick chart on a blue background. The chart shows price movements with green and red candles and a moving average line. The background is filled with financial data and numbers.

# Climate change is a major macro-economic, macro-fiscal and financial risk

Current knowledge insufficient for a comprehensive assessment of risks

Financial markets and insurance can both ameliorate and exacerbate climate risks

Global supply chain disruptions increase risk to food security, industry, healthcare...

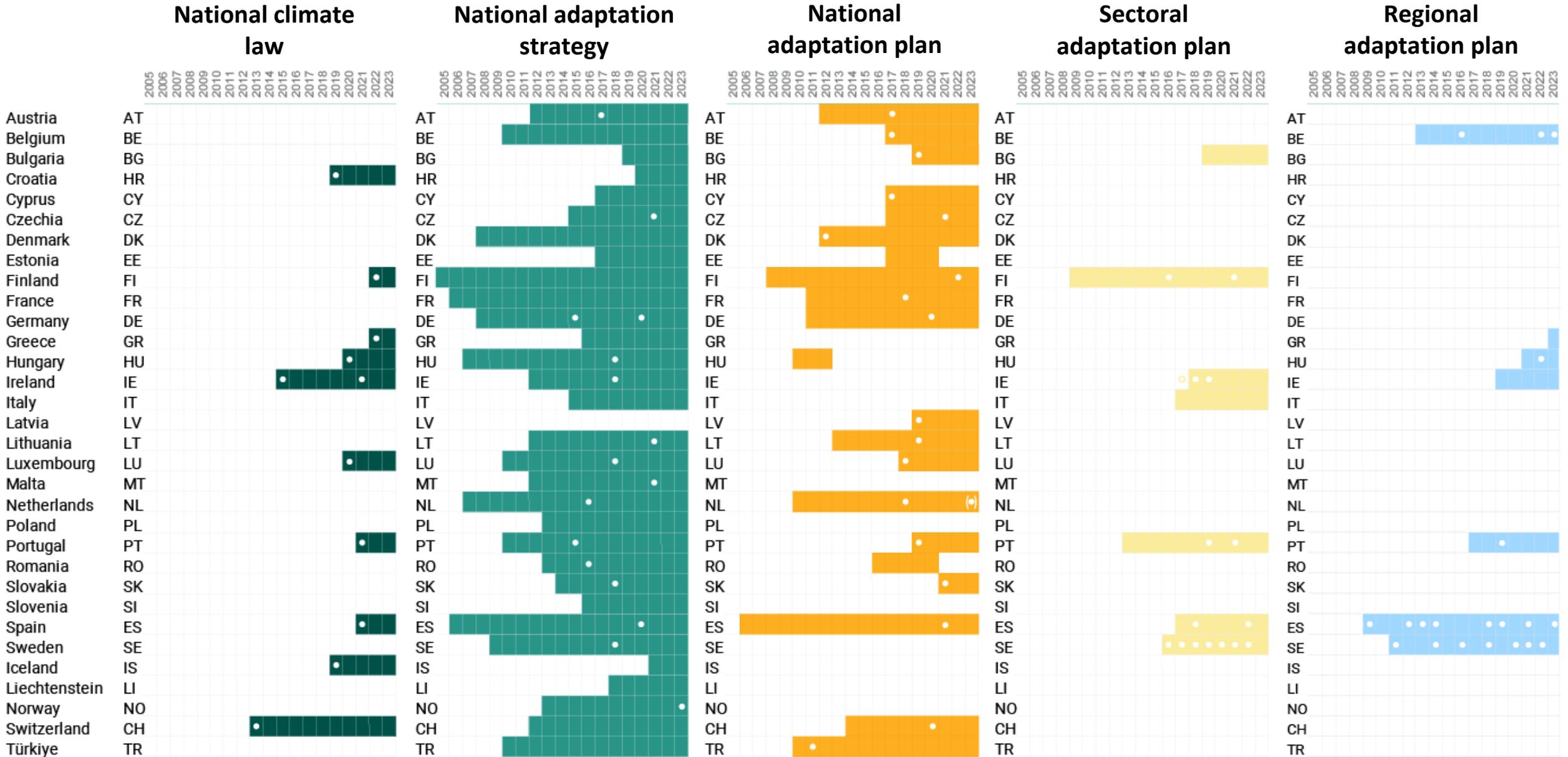
# Case study: implications for the tourism sector

## Key climate risks

- Thermal comfort / heat stress
- Water availability
- Availability of natural resources
- Reduced snowcover
- Availability of natural ecosystems
- Wildfires



# Levels of adaptation policy vary across Europe



Reported under the Governance Regulation in 2023, 2021, under the MMR in 2019, 2015 and based on EEA data

# 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



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. It is surrounded by a low stone wall. Large, white, foamy waves are crashing against the lighthouse and the wall, creating a dramatic scene. The sky is overcast and grey.

**Thank you**

**Leena Ylä-Mononen**  
**Executive Director, European Environment Agency**  
**19 February 2025**

For more information:  
**[climate-adapt.eea.europa.eu](https://climate-adapt.eea.europa.eu)**  
Contact us:  
**[EUCRA@eea.europa.eu](mailto:EUCRA@eea.europa.eu)**



# Climate Risk Assessment Center

## Belgium National Climate (and Biodiversity) Risk Assessment

cerac

# Why the Climate Risk Assessment Center (Cerac)?



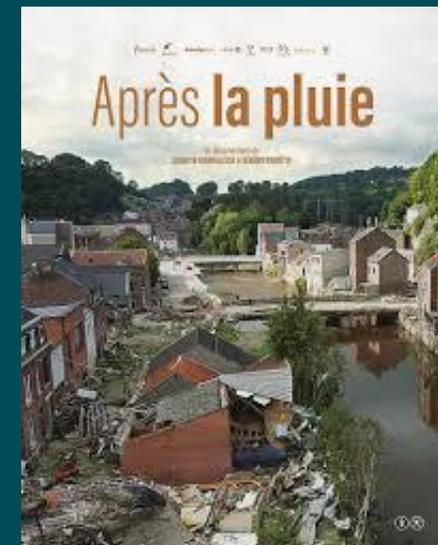
**L'ECHO**

## Le coût des inondations en 2021 atteint 2,57 milliards d'euros

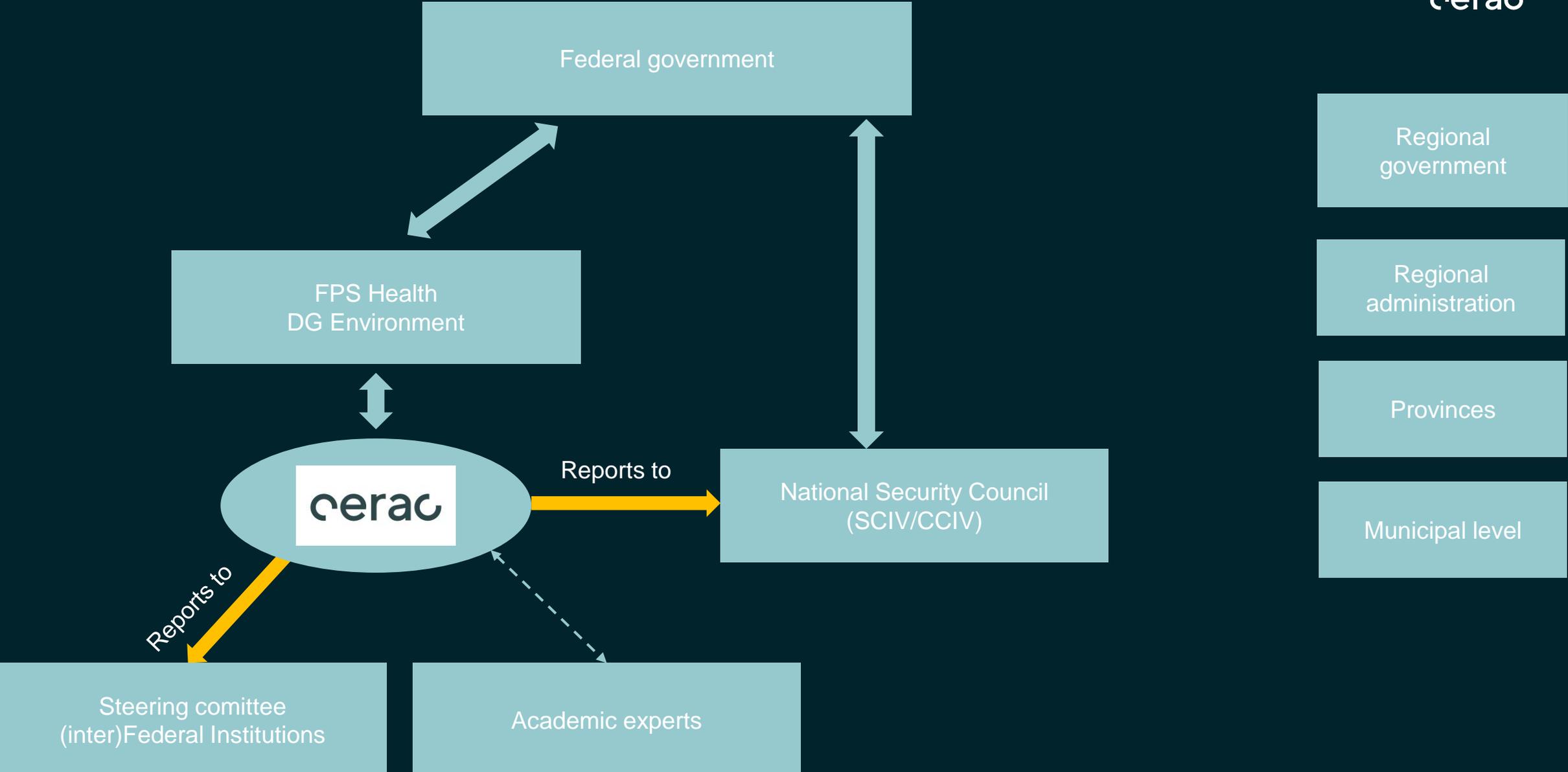
A person is seen cleaning debris from the doorway of a building that has been flooded. The water level is high, and the surrounding area shows signs of destruction.



[Update on flooding in July 2021](#)



# Institutional positioning



# Climate risk assessments in Belgium ...

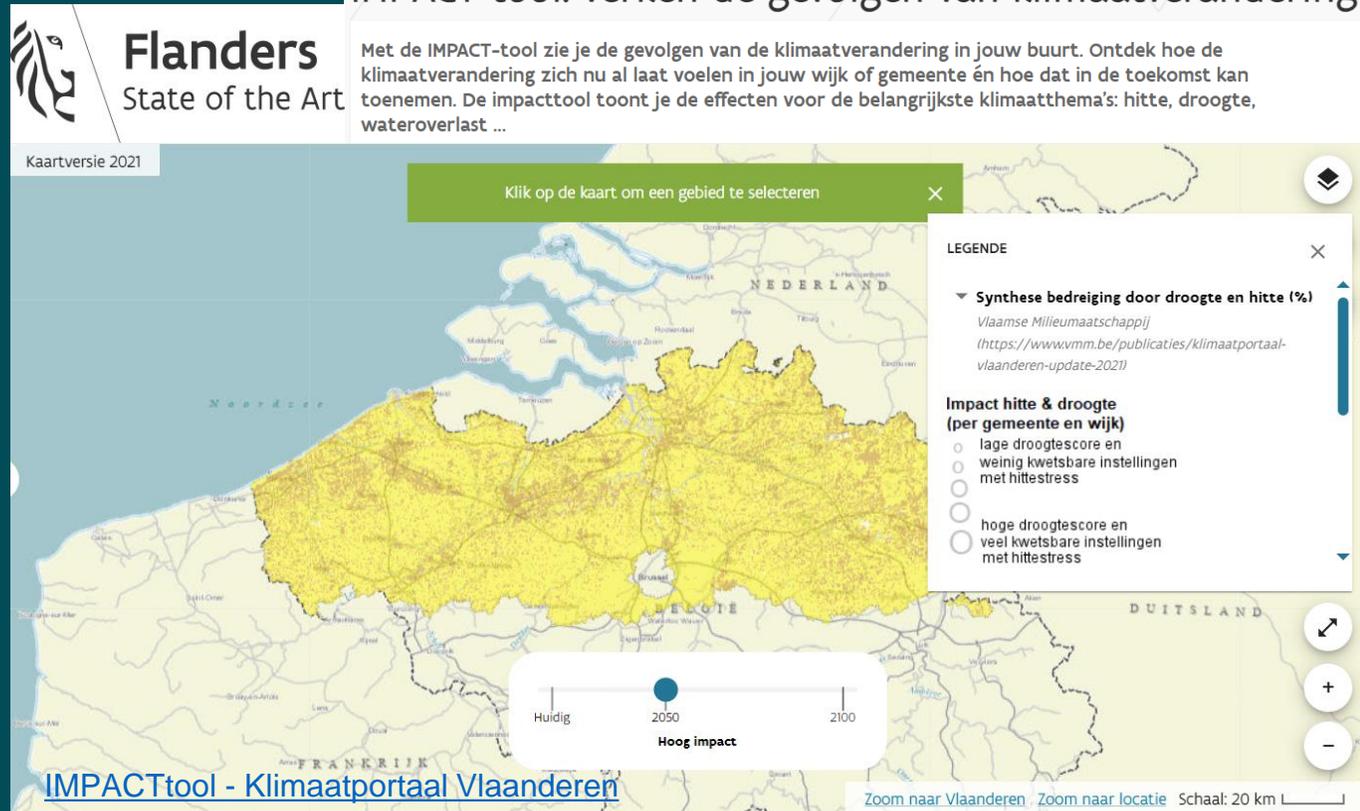
## Regional analyses



**Diagnostic de vulnérabilités pour augmenter la résilience wallonne à travers l'adaptation aux changements climatiques**

[Diagnosis of vulnerabilities to increase Walloon resilience through adaptation to climate change \(uliege.be\)](http://uliege.be)

## IMPACT-tool: verken de gevolgen van klimaatverandering



**Flanders State of the Art**

Met de IMPACT-tool zie je de gevolgen van de klimaatverandering in jouw buurt. Ontdek hoe de klimaatverandering zich nu al laat voelen in jouw wijk of gemeente én hoe dat in de toekomst kan toenemen. De impacttool toont je de effecten voor de belangrijkste klimaatthema's: hitte, droogte, wateroverlast ...

Kaartversie 2021

Klik op de kaart om een gebied te selecteren

**LEGENDE**

▼ **Synthese bedreiging door droogte en hitte (%)**  
 Vlaamse Milieumaatschappij  
 (https://www.vmm.be/publicaties/klimaatportaal-vlaanderen-update-2021)

**Impact hitte & droogte (per gemeente en wijk)**

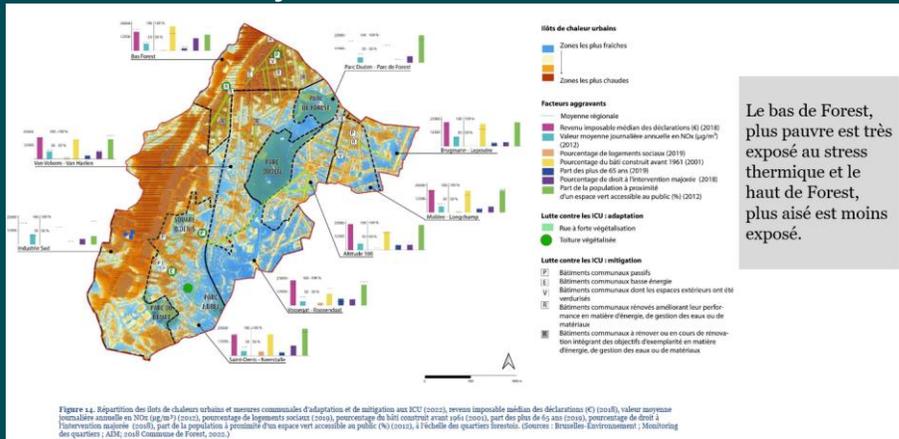
- lage droogtescore en weinig kwetsbare instellingen met hittestress
- hoge droogtescore en veel kwetsbare instellingen met hittestress

Huidig 2050 2100  
 Hoog impact

IMPACTtool - Klimaatportaal Vlaanderen

Zoom naar Vlaanderen Zoom naar locatie Schaal: 20 km

## Local analysis



Source of illustration: work by Simon De Munck

# First risk assessment

## Objectives

- Assessing the risks of climate change and biodiversity loss
- Identify gaps in knowledge about these risks and their components
- Linking risks within and between sectors
- Prioritising the risks associated with climate change and biodiversity loss

## Based on this assessment

- To provide recommendations to the National Security Council and other decisionmakers in Belgium;
- To provide guidelines for future CERAC risk assessments

**Timing : 12-months 2024-2025**



# FRA building on EUCRA and EU frameworks

- Climate-related hazards selection based on the EU classification (Governance Regulation & EU Taxonomy)

Commission Delegated Regulation (EU) 2021/2139  
Appendix A

CLASSIFICATION OF CLIMATE-RELATED HAZARDS

	Temperature-related	Wind-related	Water-related	Solid mass-related
Chronic	Changing temperature (air, freshwater, marine water)	Changing wind-patterns	Changing precipitation patterns and types (rain, hail, snow-ice)	Coastal erosion
	Temperature variability		Precipitation and/or hydrological variability	Soil degradation (including desertification)
			Ocean acidification	Soil erosion
			Saline intrusion	
Acute	Heatwave	Cyclone	Drought	Landslide
	Cold wave/frost	Storm	Heavy precipitation	Subsidence
	Wildfire	Tornado	Flood	

- EUCRA model adopted as a suitable framework for the FRA-CERAC exercise, providing a strong foundation for the risk assessment process:

- Selection of 28 risks
- Inspiration from EUCRA methodology for risk severity, policy readiness and urgency assessment
- System-based approach based on 5 main clusters
- Focus on societal dimension
- Thematic factsheets & storylines



# First Risk Assessment Process



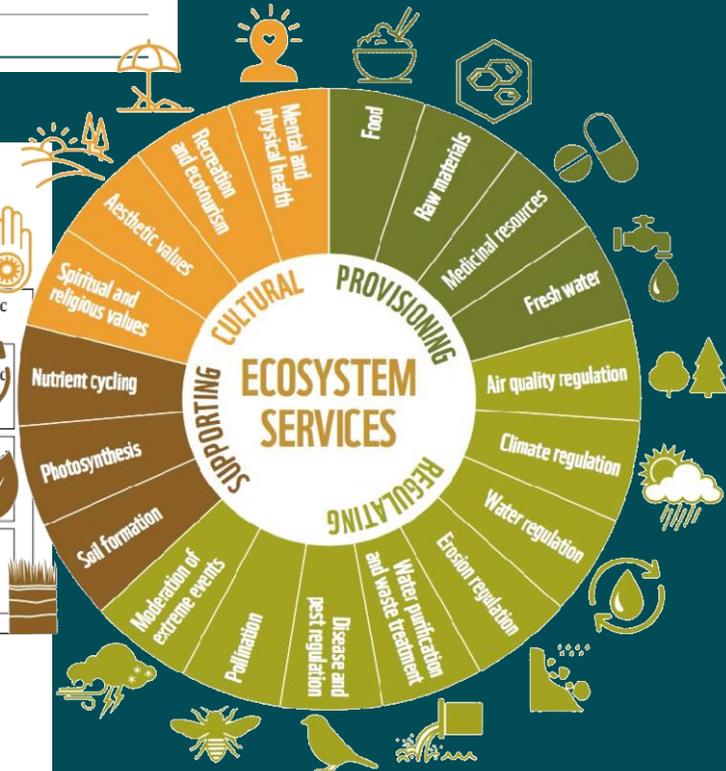
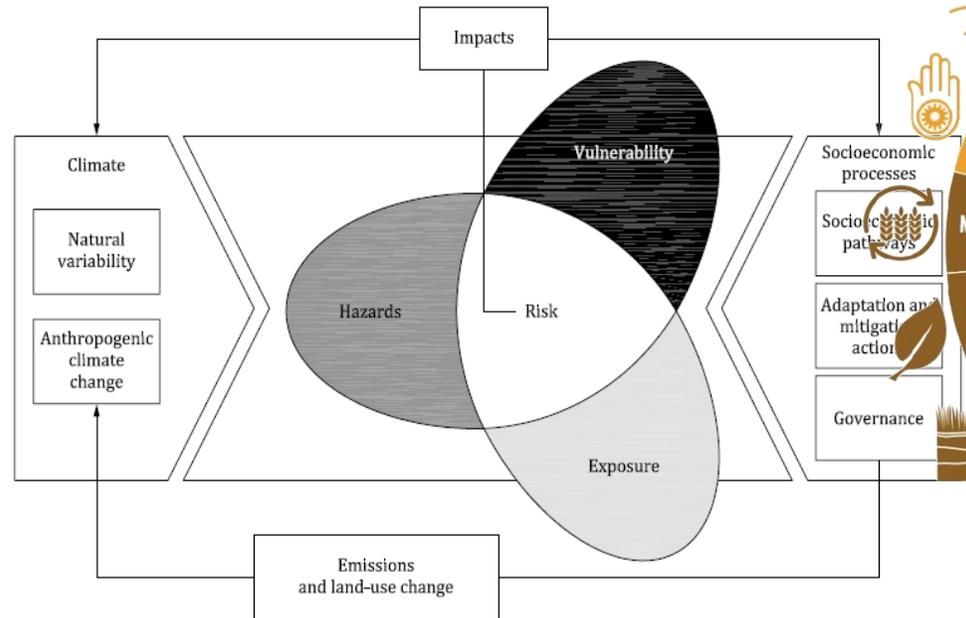
# Selection of risks

## Crossing hazards and exposure

- Climate Change:  
Hazards: Governance Regulation

- Biodiversity Loss:  
Hazards: Ecosystem services or Nature benefits for humans

	Temperature-related	Wind-related	Water-related	Solid mass-related
Chronic	Changing temperature (air, freshwater, marine water)	Changing wind-patterns	Changing precipitation patterns and types (rain, hail, snow-ice)	Coastal erosion
	Temperature variability		Precipitation and/or hydrological variability	Soil degradation (including desertification)
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			Sea level rise	
Acute	Heatwave	Cyclone	Drought	Landslide
	Cold wave/ frost	Storm	Heavy precipitation	Subsidence
	Wildfire	Tornado	Flood	



# Selection of risks

## Crossing hazards and exposure

- Climate Change/ Biodiversity Loss:

Exposure:

- from sectors to clusters to systems and subsystems
- best combination of systems and subsystems inspired from other CCRA

- Transversal:

- Governance
- Vulnerable social groups



### Ecosystems

- Coastal
- Freshwater
- Soils
- Forests



### Food System

- Crop production & agroecosystems
- Livestock production
- Food storage, distribution, ...
- Food security



### Infrastructures & Buildings

- Buildings
- Urban ecosystems
- Critical infrastructures & services (ICT, energy, transport, water, ...)



### Human & Health

- Population & wellbeing
- Health system
- Social cohesion & inequalities
- Education
- Cultural heritage
- People displacement



### Economy & Finance

- Finances
- Industry & services
- Labour force
- International trade

# Selection of 28 risks

Transversal dimensions		
Societal dimension		
Governance dimension		
Systems	Subsystems	Selected Risk
Ecosystems	Forests Ecosystem	1° Risk to Belgian forest ecosystems from slow change in climatic parameters
		2° Risk to Belgian forest ecosystems from heatwaves or droughts, potentially leading to a cascading effect of wildfire
	Marine & Coastal	3° Risk to Belgian coastal ecosystems from change in soil salinity gradient after sea level rise or sea flooding
	Freshwaters	4° Risk to Belgian freshwater ecosystems from water droughts
	Soils	5° Risk to Belgian soil ecosystems from droughts and cascading erosion risks
	Other terrestrial (peatlands, heatlands, grasslands)	/
Food	Crop production & Agroecosystems	6° Risk to Belgium's crop production from adverse weather conditions
		7° Risk to Belgium's food production from soil erosion and degradation
		8° Risk to Belgium's food production from pollinators
	Livestock production	9° Risk to livestock and to food production from direct climate change impacts and increased spread of pests and diseases in Belgium
	Food storage, processing, distribution, transportation and trade, and prices	/
	Food Security	10° Risk to food security (sanitary and logistic aspects) from climate impacts on EU/world agricultural production

<b>Infrastructure &amp; buildings</b>	<b>Buildings</b>	11° Risk to (non-)residential buildings from inland and coastal flooding
		12° Risk to infrastructures and buildings from slow-onset climate change
		13° Risk to infrastructure and buildings from invasive alien plant species (IAPS)
	Urban systems & ecosystems	/
	<b>Critical infrastructures &amp; networks supporting essential services</b>	14° Risk to critical infrastructure from extreme weather conditions
	<b>Data, communication &amp; information</b>	
	<b>Energy security</b>	
	<b>Mobility of goods and people</b>	
<b>Water security</b>	15° Reduced functionality of civil and domestic water infrastructure due to drought	
Waste management	/	
<b>Human &amp; Health</b>	<b>Population Wellbeing</b>	16° Risk to human health (incl. workers) from exacerbated heat stress
		17° Risk to human health from expansion and increased transmission of vector-borne disease
		18° Risk to human health from increased severity and prevalence of non-communicable disease
		19° Risk to mental health from climate change
		20° Risk to human health from increased prevalence of zoonotic diseases
	<b>Health system</b>	21° Risk to health systems and infrastructures from climate change
	<b>Social cohesion &amp; inequality</b>	22° Risk to reduced social cohesion and increased inequalities from climate change
	Education	/
	Cultural heritage	/
	<b>People displacement</b>	23° People displacement risk within Belgium from climate change and natural disasters
<b>Economy &amp; Finance</b>	<b>Insurance &amp; finances</b>	24° Risk to real estate and non-life insurance from flooding
		25° Cascading risks to public finances from climate change
	<b>Industry &amp; services</b>	26° Risk to the economy from water scarcity
	Labour force and working conditions	/
	<b>International trade</b>	27° Risk to strategic goods' supply chains from climate change
		28° Risk to food supply chains and prices stability from climate change





Institute <sup>for</sup>  
European  
Environmental  
Policy

# Q&A session



# Session I: Closing the gaps – Strengthening policies, financing, and business integration for Nature-Based Solutions (NbS) deployment



**Presentation**  
**Julie Berckmans**  
Climate Change and  
Adaptation Expert  
European Environment  
Agency



**Moderator**  
**Evelyn Underwood**  
Head of Programme  
Biodiversity,  
IEEP



**Elina Vaara**  
Environment, Climate and Social Policy team  
European Investment Bank (EIB)



**Milo Fiasconaro**  
Executive Director  
Aqua Publica Europea



**Daniela Rizzi**  
Senior Export on  
Biodiversity and Nature-based Solutions  
Local Governments for Sustainability (ICLEI)



**Katrien Moubax**  
Water and Environmental Planner  
Aquafin

