

# Strengthening resilience to climate change

*Recommendations for an effective EU adaptation policy framework*

09 April 2026

*Maarten van Aalst (KNMI and University of Twente)*

## 1<sup>st</sup> term Advisory Board members (2022-2026)

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*shall serve as a **point of reference** for the Union on **scientific knowledge relating to climate change** by virtue of its **independence** and **scientific and technical expertise**.*

European Climate Law (EU) 2021/1119



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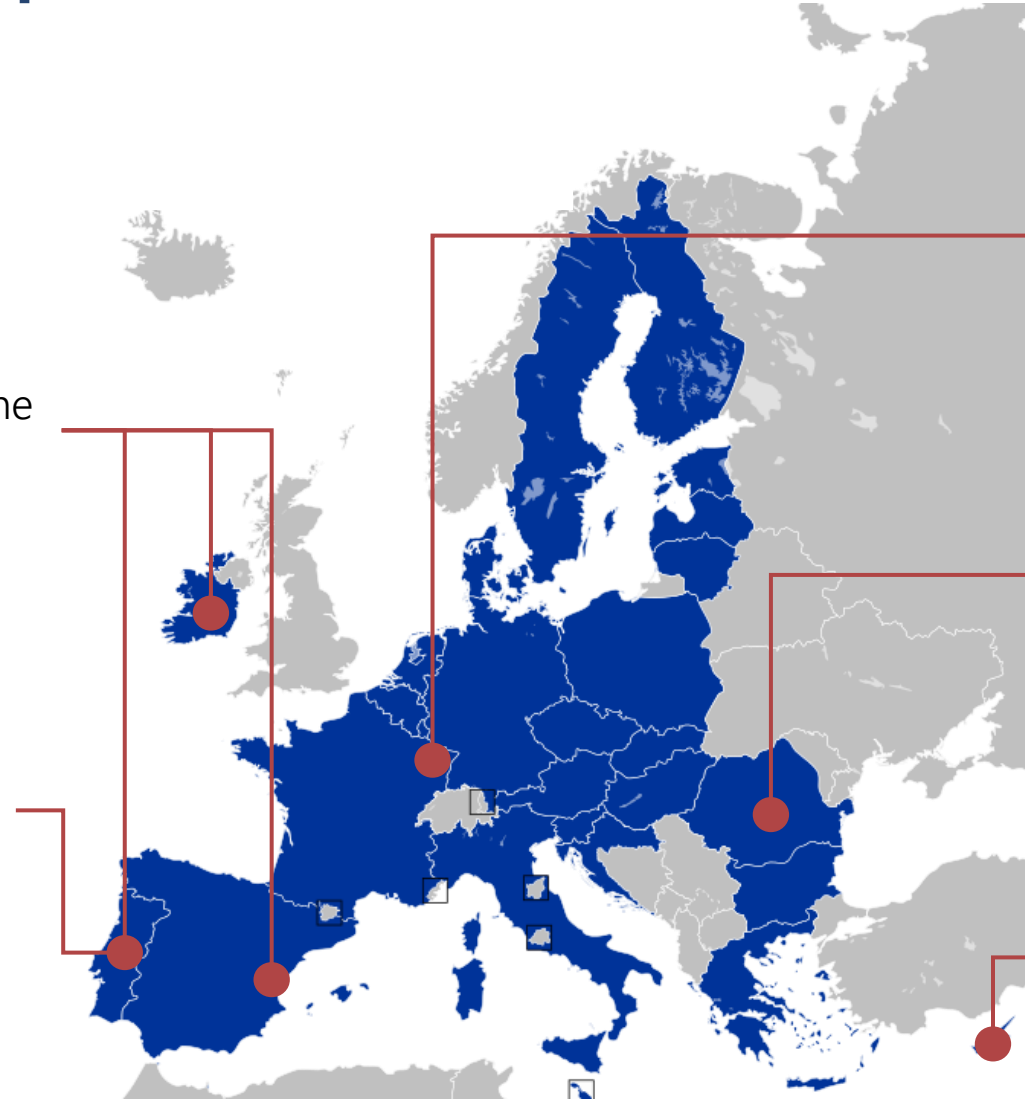
1. Europe urgently needs to adapt to escalating climate risks
2. Effective adaptation requires coordinated EU-level action
3. Five recommendations for an effective, fair and transformational EU climate adaptation policy framework

# Europe's climate is changing, driving increasing climate-related impacts

Heavier rainfall has driven severe **flooding** across Western and Central Europe every year since 2021, including the catastrophic flooding in Valencia in 2024 and most recently, severe flooding in Ireland, Spain and Portugal in 2026

In 2025, **wildfires** burnt over 1 million hectares across the EU, around three times the 2006–2024 average

Around 3% of the Portuguese territory burned that year



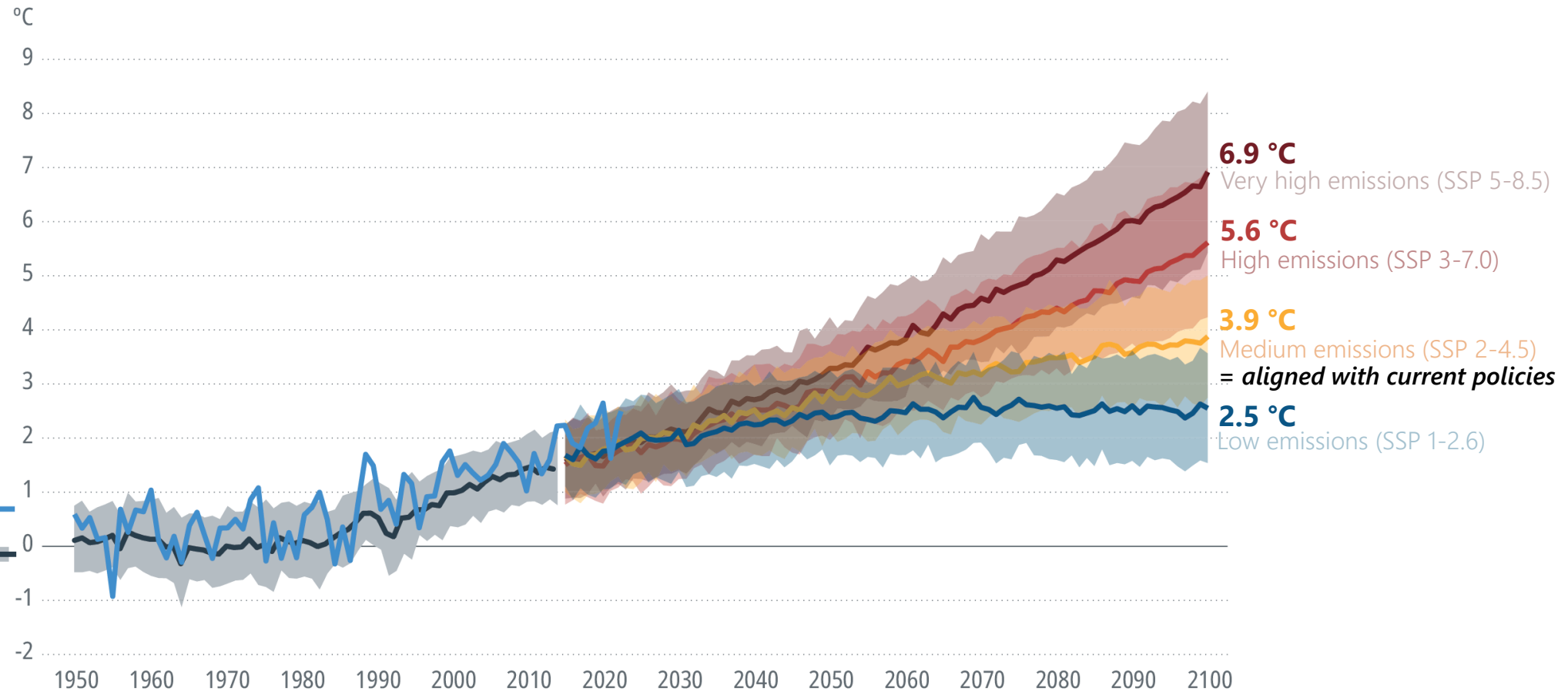
In 2025, countries in Western Europe experienced the **hottest summer** on record, leading to extreme heat stress and 24,000 heat-related deaths

In 2025, **repeated heatwaves** during summer led to irreversible yield losses in Hungary, Romania and Bulgaria

In 2025, Cyprus experienced its most **severe drought** since 1901, leading to a state of emergency

# Further temperature increases will drive more frequent, severe and widespread climate hazards

Observed and projected warming on European land, compared to pre-industrial levels



Observed temperatures (ERA5)

Modelled historical temperatures

SSP: Shared Socioeconomic Pathways  
Source: EEA, based on data from the Copernicus Climate Change Service (2024)

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# Climate risks threaten EU citizens, ecosystems and the economy, undermining the delivery of EU policies

## ① Increasing climate-related hazards...

Extreme heat	Drought
Wildfires	Desertification
Flooding	Cold snaps
Storms	Coastal erosion

## ② ...interact with other drivers of climate risks...

<b>Exposure</b> <i>e.g. population at risk of flooding</i>
<b>Vulnerability</b> <i>e.g. income, health, access to services</i>
<b>Responses</b> <i>e.g. upstream impact of flood defence</i>

## ③ ...resulting in escalating climate impacts and risks...

<b>Economic</b> impacts and worsening debt dynamics
<b>Uneven</b> impacts across Member States and society
<b>Ecosystem</b> disruption and biodiversity loss
<b>Agriculture and food</b> system disruptions
<b>Infrastructure</b> damage to energy, water, transport, buildings
<b>Cascading and transboundary</b> risks

## ④ ...that threaten EU policy efforts

<b>Single market and competitiveness</b>
<b>Cohesion</b>
<b>Security and preparedness</b>
<b>Environment</b>
<b>Climate</b>

# EU-level action is necessary for effective adaptation across multiple levels of governance

Many adaptation measures are locally-led but **local and regional actors** face several barriers to adaptation

**National action** alone cannot address all transboundary risks and barriers remain

**EU-level action** can provide:

- **Coherence** in adaptation planning across policies, regions and governance levels
- **Long-term stability** via EU-level policy direction
- **Economies of scale** in data, investment and climate services
- Resilience of **EU-wide systems**
- **Solidarity** across regions with uneven capacity and exposure



**Combined and coordinated efforts needed** across governance levels, as well as sectors

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## Recommendations for an effective EU adaptation policy framework



**1. Mandate and harmonise climate risk assessments**, using common climate scenarios and methodological standards to strengthen adaptation planning.



**2. Adopt a common reference** for adaptation planning to prepare for a pathway to 2.8-3.3°C of global warming by 2100 and use more adverse pathways for stress-testing.



**3. Set the vision for a climate resilient EU** by 2050 and the longer term, supported by sectoral strategies and adaptation targets.



**4. Embed fair and just climate resilience in all its policies and measures**, underpinned by monitoring, evaluation and learning to support progress towards EU adaptation targets.



**5. Mobilise public and private adaptation investment** and establish a coherent approach to managing the costs of climate impacts, through the EU budget and economic governance framework.



## Lead with vision

Guide adaptation through a long-term vision for climate resilience, supported by measurable targets



### Integrate policies

Improve the mainstreaming of climate resilience across EU and national policies, including the fiscal rules and the EU long-term budget.

### Strengthen private adaptation

Ensure that the private sector contributes to reducing risks, mobilising investment, and managing costs of climate-related losses, supported by public policies.

### Promote just and fair resilience

Address unequal climate impacts and burdens of adaptation while supporting locally-led adaptation with inclusive processes and outcomes.

### Anticipate and act

Anticipate climatic conditions, with a coherent approach to effective early warning systems and climate risk assessments, to act on climate risks with robust, dynamic and forward-looking adaptation.

### Learn and improve

Build robust monitoring, evaluation and learning (MEL) systems, expand the knowledge base, ensure regular updates to reflect emerging risks and evidence, and share it.

# 1. Mandate and harmonise climate risk assessments

Mandate **climate risk assessments** across relevant EU policies and funding

Co-developed **common climate scenarios**, based on the best available scientific evidence

Establish **methodological standards** for climate risk assessments based on common parameters

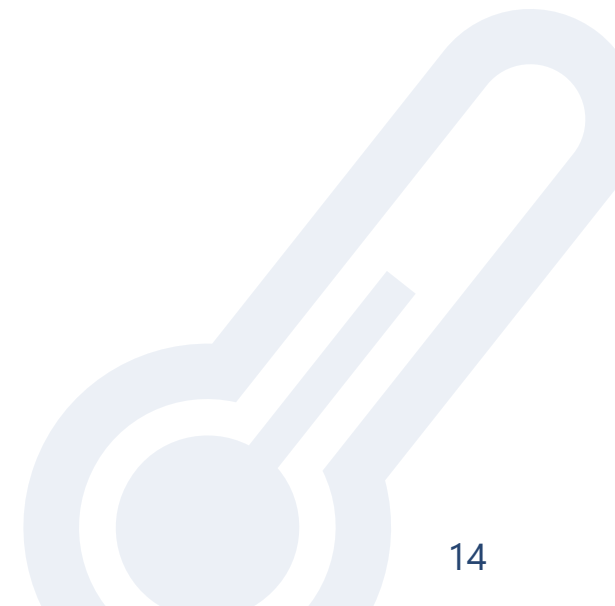
Strengthen **adaptation planning** across sectors and governance levels

Fully integrate **climate risk management by corporates** and **financial organisations**

## 2. Adopt a common reference for planning

Adopt a common reference for adaptation planning **based on SSP2-4.5** to prepare for a **pathway to 2.8-3.3°C of global warming** by 2100, which would translate to **even higher warming in Europe**

Use **more adverse emission pathways** (e.g. SSP3-7.0) for stress-testing



# 3. Set out a vision and targets for climate resilience

Set out a **clear vision** for a climate-resilient Europe by 2050 and the longer-term, supported by **sectoral strategies** and **adaptation targets**

Ground the vision and targets in **science**, the EU's **commitments** and ensure **inclusive participation**

# 4. Integrate climate resilience in all policies

**Apply the climate resilience by design principle** across all EU policies, programmes, and investment decisions

Develop and continuously update a **monitoring, evaluation, and learning system** for adaptation and support its use

Establish a **framework for fairness assessments** and apply it to relevant EU policies and measures

# 5. Mobilise public and private investment

Use the EU's economic governance framework to **embed climate risk management** in national economic and fiscal planning

Strengthen the **contribution of the next MFF** to climate resilience

Strengthen efforts to **mobilise and align private finance** with climate resilience objectives

Support efforts to address the **climate insurance protection gap** and strengthen the resilience of insurance systems to rising climate risks

Strengthen the EU's **crisis response and recovery instruments**

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