



EU adaptation strategy to climate change and Covenant of Mayors

**Meeting of the Expert Group on Social Determinants and Health
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Climate change is affecting all European regions



European

Arctic region

- Temperature rise much larger than global average
- Decrease in Arctic sea ice coverage
- Decrease in Greenland ice sheet
- Decrease in permafrost areas
- Increasing risk of biodiversity loss
- Some new opportunities for the exploitation of natural resources and for sea transportation
- Risks to the livelihoods of indigenous peoples

Coastal zones and regional seas

- Sea level rise
- Increase in sea surface temperatures
- Increase in ocean acidity
- Northward migration of marine species
- Risks and some opportunities for fisheries
- Changes in phytoplankton communities
- Increasing number of marine dead zones
- Increasing risk of water-borne diseases

Mediterranean region

- Large increase in heat extremes
- Decrease in precipitation and river flow
- Increasing risk of droughts
- Increasing risk of biodiversity loss
- Increasing risk of forest fires
- Increased competition between different water users
- Increasing water demand for agriculture
- Decrease in crop yields
- Increasing risks for livestock production
- Increase in mortality from heat waves
- Expansion of habitats for southern disease vectors
- Decreasing potential for energy production
- Increase in energy demand for cooling
- Decrease in summer tourism and potential increase in other seasons
- Increase in multiple climatic hazards
- Most economic sectors negatively affected
- High vulnerability to spillover effects of climate change from outside Europe

Atlantic region

- Increase in heavy precipitation events
- Increase in river flow
- Increasing risk of river and coastal flooding
- Increasing damage risk from winter storms
- Decrease in energy demand for heating
- Increase in multiple climatic hazards

Boreal region

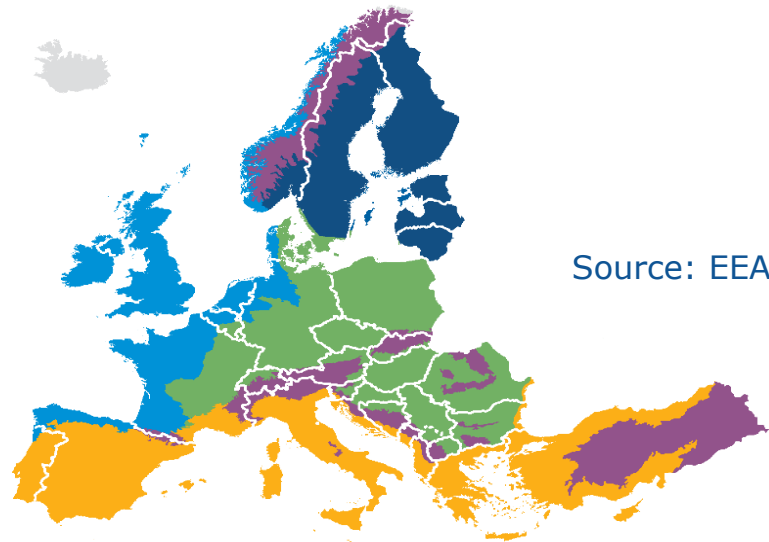
- Increase in heavy precipitation events
- Decrease in snow, lake and river ice cover
- Increase in precipitation and river flows
- Increasing potential for forest growth and increasing risk of forest pests
- Increasing damage risk from winter storms
- Increase in crop yields
- Decrease in energy demand for heating
- Increase in hydropower potential
- Increase in summer tourism

Mountain regions

- Temperature rise larger than European average
- Decrease in glacier extent and volume
- Upward shift of plant and animal species
- High risk of species extinctions
- Increasing risk of forest pests
- Increasing risk from rock falls and landslides
- Changes in hydropower potential
- Decrease in ski tourism

Continental region

- Increase in heat extremes
- Decrease in summer precipitation
- Increasing risk of river floods
- Increasing risk of forest fires
- Decrease in economic value of forests
- Increase in energy demand for cooling

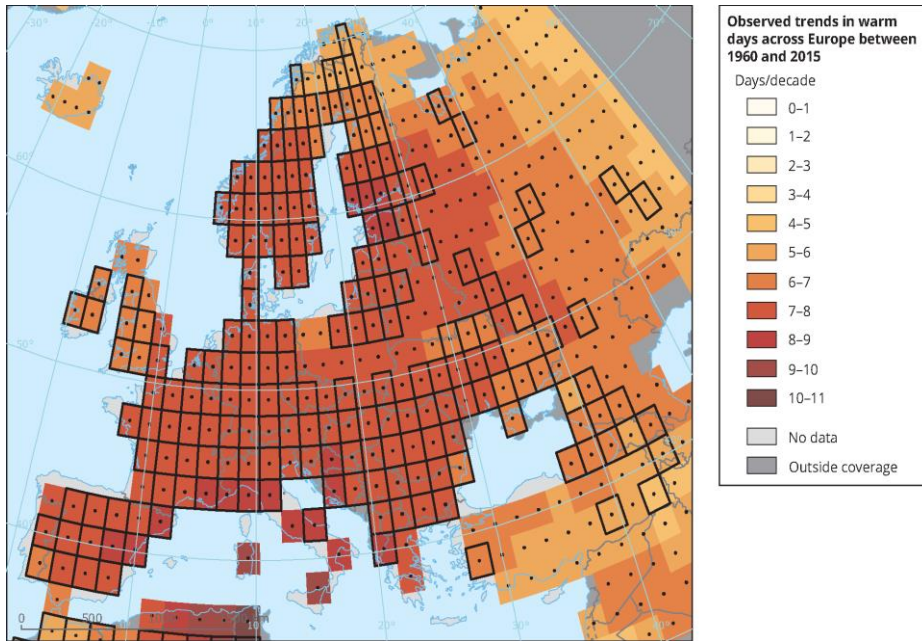


Source: EEA, 2016

Heat waves have increased in Europe



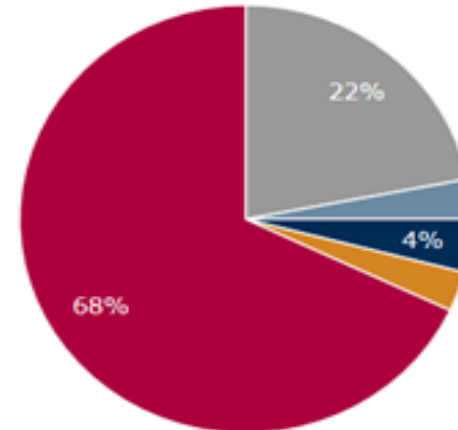
Exceptionally warm days (1960–2015)



Source: HadEX2
(Donat et al. 2013)

Impacts of extreme events in EEA member countries (climate-related and geophysical hazards; 1980–2015)

Fatalities 114 807



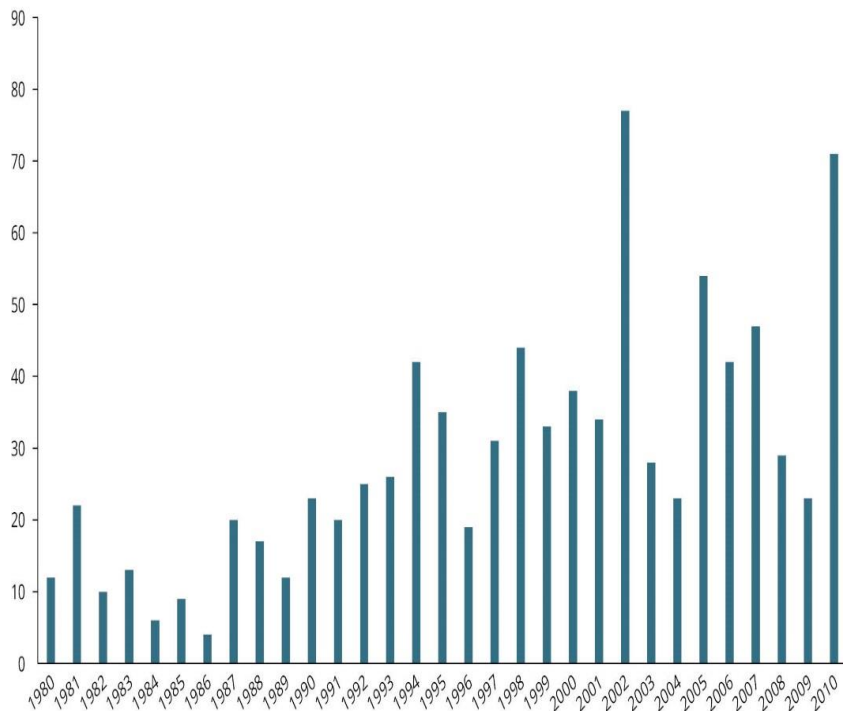
Source: Munich RE NatCatSERVICE

Increasing floods are threatening human lives



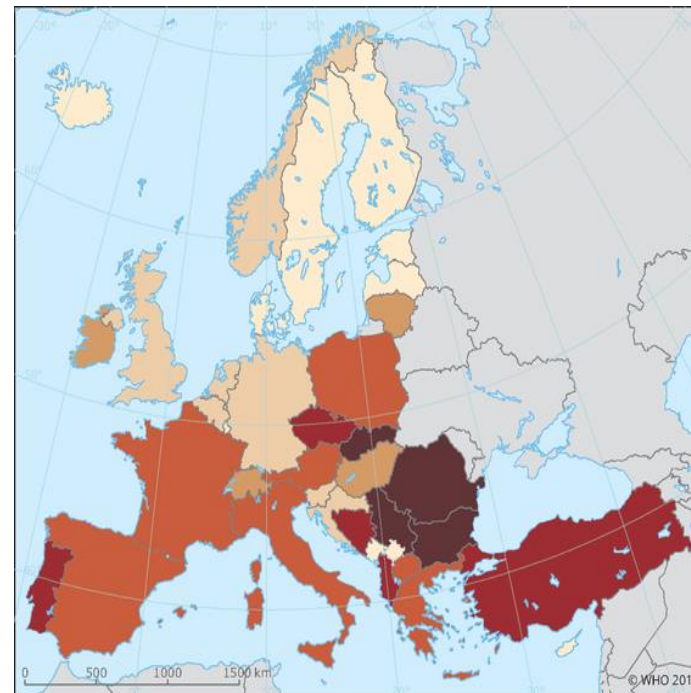
'Very severe' inland floods in Europe (1980–2010)

Number of flood phenomena in severity class 'very high'



Source: EEA (2016), ETC/ICM (2015)

Deaths from flooding (1991–2015)



Source: WHO (2016), EMDAT (2016)

Dual challenge

1. We must sharply cut greenhouse gas emissions to prevent unmanageable impacts ('**mitigation**')
2. We must also adapt to climate change to increase society's resilience and manage unavoidable impacts ('**adaptation**')



Both are complementary and can mutually reinforce!

EU Strategy on adaptation to climate change (2013)



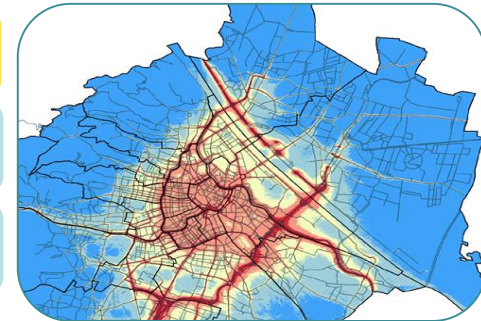
Priority 1: Promoting action by Member States

- Action 1. Encourage MS to adopt Adaptation Strategies and action plans
- Action 2. LIFE funding, including adaptation priority areas
- Action 3. Promoting adaptation action by cities via the Covenant of Mayors initiative**



Priority 2: Better informed decision-making

- Action 4. Address knowledge gaps through research
- Action 5. Develop 'one-stop shop' platform for adaptation information in Europe: Climate-ADAPT

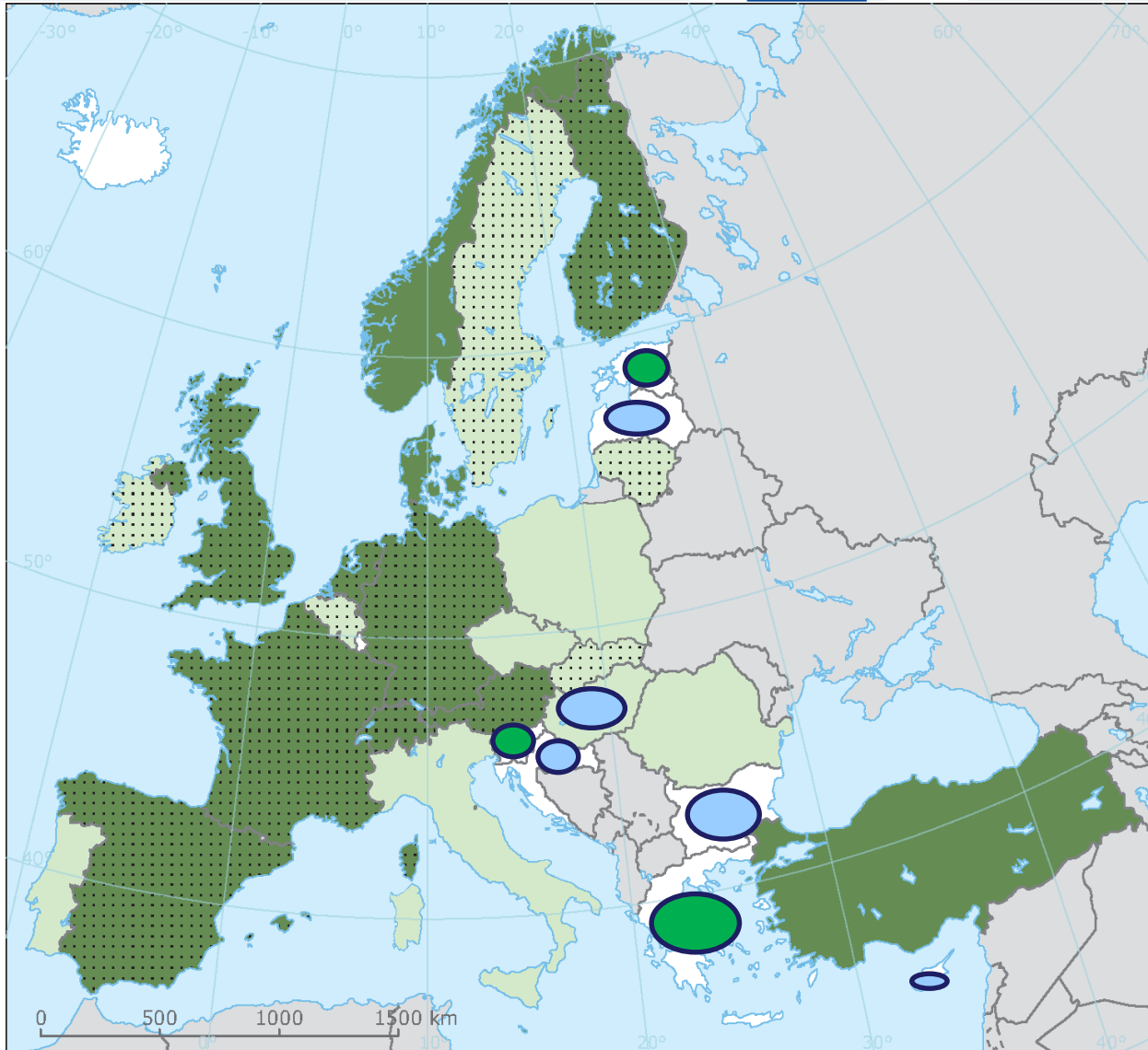


Priority 3: Adaptation in key vulnerable sectors

- Action 6. Climate proofing the Common Agricultural Policy, Cohesion Policy, and the Common Fisheries Policy
- Action 7. Making infrastructure more resilient
- Action 8. Promote products & services by insurance and finance markets



Most European countries have developed national adaptation strategies and/or action plans



Overview of national adaptation strategies and plans and monitoring, reporting and evaluation systems (MRE) in Europe

Adaptation policy

- National adaptation strategy (NAS) and national and/or sectoral adaptation plans (NAP/SAP)
- National adaptation strategy (NAS)
- MRE system of adaptation at national level or implemented under development
- No policy
- Outside coverage

State: April 2017

- NAS recently adopted
- NAS in progress

Source: EEA (2016)

EC – WHO project on health and climate change adaptation

Objectives

- To assess the level of integration of public health measures into national climate change adaptation strategies or action plans in EU 28 countries
- To compile (develop) a compendium of best practices to adapt to climate change in the health sector with a potential of transferability across EU

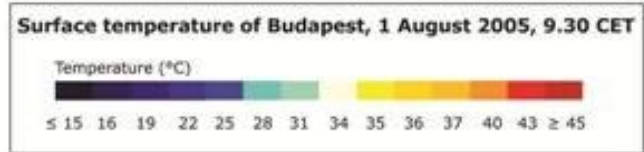
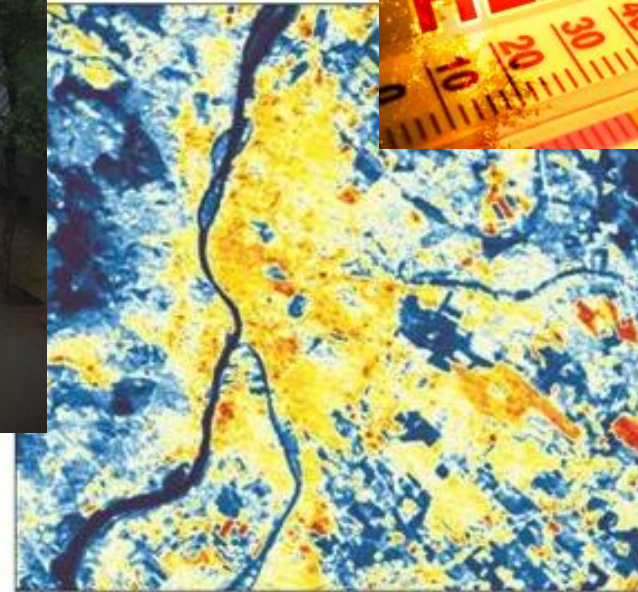
Timing

- The work will be done in 2017 and the results will feed into the evaluation of the Adaptation Strategy

Ongoing evaluation of EU Adaptation Strategy

- Examines implementation and achievements of the objectives and the eight Actions of the EU Adaptation Strategy;
- Stakeholders consultation:
 - Two stakeholders workshops (5 April and ~September 2017)
 - One web based public consultation (~September 2017)
- Interviews and surveys with stakeholders groups (MS, EU Institutions, NGOs, private sector, local/regional Authorities)
- Final report in 2018
- Potential reinforced EU Adaptation Strategy in 2018

Urban areas are particularly vulnerable to climate change impacts





The Covenant of Mayors for Climate & Energy



...brings together **local and regional authorities** voluntarily committed to implementing **EU climate and energy objectives** on their territory. 7200 signatories have signed up since 2008, about 600 have committed to adaptation objective.

Since 2015 signatories pledge to:

- Reduce CO₂ (and possibly other GHG) emissions by at least **40% by 2030**
- Increase their resilience** by adapting to the impacts of climate change
- Translate their political commitment into local results by developing local **action plans** and **reporting** on their implementation

Monitoring & Reporting Framework for local authorities within the Covenant of Mayors Initiative

Impacted Policy Sector	Expected Impact(s)
<u>Buildings</u>	Increased need for cooling, risk for flooding, increased need for maintenance
<u>Transport</u>	risk for flooded roads
<u>Energy</u>	Increased risk for damage to electric grid outside Växjö, due to storms
<u>Water</u>	More systems are needed to take care of storm water, risk for drought, risk for pollution of water
<u>Land Use Planning</u>	Increased risk for urban heating, flooding of buildings close to lakes and streams, flooding due to heavy rainfall
<u>Agriculture & Forestry</u>	increased attacks from insects and diseases, damages due to storms, floods
<u>Environment & Biodiversity</u>	changed ecosystems
→ <u>Health</u>	increased risks for diseases, risk for mortality due to increased heat

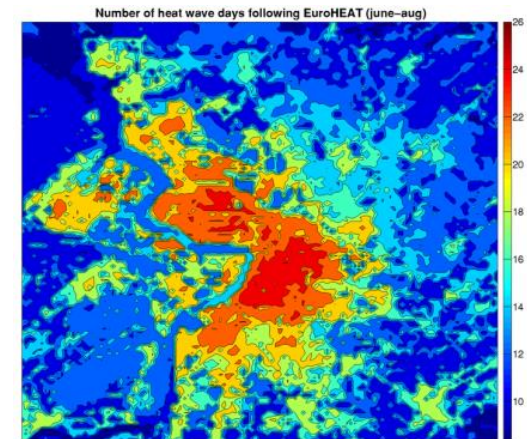
Climate Hazard Type	Risk Level	Expected change in intensity	Expected change in frequency	Timeframe
Extreme Heat	!!	↑	↑	▶▶
Extreme Precipitation	!!!	↑	↑	▶▶▶
Floods	!!	↑	↑	▶▶
Sea Level Rise				

Sector	Title (max. 120 chars)	Short description (max. 300 chars)	Responsible body/department
Health	Action plan for normal inside temperature	Priority level 1. An action plan is needed to make sure that indoor climate is acceptable in schools, hospitals etc during extreme outside temperatures	Educational Services, Elderly and Disabled Care Services, Municipal Housing and Property Companies
Health	Inform the public about health effects due to heat waves	Priority level 2.	Educational Services, Elderly and Disabled Care Services, Executive Office
Health	Educate key staff about health effects due to climate change	Priority level 2. Information and education directed towards staff and management within the departments of schools and elderly care.	Educational Services, Elderly and Disabled Care Services

Health Refers to the geographical distribution of dominance of pathologies (allergies, cancers, respiratory and heart diseases, etc.), information indicating the effect on health (biomarkers, decline of fertility, epidemics) or well-being of humans (fatigue, stress, post-traumatic stress disorder, death etc.) linked directly (air pollution, heat waves, droughts,

Antwerp, Belgium

Fighting the Urban Heat Island Effect. Observed temperature difference in urban-rural areas up to 7-8 °C. The current Building code imposes green roofs and a degree of permeability of gardens.



Lisbon, Portugal

Ambitious green infrastructure programme since 2008. One of successful measures - Gardens in the city. Expansion and new development of urban allotments (about 60ha) bringing many benefits: hydrological stability and water retention, reduced urban heat island effect, reduced risk of floods, capture of CO₂, more social cohesion, healthy food, less poverty.



The superblocs programme

in Barcelona aims to free up space for green areas and recreation to improve the urban micro-climate.

Project in figures:

- 95% of residents now have a bicycle lane within 300 metres of their home
- 300 km of bicycle lanes to be built

Climate achievements:

- 159,100 tonnes of CO2 to be saved annually
- surface area of public/car-free spaces increased by over 23 ha in pilot areas
- reduction in urban heat island effect
- reduced risk of storm water runoff and flooding

Other benefits:

- better air quality
- healthier and more active lifestyles and greater interaction among residents
- less traffic and noise
- improved public safety





LIFE Sub-Programme for Climate Action: 2017 call

Supported priorities in urban:

- local adaptation and mitigation initiatives, including cooperation between local authorities;
- climate adaptation and mitigation as well as nature conservation and biodiversity objectives in urban areas;
- innovative adaptation solutions in urban areas, including solutions addressing health and wellbeing;
- green infrastructure,
- implementing public-private partnerships, including through applying insurance solutions.

Key messages and questions

- *All regions are affected by Climate Change, but specific impacts and vulnerabilities vary*
- *Human health and well-being is one of the affected areas (heatwaves, floods particularly dangerous)*
- *EU Adaptation strategy sets the framework for action at EU level, national, regional and local levels*
- *Urban areas increasingly affected – integrated actions needed*
- *Many good examples, e.g. Covenant of Mayors, LIFE projects*

Questions to experts:

- *What is the level of awareness in your country on climate impacts and health?*
- *What are the good practices that could be shared with other countries?*
- *What would be expected from the Commission to support your actions?*