European Commission

EU climate change adaptation policy Coherence of the EU priorities and urban adaptation plans and projects

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Directorate-General Climate Action
2 March 2017

Covenant of Mayors for Climate & Energy




European Commission

Overview

- Climate change impacts in Europe
- EU climate change policy
- Urban climate action
- The Covenant of Mayors for Climate and Energy

Climate Action

European Commission

The European Commission welcomes the project "Urban Adaptation Plans in Poland"

- *With the analysis of the vulnerability of each city*
- *Urban adaptation plans developed with one methodology*
- *The scale covering 44 biggest cities*
- *Raising awareness*

Climate Action

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The Paris Agreement

- **A new chapter in international climate governance and action**
- **A win for multilateralism**
- **A strong signal to policy makers, investors and businesses**
- **Calls for more action from cities and other sub-national authorities**

PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21·CMP11

Climate change is affecting all European regions – but adaptation needs differ across regions

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

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

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

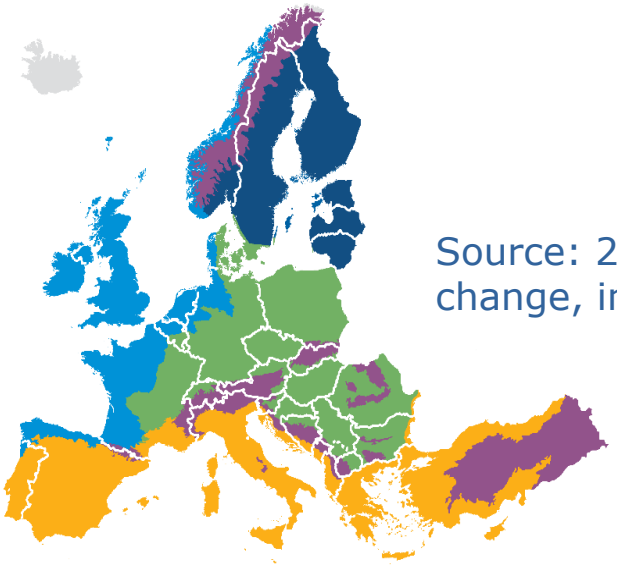
Coastal zones and regional seas
- Sea level rise
- Increase in sea surface temperatures
- Increase in ocean acidity
- Northward migration of marine species
- Risks and some opportunities for fisheries
- Changes in phytoplankton communities
- Increasing number of marine dead zones
- Increasing risk of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

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

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

← Impacts in Poland

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



Source: 2016 EEA report on climate change, impacts and vulnerability

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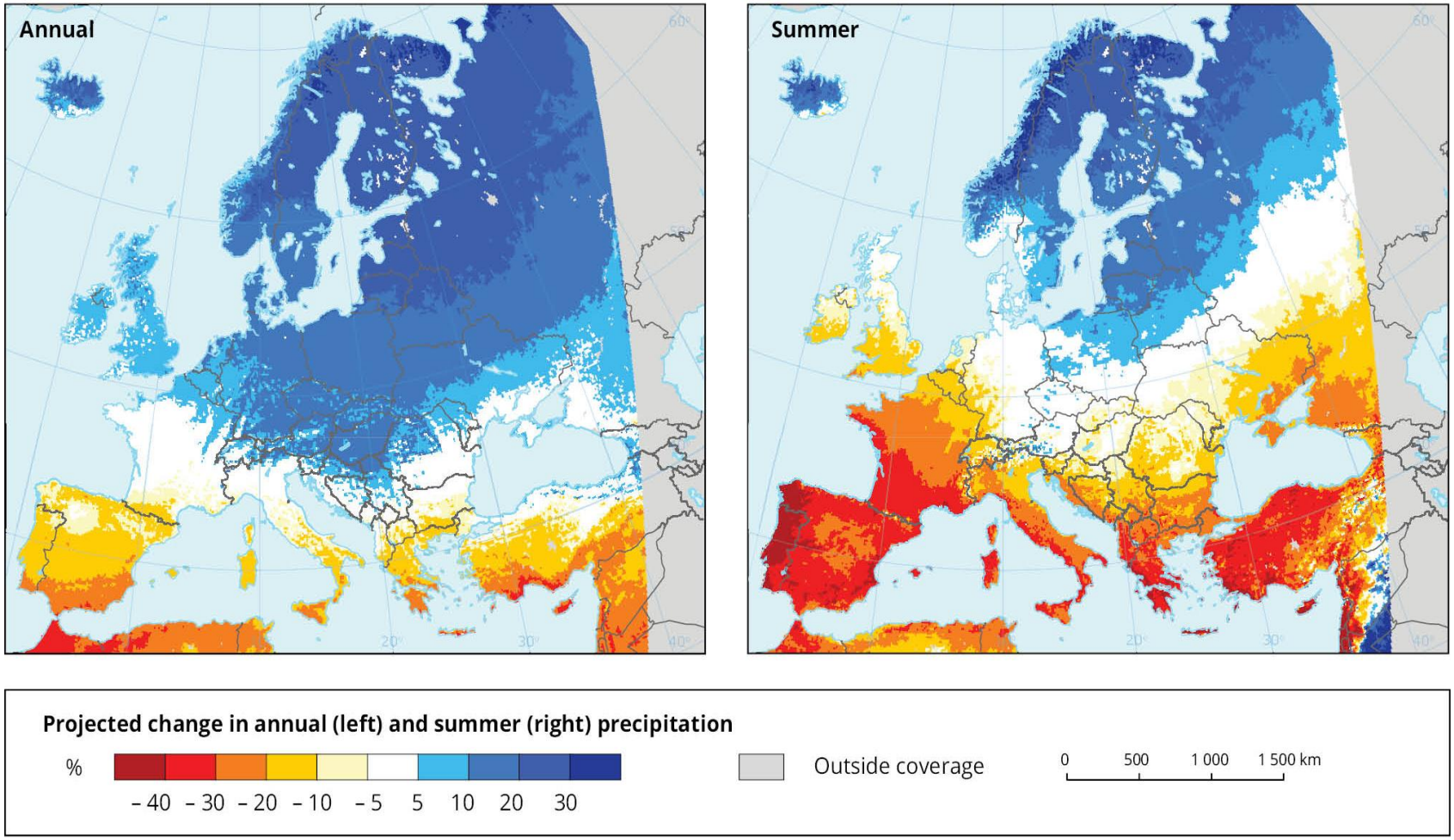
Differences between wet and dry regions will further increase

Precipitation
(projected change for 2080s, RCP8.5)



Source: EURO-CORDEX (Jacob et al., 2014)

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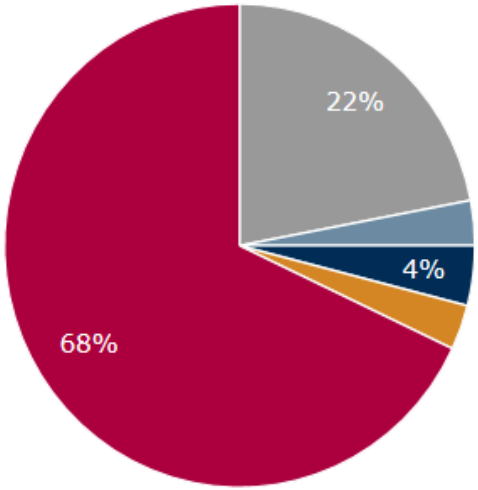
Extreme climate events are costly and life-threatening

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

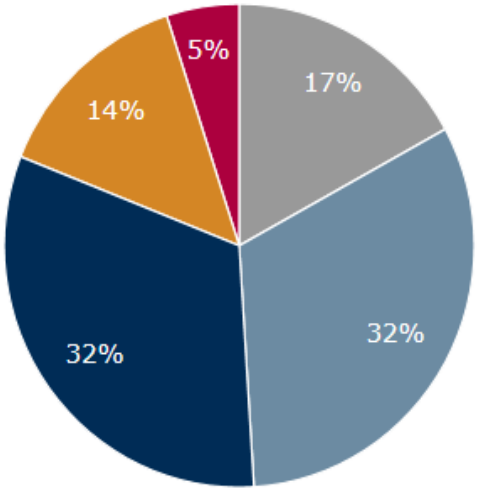
Fatalities

114 807



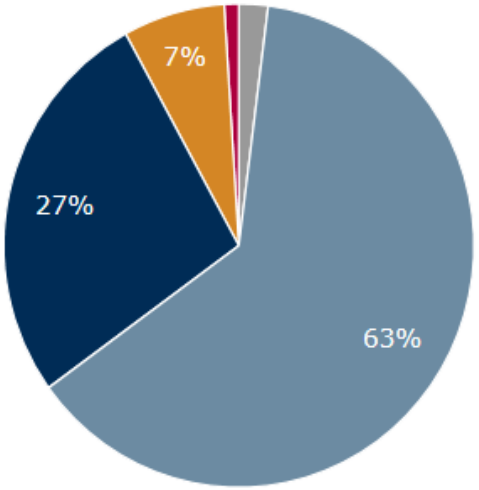
Total economic losses

EUR 520 billion (2015 prices)



Insured losses

EUR 155 billion (2015 prices)



Geophysical events · Meteorological events · Hydrological events · Climatological events · Climatological event (heat wave)

Source: Munich RE NatCatSERVICE

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Europe is also vulnerable to climate change impacts outside Europe

Trade (non-agricultural commodities)
- Risks for raw materials supply
- Risks for manufacturing industry
- Arctic sea transportation

Trade (agricultural commmodities)
- Global food price volatilities
- Reliability of supply and distribution

Infrastructure
- Risks for energy supply
- Vulnerable energy infrastructure
- Transportation network disruptions

Human mobility
- Changing tourism flows
- Climate-induced migration
- Critical role of Africa

Geopolitical risks
- Climate and armed conflict
- Climate and security strategies
- Rights and access to Arctic resources

Finance
- Economic repercussions due to extreme events
- Insurance systems

Source: EEA (2016)

European Environment Agency

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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!

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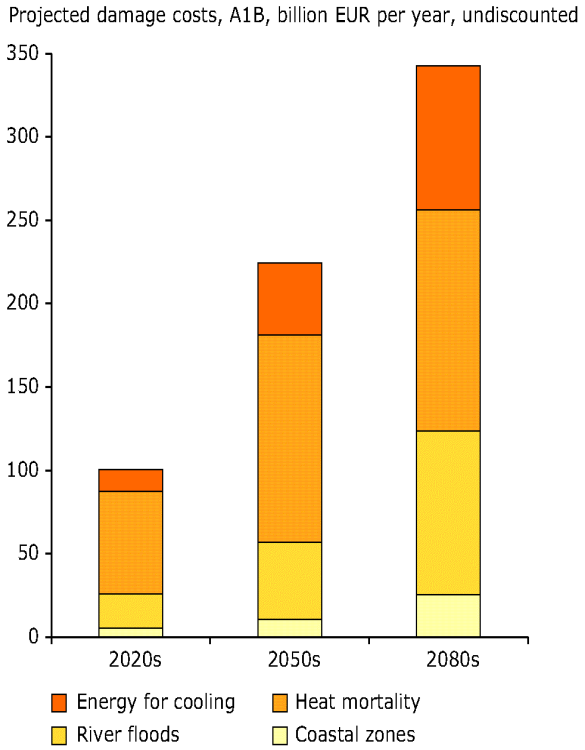
To adapt or to mitigate: is that the question?

Mitigation and adaptation are both necessary and complementary

- **We need to increase mitigation efforts**. If the 2°C target is missed, adaptation increasingly costly
- **We need to adapt**. Adaptation is inevitable (delayed impact of emissions) and cost-effective
  - **1€ invested in flood protection saves 6 € damage costs.**
- **We need to act now**. Postponed adaptation and maladaptation will lead to higher damage costs
  - **≥ € 100 bn/year by 2020; € 250 bn/year by 2050 for the EU**
  - > € 400 bn since 1980 for the EU (source: EEA)



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Mitigation: EU climate and energy targets

2020 targets:

- **20% cut** in **GHG emissions** (compared to 1990 levels)
- **20%** improvement in **energy efficiency**
- **20%** of energy from **renewable sources**

2030 targets:

→ **At least 40% cut**

→ **At least 30%** (in the pipeline)

→ **At least 27%**

✓ *Good for the climate, energy security, innovation, growth, jobs and competitiveness!*

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EU Strategy on adaptation to climate change (2013)

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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

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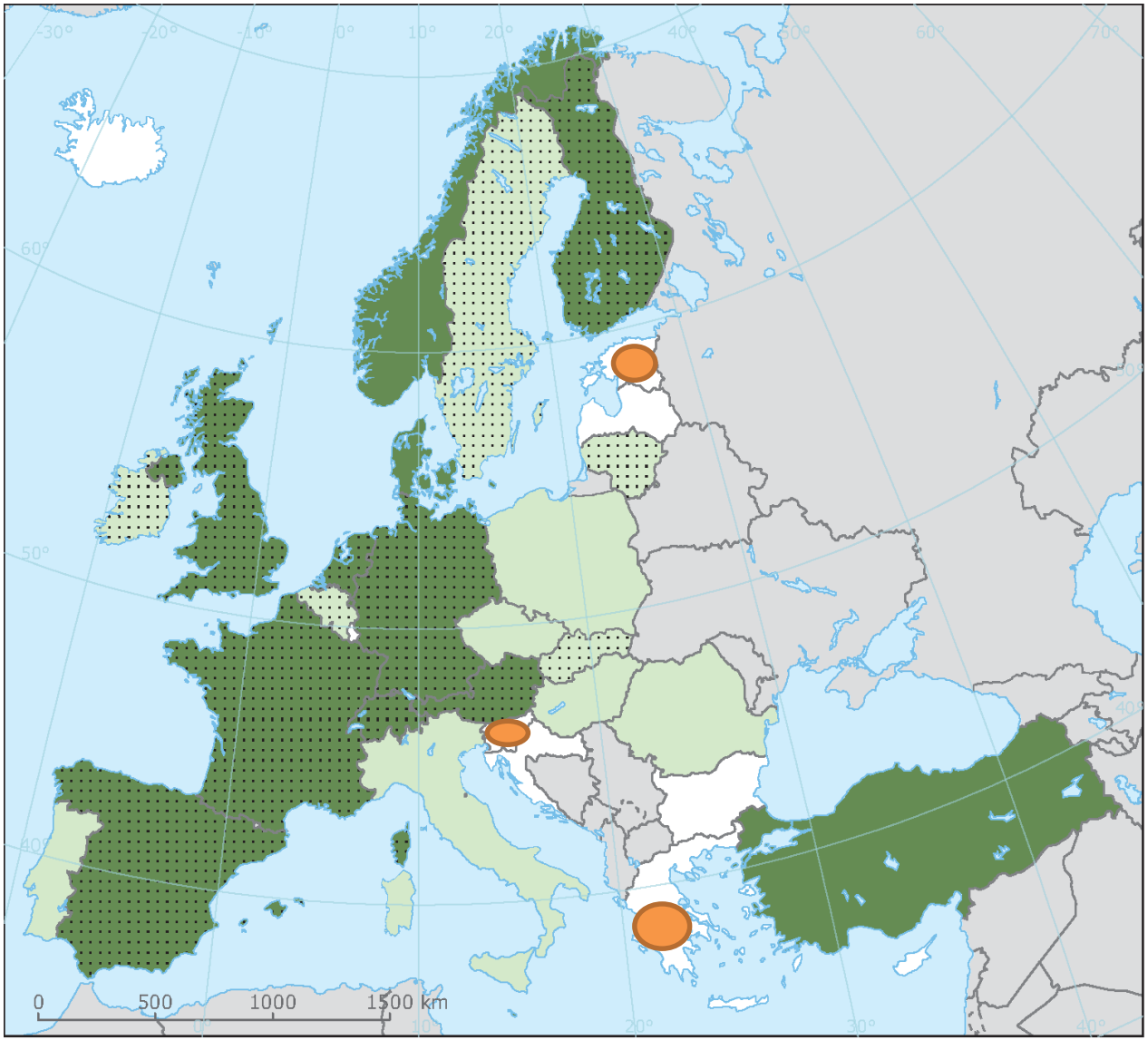
Most European countries have developed national adaptation strategies and/or action plans



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: May 2016

NAS adopted after May 2016

Source: EEA (2016)

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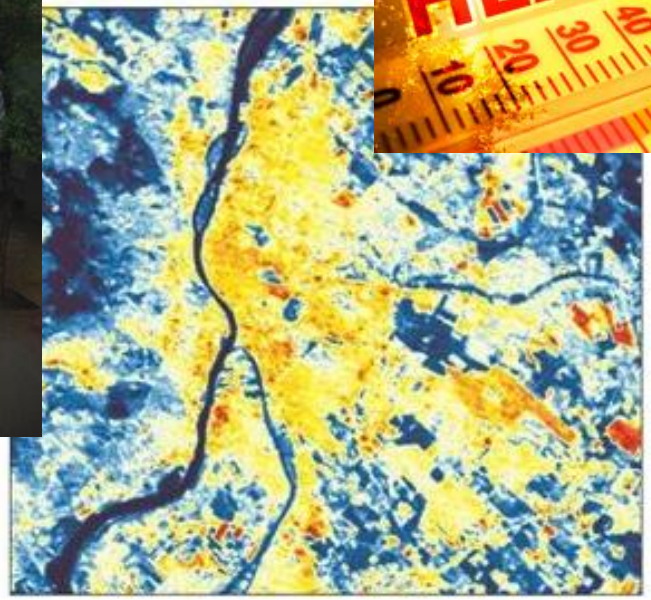
Urban areas are particularly vulnerable to climate change impacts



Clim
Act

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Urban areas are particularly vulnerable to climate change impacts

- **Impacts are often stronger and more costly:**
  - High share of population concerned (e.g. heat waves)
  - Different magnitude of damages due to concentration of infrastructure/assets (e.g. cost of floods in cities; port cities)
  - Co-location of network infrastructure and possible cascade failure (e.g. energy, ICT)
  - Urban Heat Island effect and impervious surfaces
- **Preparing to the adverse impacts saves lives and costs**

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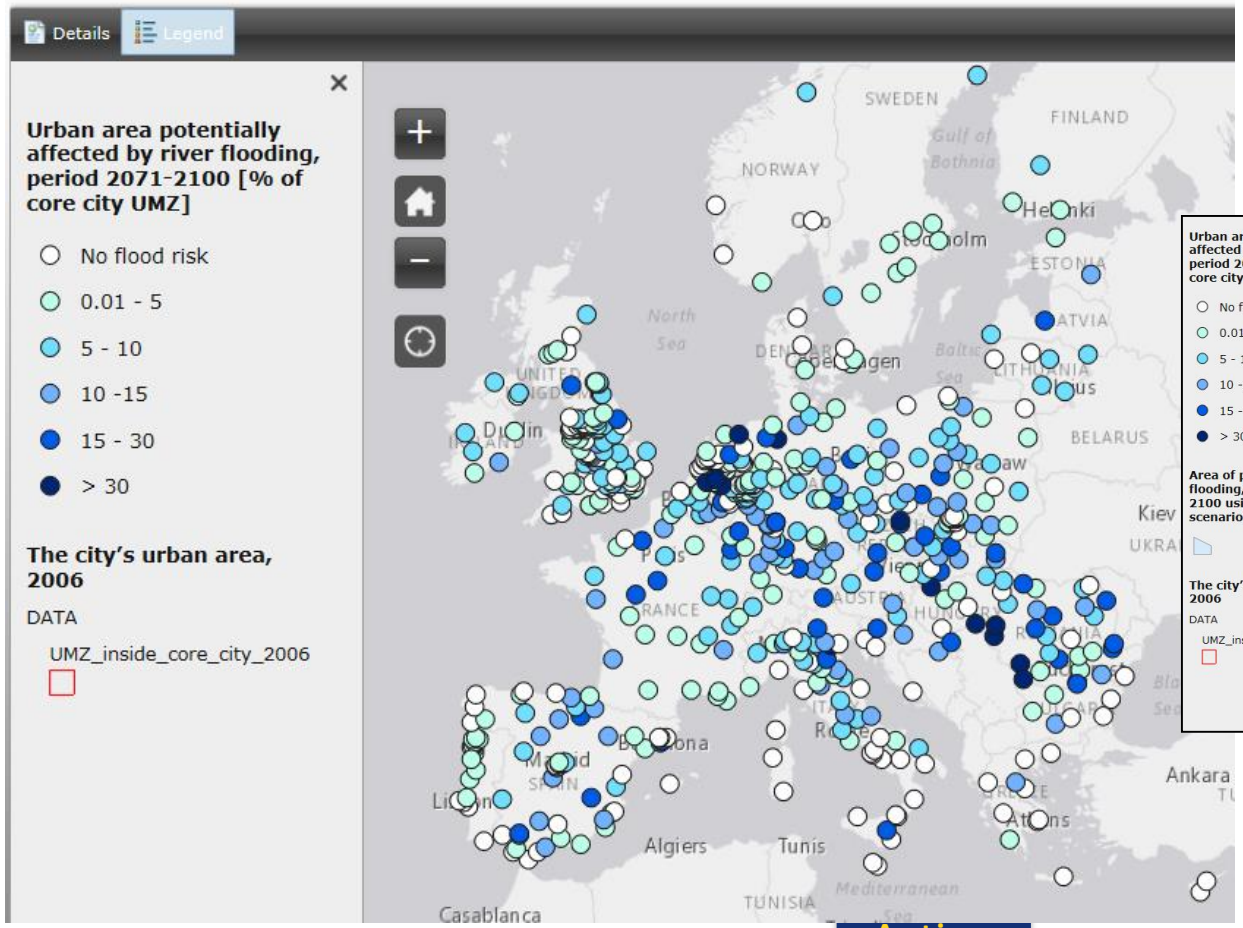
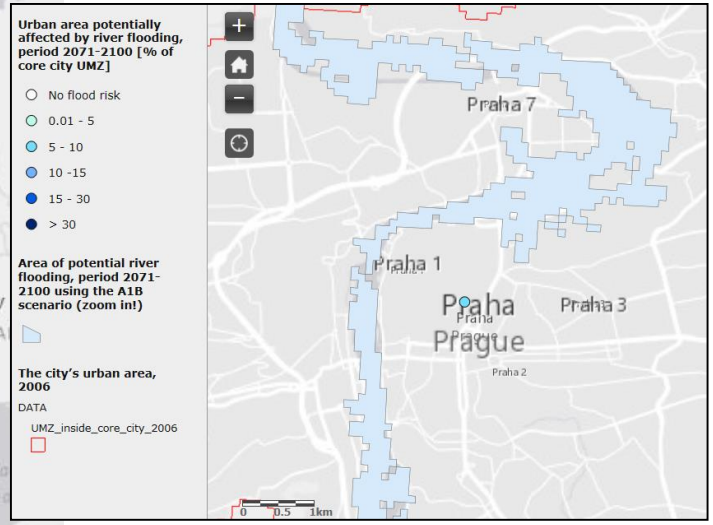
Urban vulnerability Map book - Climate-ADAPT

River Floods

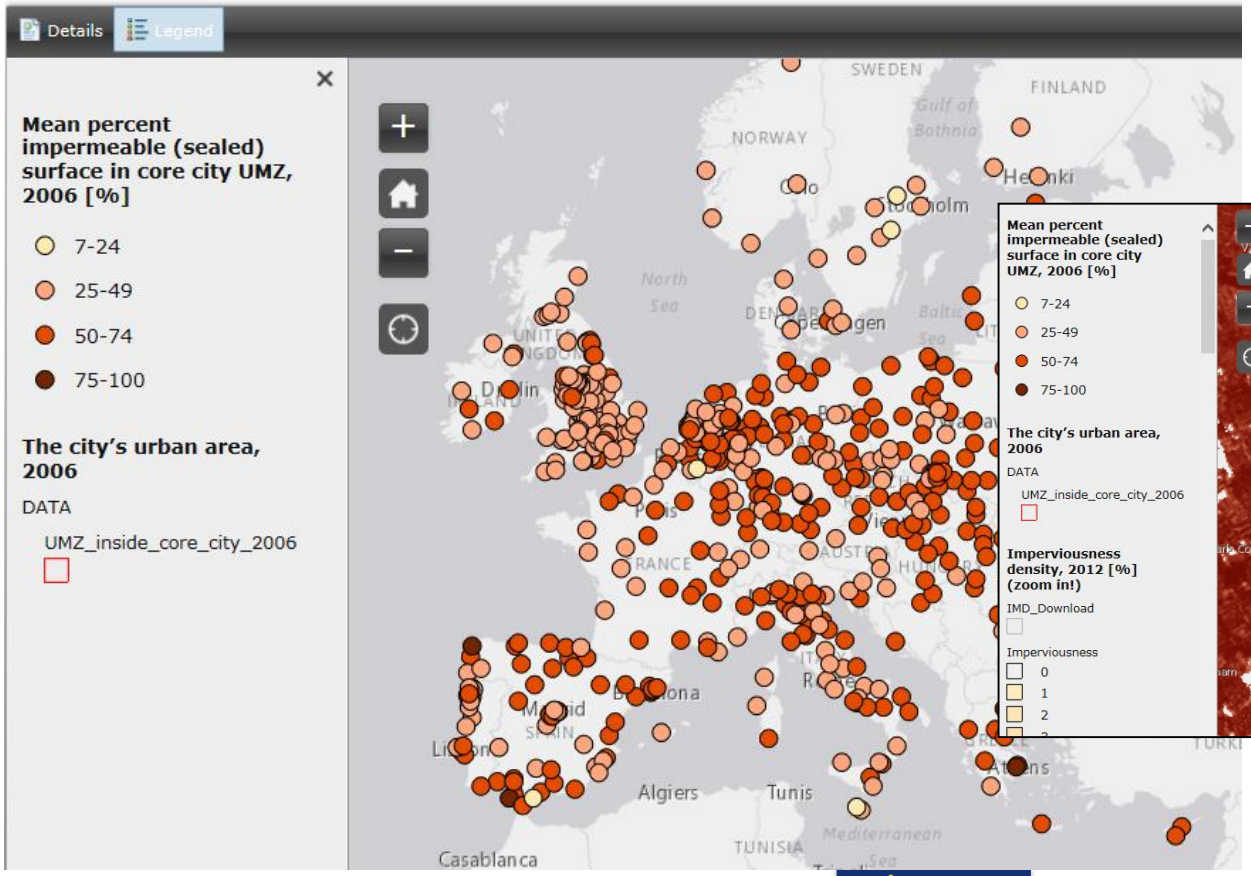


Urban area potentially affected by river flooding

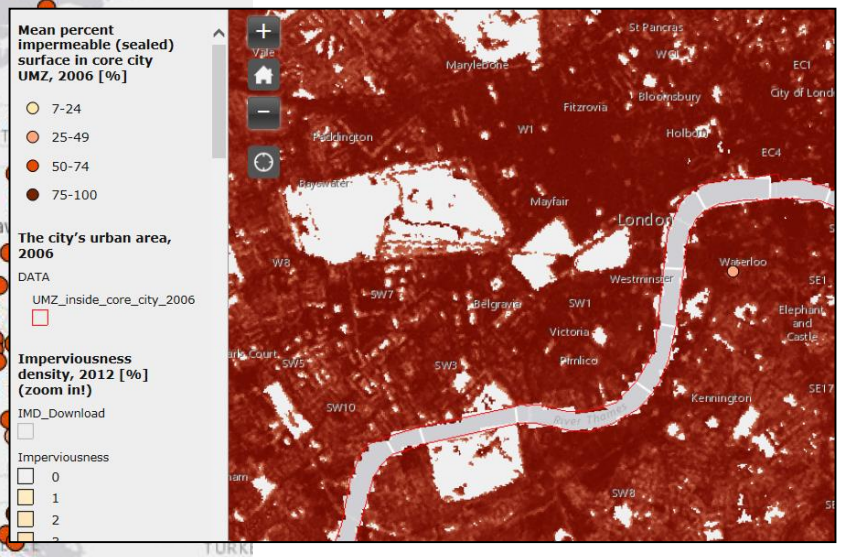


Urban vulnerability Map book - Climate-ADAPT

Soil sealing



Imperviousness density (e.g. London)



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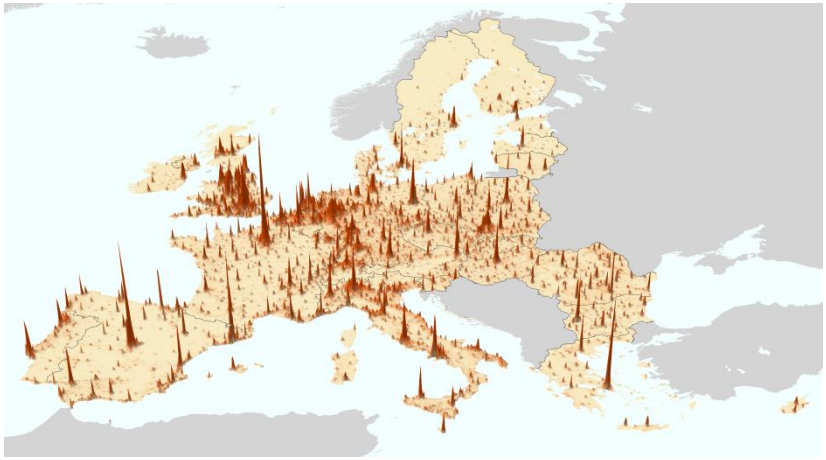
Action in urban centres is essential

- Urban areas hold more than half the world's **population** and most of its **built assets** and **economic activities**, which are at risk from climate change.
- Urban centres also generate a high proportion of global **greenhouse gas emissions**.



- Urban governments are at the heart of successful climate adaptation because **adaptation depends on local assessments and integrating adaptation** into local investments, policies, and regulatory frameworks.

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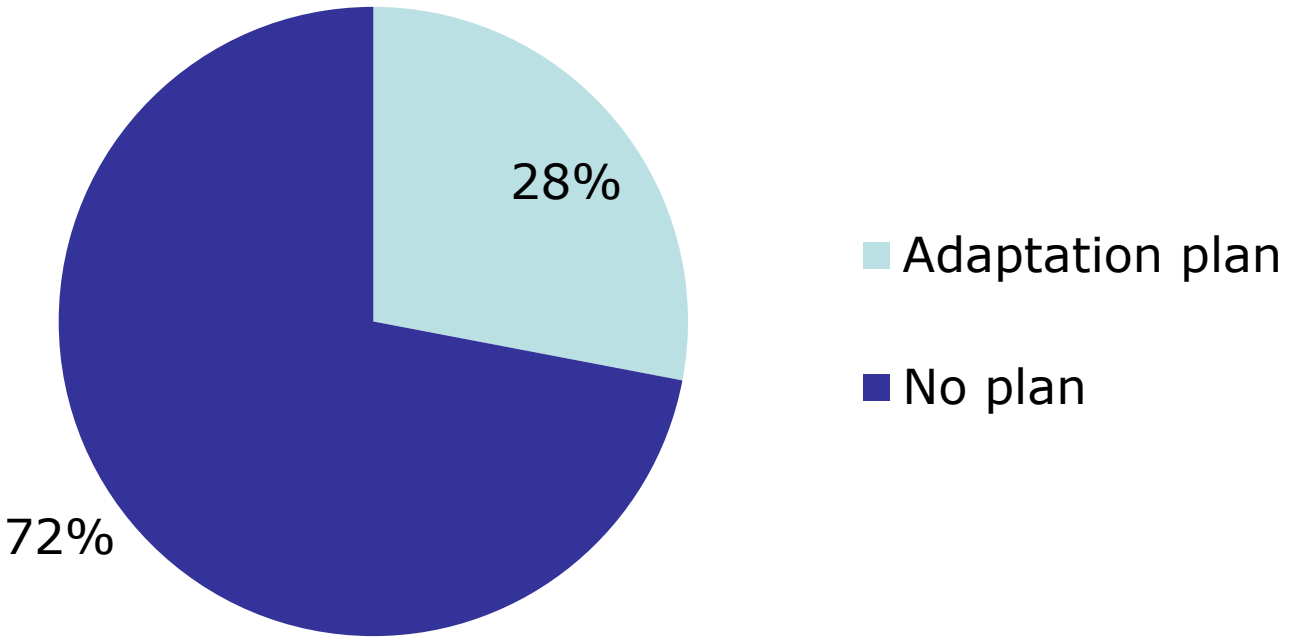
~28% of EU cities have an adaptation plan (2014)



Source: Study of 200 urban areas in 11 EU countries; Reckien, D., Flacke, J., Dawson, R.J. et al. Climatic Change (2014) 122: 331. doi:10.1007/s10584-013-0989-8; http://link.springer.com/article/10.1007/s10584-013-0989-8

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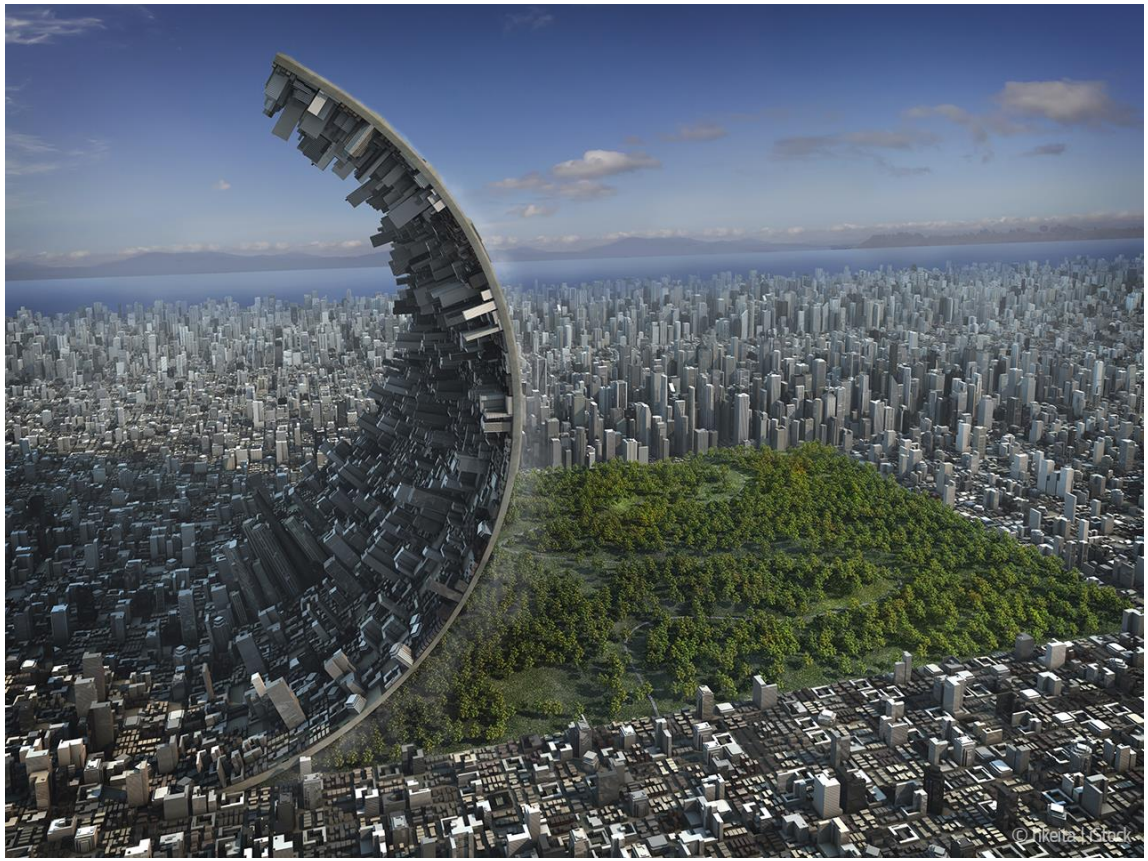
Urban climate action: Reimagine your city



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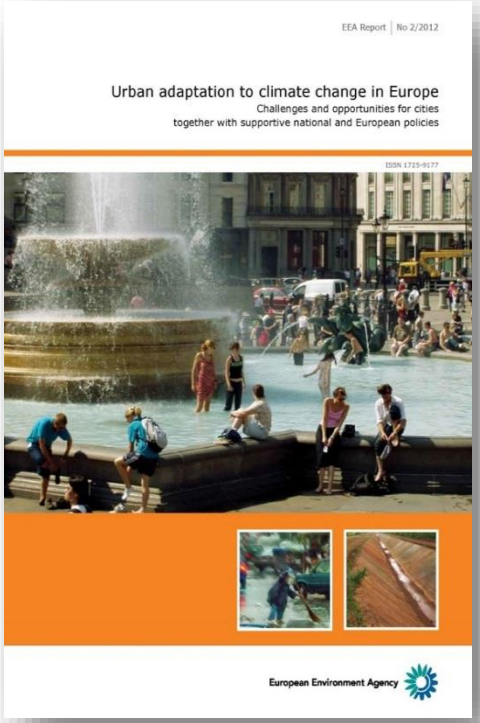
Urban adaptation to climate change (EEA, 2012)

European Commission

- Cities face **specific challenges** (Heat waves/urban heat island, flooding, droughts, soil sealing)
- Investments for **urban infrastructure** should include adaptation (e.g. improve water retention, urban drainage, sewage systems, building standards)
- Need for **green infrastructure** (forests, parks, wetlands, green walls/roofs) and '**soft' measures** (e.g. sharing information, capacity building, participation of stakeholders)
- **Support from national and European level** is crucial (e.g. legal and institutional frameworks, funds)



http://www.eea.europa.eu/

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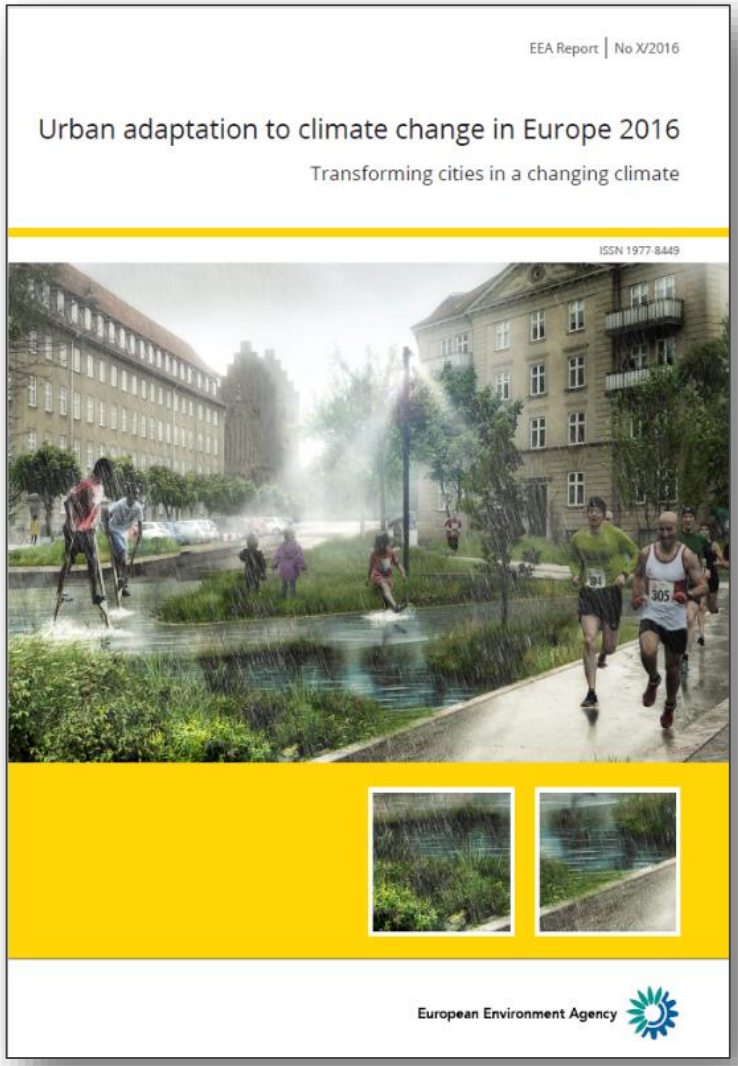
EEA Report 'Urban adaptation to climate change in Europe' (July 2016)

- Overview on state of **action and progress** achieved on urban adaptation since the first EEA report of 2012
- Explains **interaction with other themes and policies** (e.g. climate change mitigation, water management, biodiversity)
- Assessment whether **incremental** adaptation is effective and if/when **transformational** adaptation may be needed (or a combination)
- **Analyses** on various topics: (multi-level) governance, knowledge base, awareness, planning, economics, monitoring and reporting.
- **Inputs:** information provided voluntarily by MS to EEA; Climate-ADAPT; MayorsAdapt/Covenant of Mayors



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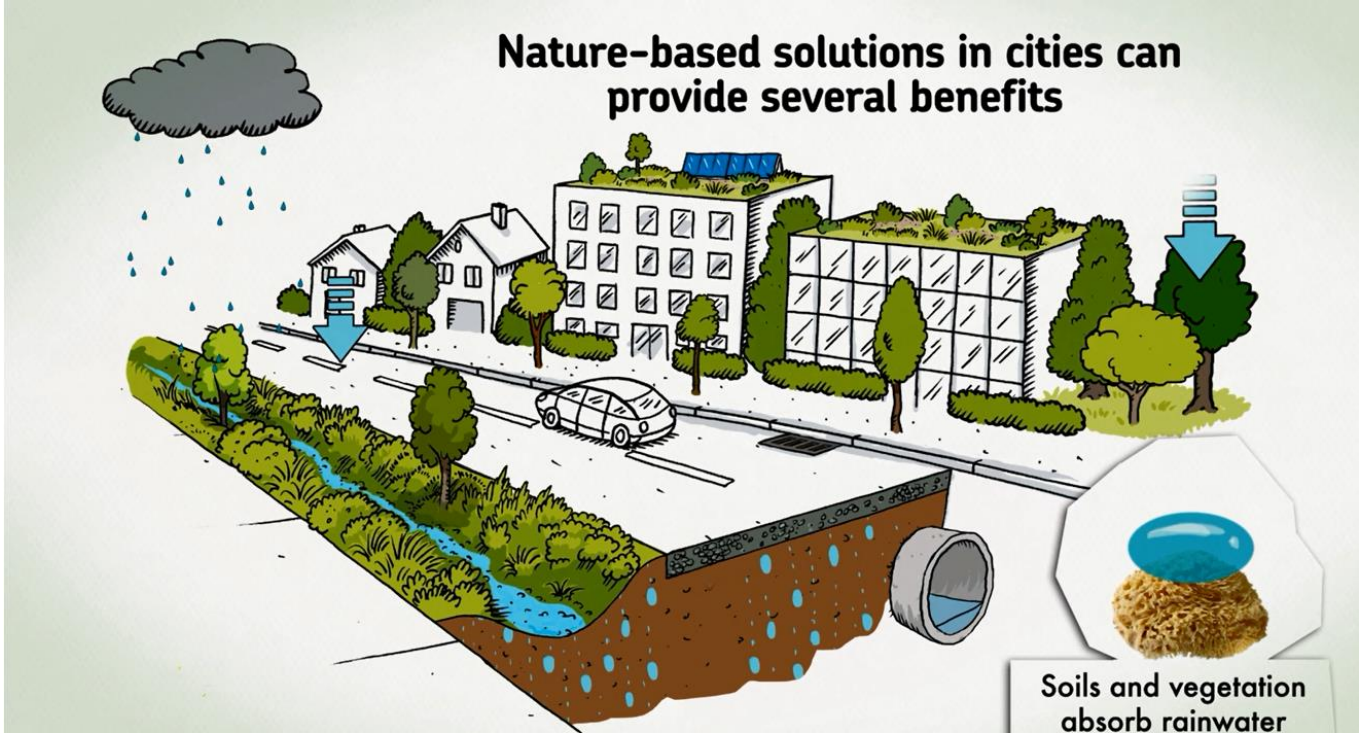
Nature-based solutions for climate change mitigation and adaptation



(Click on the image to launch the online video)

These measures reduced the strong June 2016 floods in the Paris area by 1 meter, reducing material damages!

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The Covenant of Mayors on the ground: Examples of local actions

Adaptation

Managing heavy rains and stormwater in Copenhagen, Denmark

- Cloudburst Management Plan aims to reduce the impacts of pluvial flooding due to heavy rains

- Expanding the sewer network and around 300 surface projects focussing on water retention and drainage

- **+13,000 full-time equivalents jobs** with ca. €214 mio in tax revenues expected

Systemic solutions in Copenhagen

Stormwater storage space at Tåsingeplads in Copenhagen, Denmark

Image: Birgit Georgi

Urban Success Stories

Munich's flood risk management plan, Germany

The **Isar Plan** is a flood risk management plan that involves the restoration of the formerly canalized Isar River.

Involved planning and developing the environment, as well as water management and construction

Part of the city's Strategic Guidelines on Climate Change.

After ↑/ before ↓ restoration

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The Covenant of Mayors on the ground: Examples of local actions

Stakeholder engagement for energy efficient schools in Osona, Spain

Mitigation

- Key figures:

Project duration: **2 years** (2012-2014)

27 schools involved

26% savings in electricity consumption

19% savings in heating

€280 000 savings in energy costs

The Covenant of Mayors on the ground: Examples of local actions

Mitigation

Burgas (Bulgaria): A transport pioneer in South East Europe

- 1st city in Bulgaria to entirely transform and modernize its public transport system
- Investment of €65 million
- New integrated system expected to allow the city to avoid emitting 1,500 tonnes of CO_2 each year
- More attractive, affordable and safer mobility options for citizens.

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Covenant of Mayors Case Studies

- *Dozens*
- *Accross the EU*
- *On climate change mitigation and adaptation*
- *http://www.covenantofmayors.eu/media/case-studies_en.html*

- **Alba** - Romania: Facilitating the access of public authorities to energy data in Romania (2016)
- **Almada** - Portugal: 100% LED traffic lights and intelligent public lighting system (2016)
- **Agueda** - Portugal: Free electric biking (2012)
- **Albertslund** - Denmark: Living in a climate laboratory (2012)
- **Amsterdamn** - the Netherlands: Vrijburcht: a privately funded climate–proof collective garden in Amsterdam (2016) ADAPT
- **Barcelona** - Spain: Barcelona trees tempering the Mediterranean city climate (2016) ADAPT
- **Beckerich** - Luxemburg: 30 years working towards energy self-sufficiency (2012)
- **Bilbao** - Spain: Public-private partnership for a new flood proof district (2016) ADAPT
- **Bologna** - Italy: GAIA - Green Area Inner-city Agreement to finance tree planting (2016) ADAPT
- **Bratislava** - Slovakia: EEA grants supporting the city of Bratislava to implement climate adaptation measures (2016) ADAPT
- **Bristol** - UK: Green ICT for business and community (2011)
- **Budapest** - Hungary: Green energy from the spa to... the zoo! (2013)
- **Burgas** - Bulgaria: A transport pioneer in South East Europe (2013)
- **Częstochowa** - Poland: Drop by drop, Optimising the Częstochowa's resource flows thanks to an ESCO (2016)
- **Copenhagen** - Denmark: The economics of managing heavy rains and stormwater

Action

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Integrated mitigation and adaptation measures - examples:

- *Insulation of buildings*
- *Green areas and forest management*
- *Water saving*
- *Renewable energies*
- *Transversal approach, coordination & cooperation*
- *Cycling*
- *Adaptation reduces emissions for rehabilitation of damages*
- *Building back better*

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Covenant of Mayors
for Climate & Energy

The new Covenant of Mayors for Climate & Energy: the supporting initiative by cities for cities

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2015: New commitments

Signatories now pledge to:

- Reduce CO_2 (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

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The Covenant of Mayors in key figures

7,000+ signatory cities,

600+ signatories to new CoM,

700 cities committed to adaptation

280+ regions, provinces & grassroots associations, ca. **30** Associated Partners

ca. **60** Local & Regional Energy Agencies

5,100+
Action Plans developed

... average CO_2-emission reduction of about **28%** by 2020

www.eumayors.eu

Benefits of joining the new Covenant of Mayors

- Public **recognition** and higher **visibility** of **political leadership** and actions
- Wide-ranging **support** and innovative **knowledge sharing** (learning from peers, helpdesk, technical guidance, resource library, exchange platform, quick access to expertise and good practice examples, discussion forums, city twinning programme, communication, monitoring & reporting)
- **Engagement of various governance levels and stakeholders** (provinces, regions, States, national / thematic agencies or organisations, etc.)
- Creating **new local opportunities**, helping cities move towards an integrated, sustainable approach on mitigation & adaptation
- Potential increased **financial opportunities** (EU: LIFE, Horizon 2020, structural funds, ELENA, ...)
- Synergies with other initiatives (Smart Cities & Communities, Climate-ADAPT…)

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

Template Structure & Minimum Reporting Requirements:

	Template Structure	Minimum Reporting Requirements			Link to Tab
		At the registration stage	Within 2 years	Within 4 years (and then every 2 years)	
	Strategy	optional	*	*	
Mitigation	Emission Inventories	optional	* (BEI)	* (MEI every 4 years)	
Mitigation	Mitigation Actions	optional	*	*	
Mitigation	Mitigation Report				
Mitigation	Monitoring Report				
Adaptation	Adaptation Scoreboard	*	*	*	
Adaptation	Risks and Vulnerabilities	optional	*	*	
Adaptation	Adaptation Actions	optional	optional	* (min. 3 Benchmarks)	
Adaptation	Adaptation Report				
Adaptation	Adaptation Indicators				

The Covenant of Mayors in Poland

40 signatory cities (including Warsaw, Wrocław, Bydgoszcz, Gdynia, …), **2** signatories to new CoM

38 Action Plans developed & **6** monitoring reports

7 supporting structures: funds, city networks & Regional Energy Agencies (incl. National Fund for Environmental Protection and Water Management, Association of Polish Cities, Baltic Energy Conservation Agency)

➡ Possible **synergies between Polish urban adaptation project and Covenant** (city mobilisation, technical assistance, exchange of experiences, city twinnings, events, monitoring, …)

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GLOBAL COVENANT of MAYORS for CLIMATE & ENERGY

- Brings together 2 Global Climate Action Agenda initiatives: the Covenant of Mayors and the Compact of Mayors
- Covers climate change mitigation and adaptation, and universal access to sustainable energy
- Cities commit to go beyond their respective national targets (as defined through Nationally Determined Contributions under the Paris Climate Agreement) & develop an adaptation strategy

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Some EU Funds for urban climate action

- **EU budget** 2014-2020: 20 % climate-relevant expenditure = around €190 billion, via the European Structural and Investment Funds
  - **European Regional Development Fund** (min. 5%, ≈15 billion €, for integrated sustainable urban development)
  - **Innovative Urban Actions**: Call for Proposals on adaptation in the coming months
  - **URBACT**: call for Good Practice networks (open till 31 March 2017) to support implementation of integrated urban strategies or action plans
  - **INTERACT** and **INTERREG** Europe (territorial cooperation programmes and exchange of knowledge)
  - **ELENA** & **JASPERS**: technical assistance for major projects
  - Urban Development Fund (soon operational)
  - Contact your managing authority (http://ec.europa.eu/regional_policy/en/atlas/managing-authorities)

Some EU Funds for urban climate action

- **LIFE** fund:
  - encourages urban mitigation and adaptation projects (e.g. green infrastructure; innovative adaptation technologies; elaboration and implementation of (local) adaptation strategies and action plans)
  - About 800 M EUR for climate action projects in 2014-2020.
  - Co-financing 55-75 %
  - Yearly Calls for proposals (open each Spring):
    - Including projects implementing climate action plans/strategies on a large territorial scale (e.g. multi-city): Integrated Projects
  - **Private Finance for Energy Efficiency**

The Natural Capital Financing Facility: What is it?

- ***Financing of projects in the EU*** *that:*
  - apply **nature-based solutions for adaptation** to climate change
  - are likely to have a **positive impact on biodiversity**
- ***Loan financing and technical assistance****:*
  - Typical **project size**: EUR 1-15 million
  - **Loan** (stand-alone loan or included as part of larger project or framework loan)
  - **Tenor 15 years** and possibly longer, **3 years grace period**
  - **Up to 75% of project costs** covered
  - **Grant available for project preparation** (support facility)

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The Natural Capital Financing Facility: **What can it do for cities?**

Public buildings or housing: green roofs, green/hanging walls, greening of grey surfaces, permeable parking, rain gardens

Green infrastructure: creation of green corridors, planting of trees, shrubs parks and also urban gardening/farming, resident planting, rehabilitation of industrial sites or abandoned land and others

Blue infrastructure: nature-based flood protection, sustainable urban drainage systems, retention basins, lakes, ponds, watershed management, re-naturalization of rivers and others

The Natural Capital Financing Facility

More information:

http://www.eib.org/products/blending/ncff

Email: *NCF_Instrument@eib.org*

Some EU Funds for urban climate action

- **Horizon 2020**: 35% of the budget for climate-related projects
  €16 billion in research and innovation in 2016-17
  - Demonstrating innovative nature- based solutions in cities: for climate and water resilience in cities (example of past call)
  - https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/search/search_topics.html
- **European Fund for Strategic Investments**: e.g. for energy-efficient housing, for urban waste water treatment
- **EU Solidarity Fund**
- **EEA and Norway Grants** 2014-2021: €2.8 billion to 15 EU countries, including for climate change mitigation and adaptation. http://eeagrants.org
- Project finance from **European Investment Bank** (Municipal Framework Loans) and **European Bank for Reconstruction and Development**

Some EU Funds for urban climate action

- **European Investment Project Portal** - The meeting place for project promoters and investors

- More funds and details in "**Quick Reference Guide**. Financing Opportunities for Local Climate & Energy Actions (2014-2020)"

Ongoing evaluation of EU Adaptation Strategy

- examines the actual **implementation** and the **achievements** of the objectives and the eight Actions of the EU Adaptation Strategy.
- assess the relevance, effectiveness, efficiency, coherence and EU added value of the overall Strategy, and
- assess the actual state and progress in the implementation of the 8 actions against what could reasonably expect to have been achieved by end 2016.

- *Inclusive and throughout stakeholders consultation*
- *Final report in 2018*
- ***Potential reinforced EU Adaptation Strategy in 2018***
- *The Roadmap of the evaluation is published*: http://ec.europa.eu/smart-regulation/roadmaps/docs/2016_clima_011_evaluation_adaptation_strategy_en.pdf

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The consultation process

- Two **stakeholders workshops** (5 April and ~September 2017)
- One **web based public consultation** (~September 2017, to be published on https://ec.europa.eu/info/consultations_en)
- **Interviews and surveys with** different **stakeholders** groups (including MS, EU Institutions, NGOs, private sector, local/regional Authorities)
- A Stakeholders **Strategy**, with more detailed information, will be published during March 2017

Climate-ADAPT consultation

- Consultation of stakeholders on the Climate-ADAPT platform
- It will be announced on the platform in the coming weeks

European Commission

Urban Agenda for the EU

12 PRIORITY THEMES

PARTNERSHIPS WHICH ALREADY STARTED

Climate Action

One-stop shop for Cities

- *New portal providing up-to-date information related to urban development on EU…:*

  …policies
  …events
  …networking
  …projects examples
  …funding
  …knowledge and data
  …awards

- *On themes that directly impact urban areas (e.g.* ***energy transition, climate change adaptation*** *or mobility)*
- *https://ec.europa.eu/info/eu-regional-and-urban-development/cities*

Climate Action

www.eumayors.eu

Endorsing moment in the hemicycle of the European Parliament,
2015 Covenant of Mayors Ceremony
© photo Nathalie Nizette

Let's work together!

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