

Climate change adaptation



Birgit Georgi

Training at Urban Future global conference, Oslo, 22 May 2019



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Urban Agenda Partnership Climate Adaptation



Members:

Member States	Local/Regional Authorities	European Commission	Other EU Organizations / Observers / Stakeholders
France	Genova (IT) - Coordinator	DG REGIO	EUROCITIES
Poland	Barcelona Diput. (ES)	DG CLIMA	CEMR
Hungary	Glasgow (UK)*	DG ENV	EIB
Bulgaria*	Trondheim (NO)	DG RTD*	URBACT
	Loulè (PT)	JRC	EEA
	Potenza (IT)		Covenant of Mayors
	Sfantu Gheorghe (RO)		

<https://ec.europa.eu/futurium/en/urban-agenda>



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Urban Agenda Partnership Climate Adaptation



- *Pact of Amsterdam: Urban Agenda for the EU → Climate Adaptation a priority theme*
- *Climate Adaptation Partnership (2017) as a multilevel and cross-sectoral cooperation instrument and key delivery mechanism*
- *Action plan establishing 3 working groups: Governance - Resources - Knowledge*



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Action: Training academy for politicians

Organised by



General academies

- *Oslo, 22nd May 2019 at Urban Future*
- *Brussels, October 2019, at the European Week of Cities and Regions*
- *Innsbruck, 6-8th May 2020 at the CEMR congress (open to any politician)*

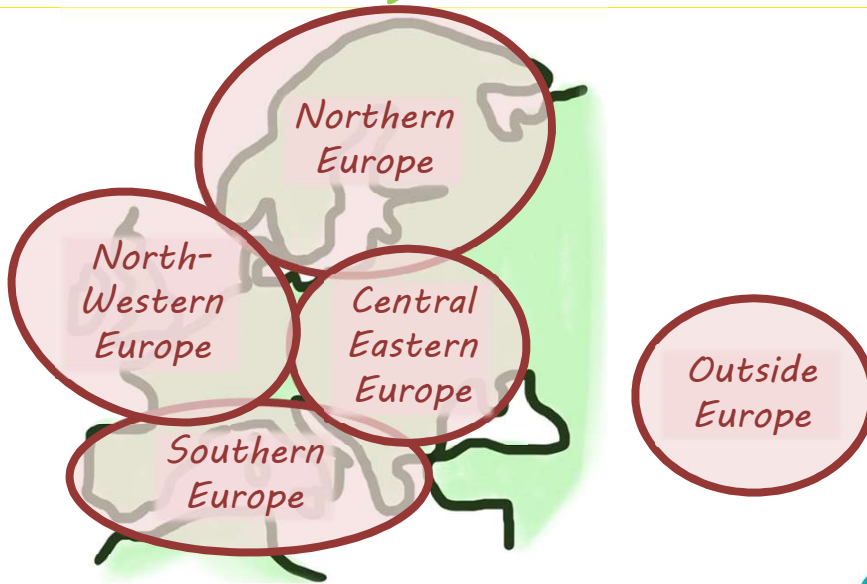
Local academies

- *Glasgow 19th June 2019*
- *Genova, Autumn 2019*
- *Loulé Sept 2019 - TBC*
- *Potenza - Nov 2019 TBC*
- *Trondheim? TBC*
- *Others in 2020?*



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Poll: Where do you come from?



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It is five minutes to twelve



Image: IISD/Kiara Worth (enb-iisd.org/climate/cop21/enb/11dec.html)

Image: IISD/Kiara Worth (enb-iisd.org/climate/cop21/enb/12dec.html)

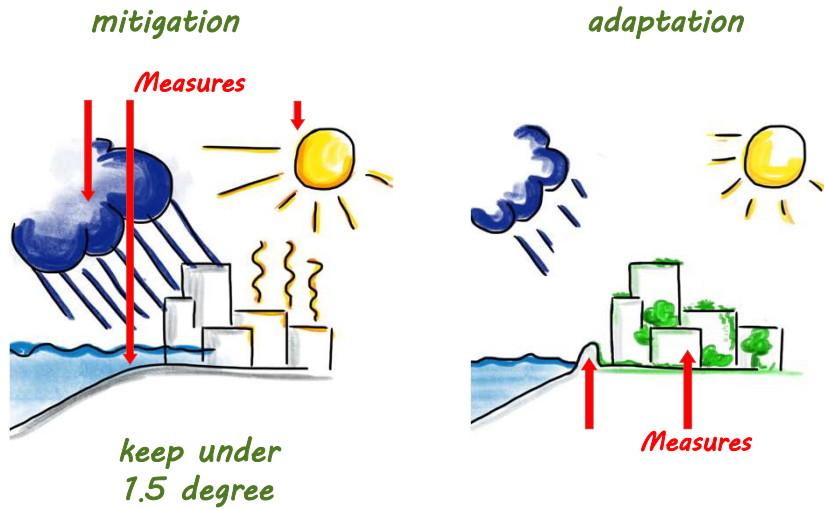
Paris Agreement of UNFCCC COP 22 in 2015:

*Keep average global warming well below 2 degrees C and pursue to hold it **below 1.5 degrees C!***



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Two ways to tackle climate change



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Poll: State of adaptation in your city



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Today's training:

Provides an overview on:

Climate change impacts in cities



Adaptation needs and benefits



European policy urban adaptation



Examples of adaptation



Success factors



Financing



Tools, information, supporters



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Climate change impacts - Drought

PERSONAL WATER USE: NORTH AMERICA VS. CAPE TOWN

North America	Cape Town
Toilet flushes (number/day at 9 Liters/flush)	
5 per day	1 per day
Showers (minutes/day at 10 Liters/minute)	
4 minutes	1 minute (1 start-stop shower with hair-washing)
Faucet use (tooth-brushing, hand-washing, cooking, drinking, house cleaning, water for pets)	
38 litres per day	8 litres per day
Laundry (at 70 Liters/load)	
3 loads/week per person	1 load/week per person



Image: Birgit Georgi

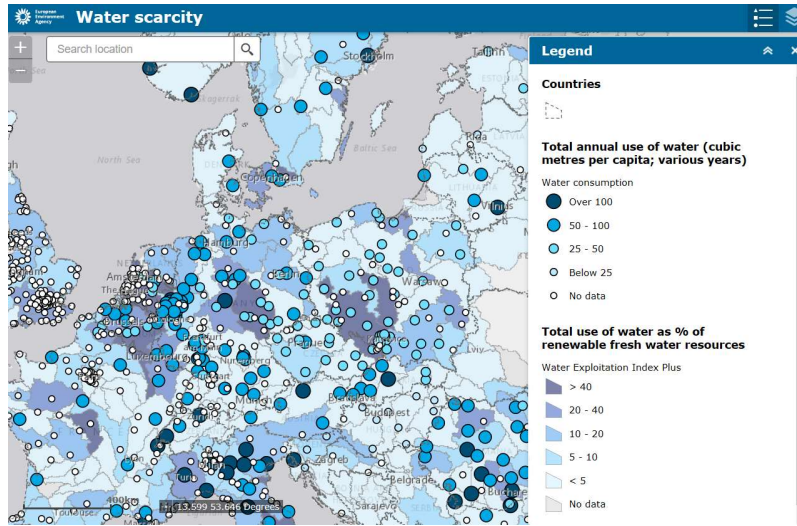
**Cape Town: 3 years of drought
Living from 50l per day**

Source: The Water Research Foundation (2016), City of Cape Town



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Water Scarcity



Source: Urban Adaptation Map Viewer; <https://climate-adapt-eea.europa.eu/knowledge/tools/urban-adaptation>



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Climate change impacts - Heat

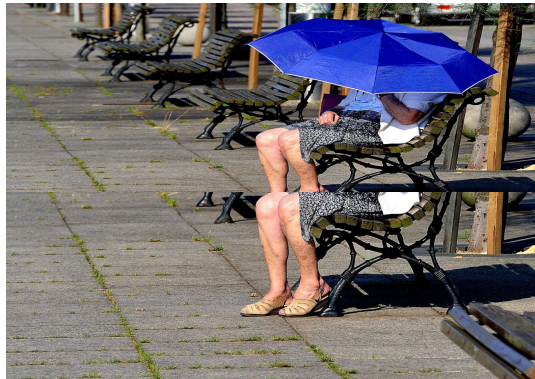
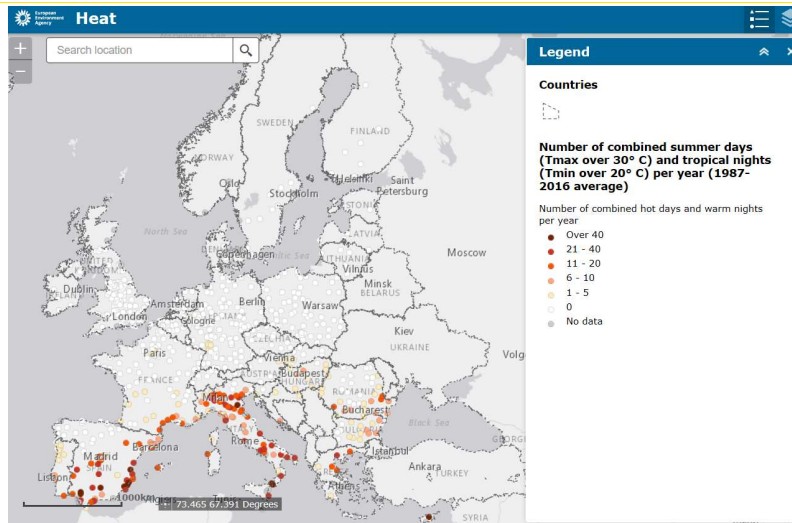


Image: Sekkha



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Heat

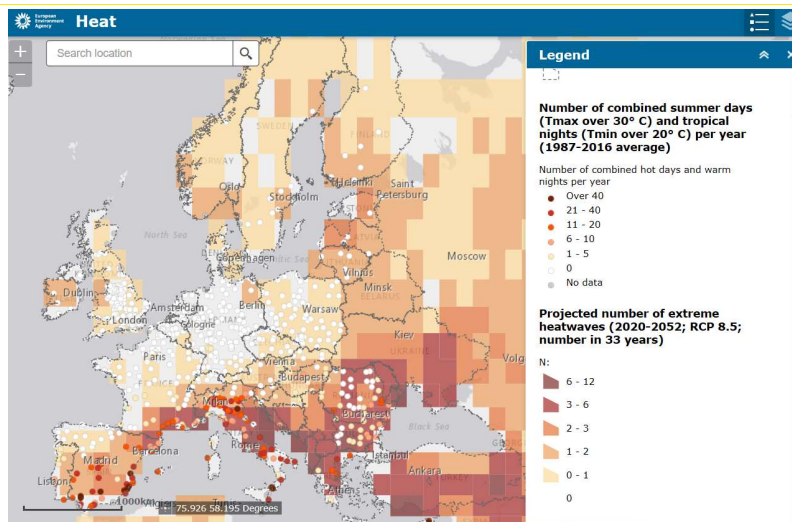


Source: Urban Adaptation Map Viewer; <https://climate-adapt-eea.europa.eu/knowledge/tools/urban-adaptation>



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Heat

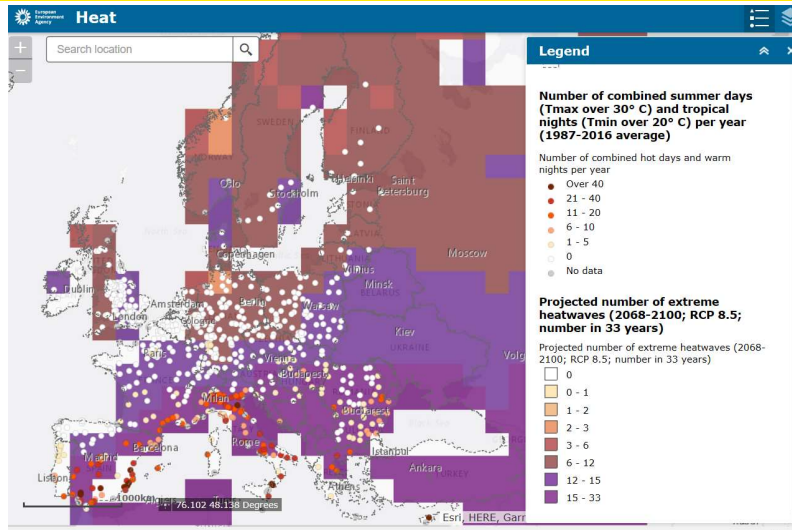


Source: Urban Adaptation Map Viewer; <https://climate-adapt-eea.europa.eu/knowledge/tools/urban-adaptation>



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Heat



Source: Urban Adaptation Map Viewer; <https://climate-adapt.eea.europa.eu/knowledge/tools/urban-adaptation>



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Climate change impacts - Wild fires



Image: Janurah



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Climate change impacts - Floods

River floods
Coastal floods
Pluvial floods

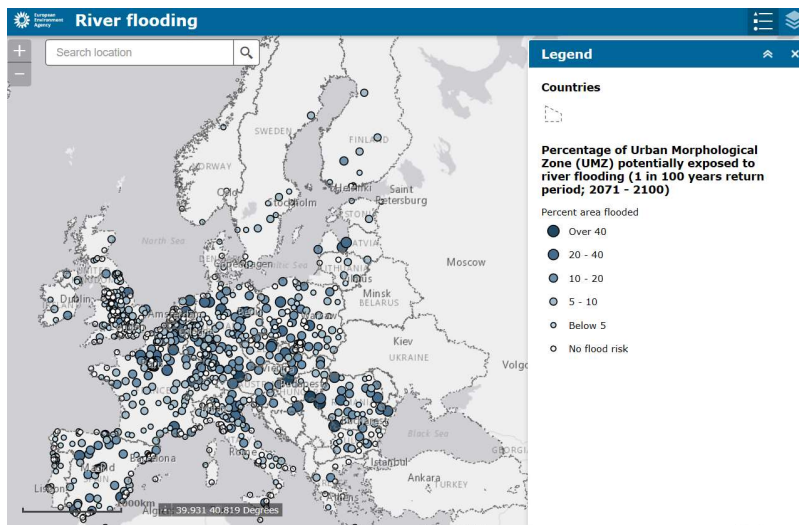


Image: LucyKaef, Pixabay



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River flooding

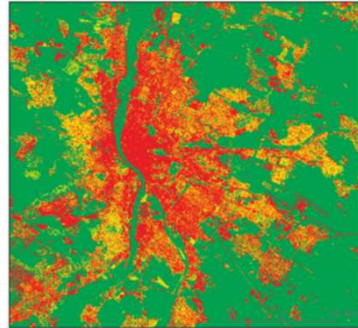


Source: Urban Adaptation Map Viewer; <https://climate-adapt.eea.europa.eu/knowledge/tools/urban-adaptation>

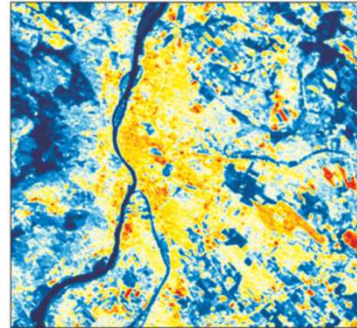


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Cities worsen the impacts - heat



Degree of soil sealing (impermeability) of Budapest
 Degree of soil sealing (%)
 0 30 50 80 100



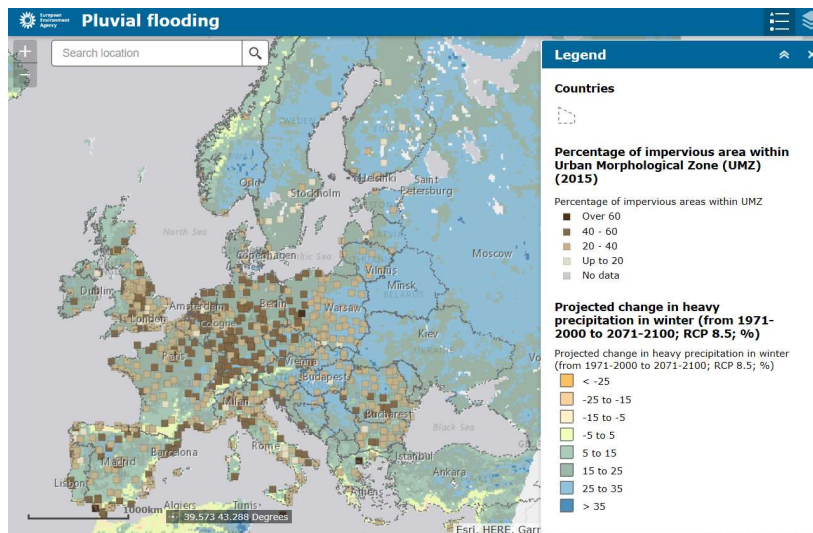
Surface temperature of Budapest, 1 August 2005, 9:30 CET
 Temperature (°C)
 ≤ 15 16 19 22 25 28 31 34 35 36 37 40 43 ≥ 45

→ Urban heat island effect
 → Low infiltration of stormwater

Source: EEA, 2012



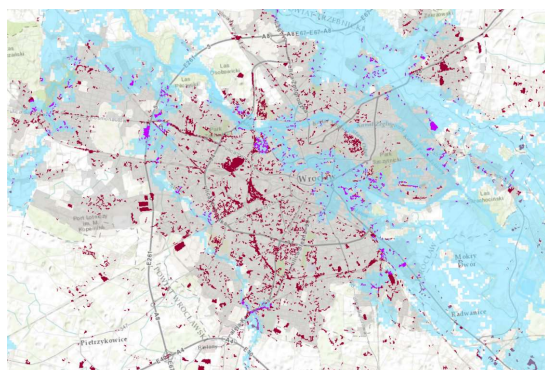
Cities worsen the impacts - pluvial floods



Source: Urban Adaptation Map Viewer; <https://climate-adapt-eea.europa.eu/knowledge/tools/urban-adaptation>



Cities worsen the impacts - floods



→ Build into flood-prone areas

potentially flood-prone zone

Newly built area 2006-2009

inside

outside

Source: ETC ULS, 2016, JRC



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Climate change impacts matter

	LIVING	WORKING	MOVING
HEAT	Decreased comfort Health risks Increased energy use for cooling, decreased for heating	Reduced labour productivity Increased energy use for cooling, decreased for heating	Discomfort on public transport Rail buckling Increased energy use for cooling, decreased for heating
FLOODS	Nuisance/health risks Damage to houses Power and water failures	Reduced accessibility Economic asset damage Power and water failures	Blocked roads and rail
WATER SCARCITY	Discomfort Health and safety risks	Reduced productivity Power and water failures	Shipping constraints
WILD FIRES	Health and safety risks Damage to houses	Damage to economic assets	Transport route blockage
STORMS	Nuisance/health risks Damage to houses Power and water failures	Economic asset damage Reduced accessibility Power and water failures	Blocked roads and rail

Source: <https://www.eea.europa.eu/publications/urban-adaptation-2016>



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Costs of inaction

- *We risk people's life*
- *We risk damage on houses and infrastructures*
- *We miss windows of opportunities to apply cheap adaptation measures*
- *We create lock-in situations, which leave us with no or few expansive options to act*



Image: Truthseeker08, Pixabay



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EU-Policy for urban adaptation



Image: Pixabay, pixel2013



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EU Adaptation strategy, 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 along the Covenant of Mayors initiative



Priority 2: Better informed decision-making

Action 4. Knowledge-gap strategy

Action 5. Climate-ADAPT



Priority 3: 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

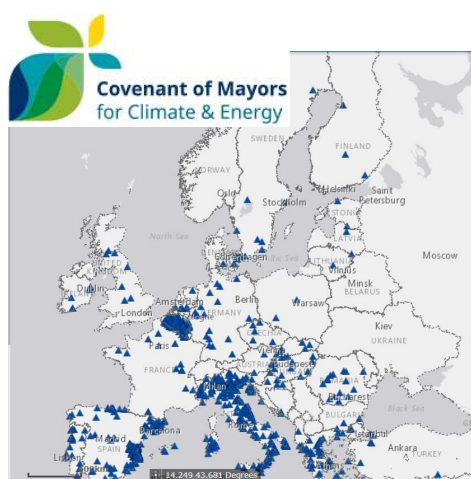


<https://climate-adapt.eea.europa.eu/eu-adaptation-policy/strategy>



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Covenant of Mayors



<https://www.covenantofmayors.eu/>

Signatory cities pledge 40% greenhouse gas reduction by 2030 and the adoption of a joint approach to tackling mitigation and adaptation to climate change

> 1000 signatory cities pledge adaptation action



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Actions

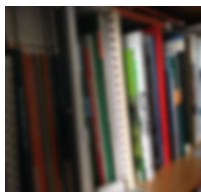


Image: Goumbik, Pixabay



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Many options to adapt



soft



green



grey



low / high costs

Images: Birgit Georgi



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Soft measures

Climate ADAPT SHARING ADAPTATION INFORMATION ACROSS EUROPE


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Home > Database > Case studies > Heat Hotline Parasol – Kassel region

Case studies

Heat Hotline Parasol – Kassel region (2017)



© Henry Anette Grewe

Case Study Description

- Challenges
- Objectives

Demographic change and climate change together place great challenges on the society. The life expectancy of the population in Germany rises and so does the share of older people. Besides chronic patients and children, the elderly are especially affected by the effects of the climate change. At the same time more and more people live in single person households (increase from 14.56 million in 2004 to 16.83 million in 2016 in Germany), which can influence their social isolation. How can we reach these people in order to prevent negative impacts during heatwaves? This is where the heat hotline parasol from the city of Kassel (around 200.000 inhabitants) in Germany comes into play. The heat hotline parasol is a free of charge hotline that calls registered citizens and provides information on heat-warnings from the German Weather Service and suggest measures how to best deal with and adapt to higher temperatures and heat. With this hotline special support is provided to citizens, especially elderly and their families, to deal with heat in the urban area of the city of Kassel. The Elderly Committee of the City of Kassel and the Health Department of the Kassel region cooperates in the heat hotline parasol.

Case studies Documents (1)

- Heatwaves procedures 2007

Updated:
2017-09-29

Keywords:
Capacity building, early warning, elderly people, heatwave, morbidity, mortality

System:
2017-09-29


Keywords:
Capacity building, early warning, elderly people, heatwave, morbidity, mortality

Sectors:
Disaster Risk Reduction, Health, Urban

Climate impacts:
Extreme Temperatures

Governance level:
Local (i.e. city or municipal level)

Source: <https://climate-adapt.eea.europa.eu/metadata/case-studies/heat-hotline-parasol-2013-kassel-region>



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Coping with extreme events



Image: city of Vác

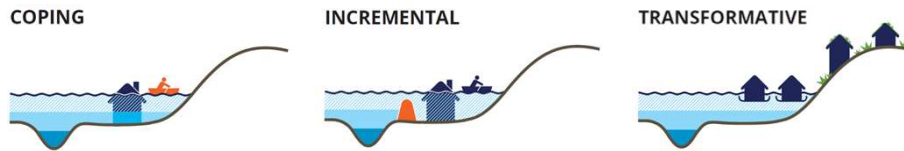
Vác, a city close to Budapest in Hungary still managed successfully the river Danube floods in 2002 and 2013 with higher dykes.

Will that work in the future?



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Different approaches



Source: EEA, 2016



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Transformational approach



Image: Factor Architecten b.v.

*Living with water -
not keeping it out*

*Amphibious houses in
Maasbommel, the
Netherlands function
with different water
levels*



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Green roofs beat conventional solutions



Image: Stefan Grossert

Green roofs in Basel, Switzerland, store and delay rain water and insulate buildings



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Economic case of Hamburg's green roofs



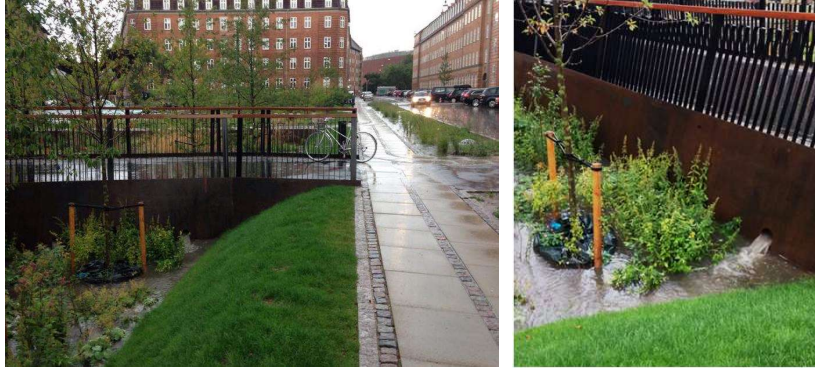
Visualisation: TH Treibhaus Landschaftsarchitektur; Image: Matthias Friedel

The green roofs programme helps to keep the costs for storm water management manageable.



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Green measures are also nice



Images: EVM Landskab

Green areas designed to store temporarily water in Copenhagen, St. Kjelds plads



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Embracing change - building better cities



Image: SLA



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Making it work - Success factors



Image: MustangJoe, Pixabay



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Beginner? - Start simple

Collect information



Check soft measures



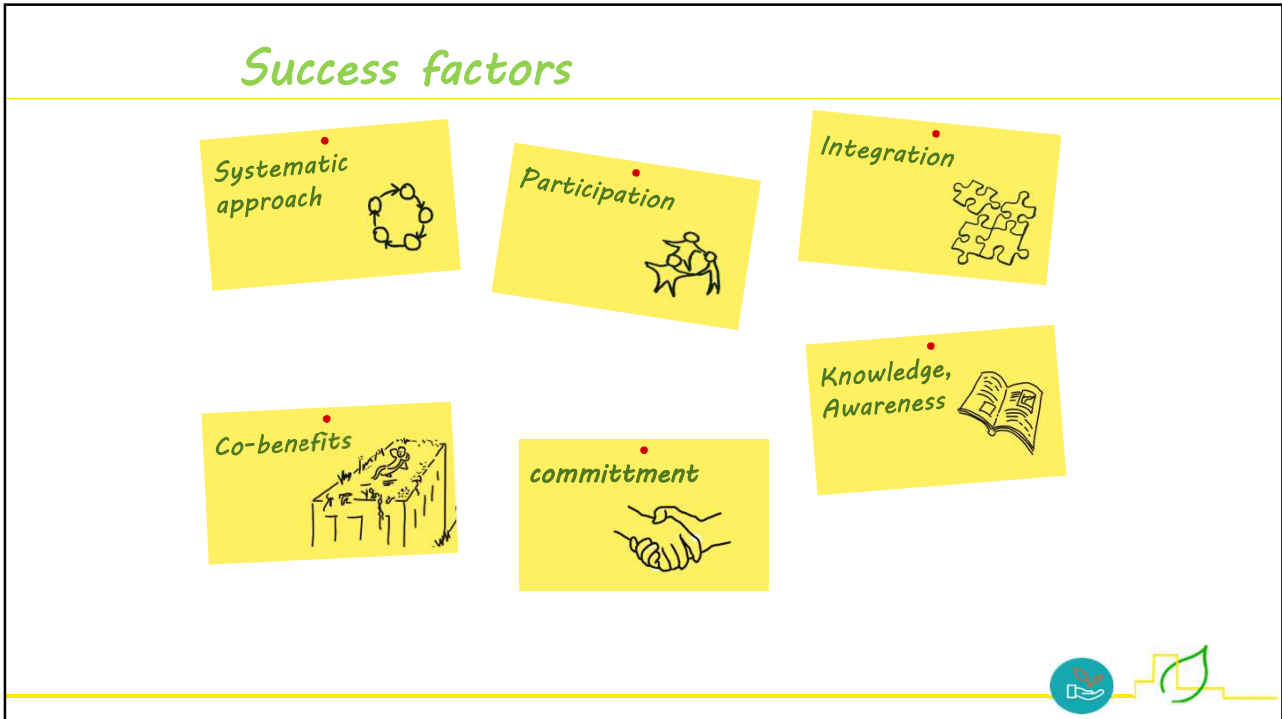
Low cost and
no regret
measures



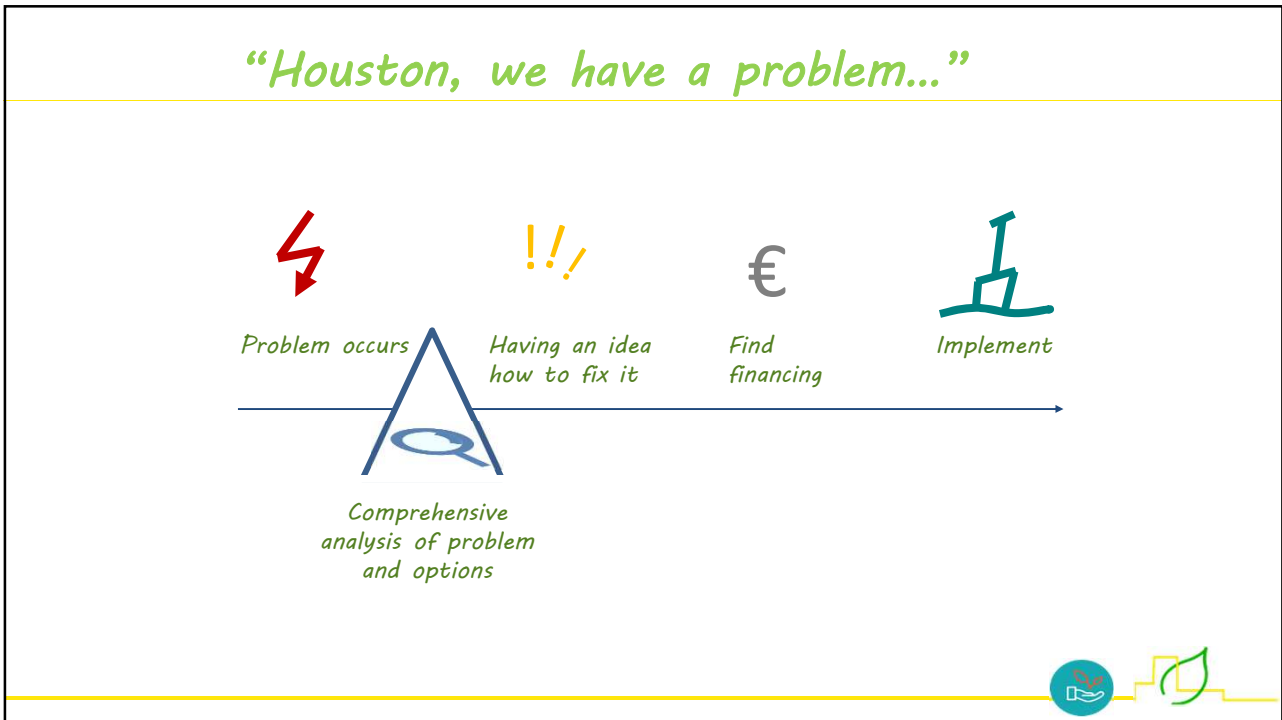
List of simple measures:
<https://www.birgitgeorgi.eu/english/resources>



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Financing sources

Governmental sources

Private stakeholders

*Banks and
financial
institutions*

Free/low-cost solutions



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Malmö mainstreams into urban design



Image: Birgit Georgi



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Copenhagen uses water charges



Image: Birgit Georgi



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Bologna uses CO₂ compensation scheme



Image: City of Bologna

**GAIA -
Green Area Inner-city
Agreement to finance
tree planting**



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Hamburg provides seed money



Image: Treibhausarchitektur and Mathias Friedel



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Ghent sets on crowd funding

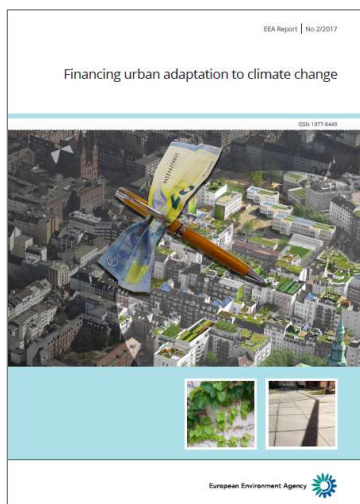


Image: Annamarie Rizzello



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More financing examples



<https://www.eea.europa.eu/publications/financing-urban-adaptation-to-climate-change>



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Funding options

European Structural and Investment Funds	European Funding Programmes	Project Development Assistance	Financial Institutions Instruments	Alternative Financing Schemes
Cohesion Fund	CEF	EEEF	EFPI	Citizen Cooperatives
EAFRD	Horizon 2020	ELENA	Municipal loans	Crowd-funding
EMFF	JPI Urban Europe	Horizon 2020 PDA	NCFI	EPC
ERDF	LIFE	JASPERS		Green municipal bonds
ESF	Territorial Cooperation			On-bill-financing
	UIA			Revolving loan funds
	URBACT			Soft loans, guarantees

<https://www.covenantofmayors.eu/support/funding.html>



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Tools

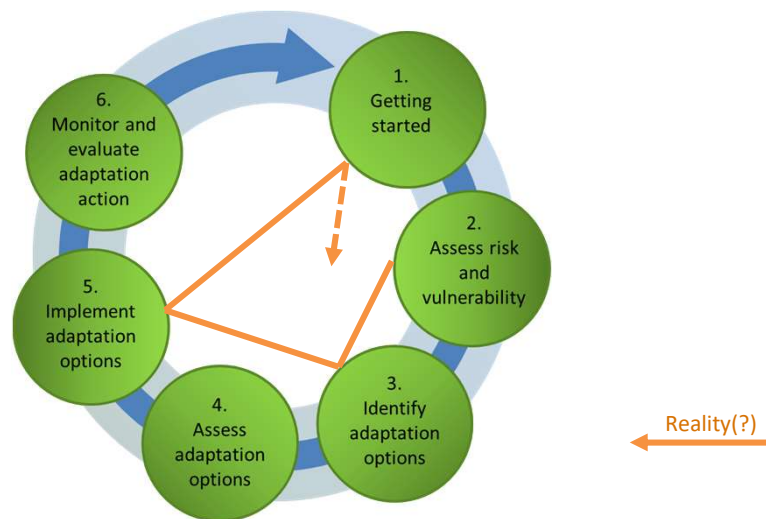


Image: picjumbo_com; pixabay



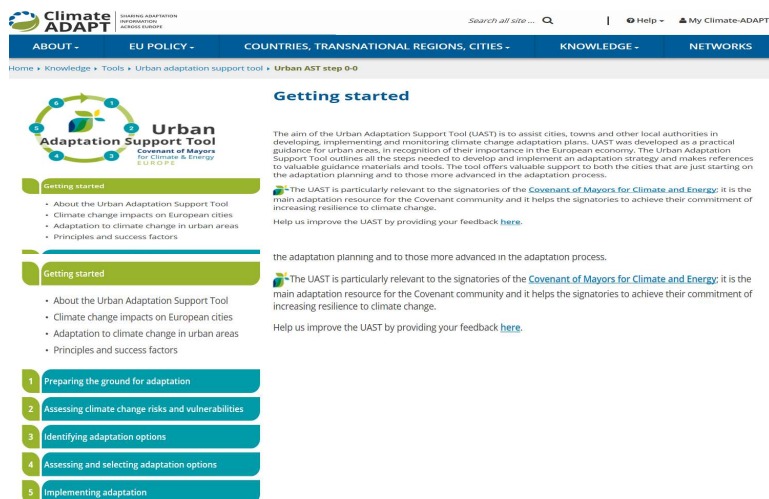
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A systematic approach



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Urban adaptation support tool



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Home » Knowledge » Tools » Urban adaptation support tool » **Urban AST step 0-0**

Getting started

The aim of the Urban Adaptation Support Tool (UAST) is to assist cities, towns and other local authorities in developing, implementing and monitoring climate change adaptation plans. UAST was developed as a practical guidance for urban areas, in recognition of their importance in the European economy. The Urban Adaptation Support Tool outlines all the steps needed to develop and implement an adaptation strategy and makes references to valuable guidance materials and tools. The tool offers valuable support to both the cities that are just starting on the adaptation planning and to those more advanced in the adaptation process.

The UAST is particularly relevant to the signatories of the **Covenant of Mayors for Climate and Energy**; it is the main adaptation resource for the Covenant community and it helps the signatories to achieve their commitment of increasing resilience to climate change. Help us improve the UAST by providing your feedback [here](#).

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Getting started

- About the Urban Adaptation Support Tool
- Climate change impacts on European cities
- Adaptation to climate change in urban areas
- Principles and success factors

Getting started

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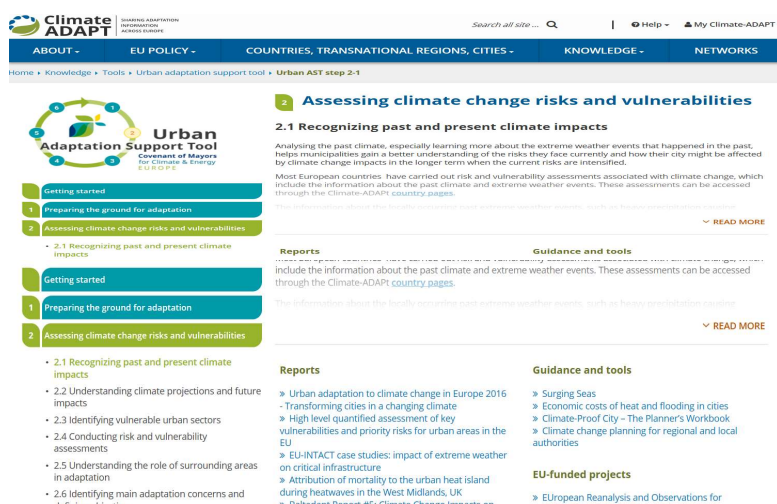
- 1 Preparing the ground for adaptation
- 2 Assessing climate change risks and vulnerabilities
- 3 Identifying adaptation options
- 4 Assessing and selecting adaptation options
- 5 Implementing adaptation

<https://climate-adapt.eea.europa.eu/knowledge/tools/urban-ast>



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Urban adaptation support tool



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2 Assessing climate change risks and vulnerabilities

2.1 Recognizing past and present climate impacts

Analysing the past climate, especially learning more about the extreme weather events that happened in the past, helps municipalities gain a better understanding of the risks they face currently and how their city might be affected by climate change impacts in the longer term when the current risks are intensified.

Most European countries have carried out risk and vulnerability assessments associated with climate change, which include the information about the past climate and extreme weather events. These assessments can be accessed through the [Climate-ADAPT country pages](#).

This information about the locally occurring past extreme weather events, such as heavy precipitation cascade

[READ MORE](#)

Reports

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This information about the locally occurring past extreme weather events, such as heavy precipitation cascade

[READ MORE](#)

Reports

- Urban adaptation to climate change in Europe 2016
- Transforming cities in a changing climate
- High level quantified assessment of key vulnerabilities and priority risks for urban areas in the EU
- EU-INTACT case studies: impact of extreme weather on critical infrastructure
- Attribution of mortality to the urban heat island during heatwaves in the West Midlands, UK
- EU-INTACT Report #5: Climate Change Impacts on

Guidance and tools

- Surging Seas
- Economic costs of heat and flooding in cities
- Climate-Proof City – The Planner's Workbook
- Climate change planning for regional and local authorities

EU-funded projects

- European Reanalysis and Observations for

<https://climate-adapt.eea.europa.eu/knowledge/tools/urban-ast>



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Information sources urban adaptation

- **Climate-ADAPT**
<https://climate-adapt.eea.europa.eu/>
Or: Urban Adaptation Support Tool
- **Covenant of Mayors for Climate and Energy**
<https://www.covenantofmayors.eu/>



- **EEA report Urban adaptation to climate change in Europe 2016**
www.eea.europa.eu/publications/urban-adaptation-2016
- **National information sources**



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Climate-ADAPT

One-stop-shop for climate change adaptation information in Europe

<https://climate-adapt.eea.europa.eu/>



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Thank you



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*Trainer:
Birgit Georgi
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