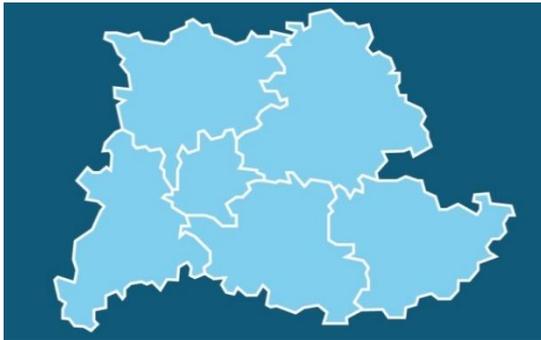


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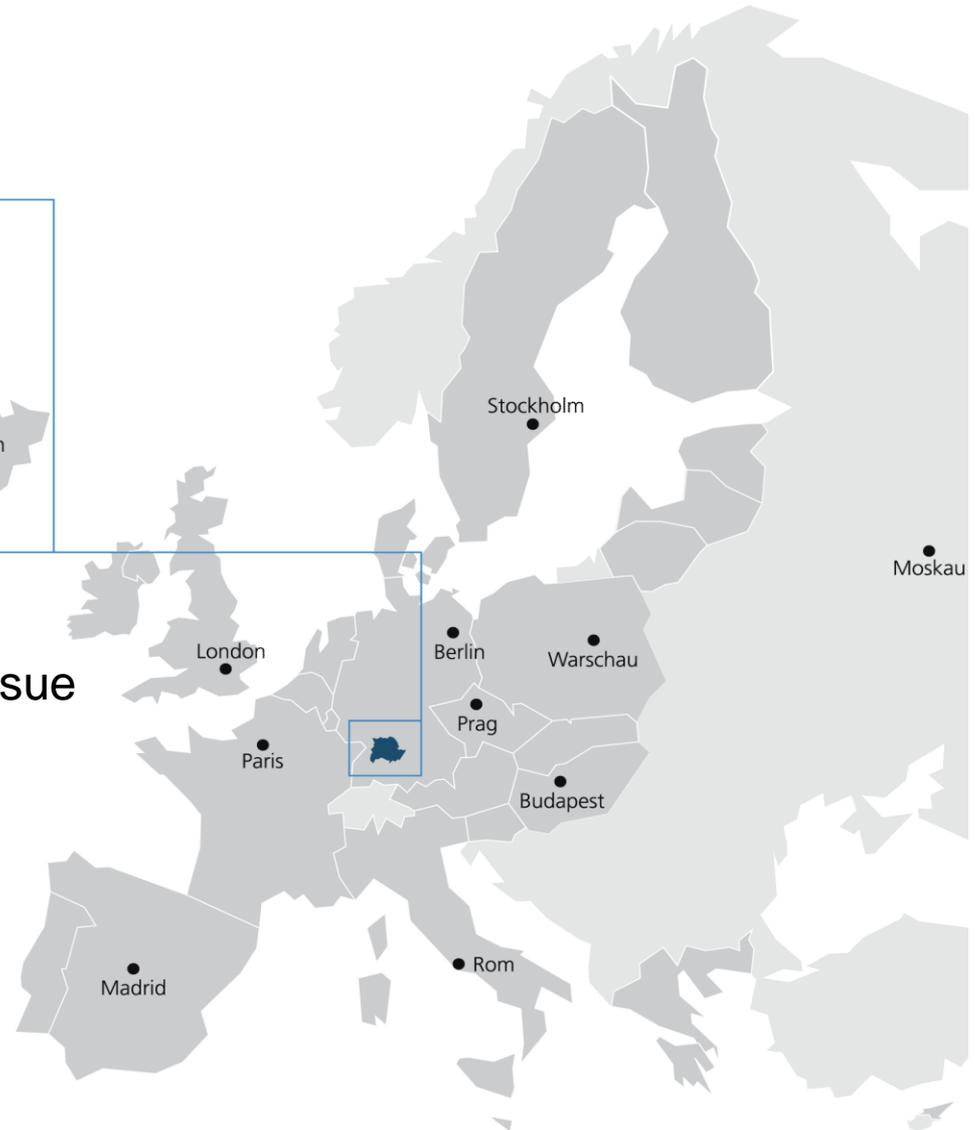
# IURC – Technical Meeting # 1 - 19 JAN 2022

## Climate Change – Adaptation in Stuttgart Region

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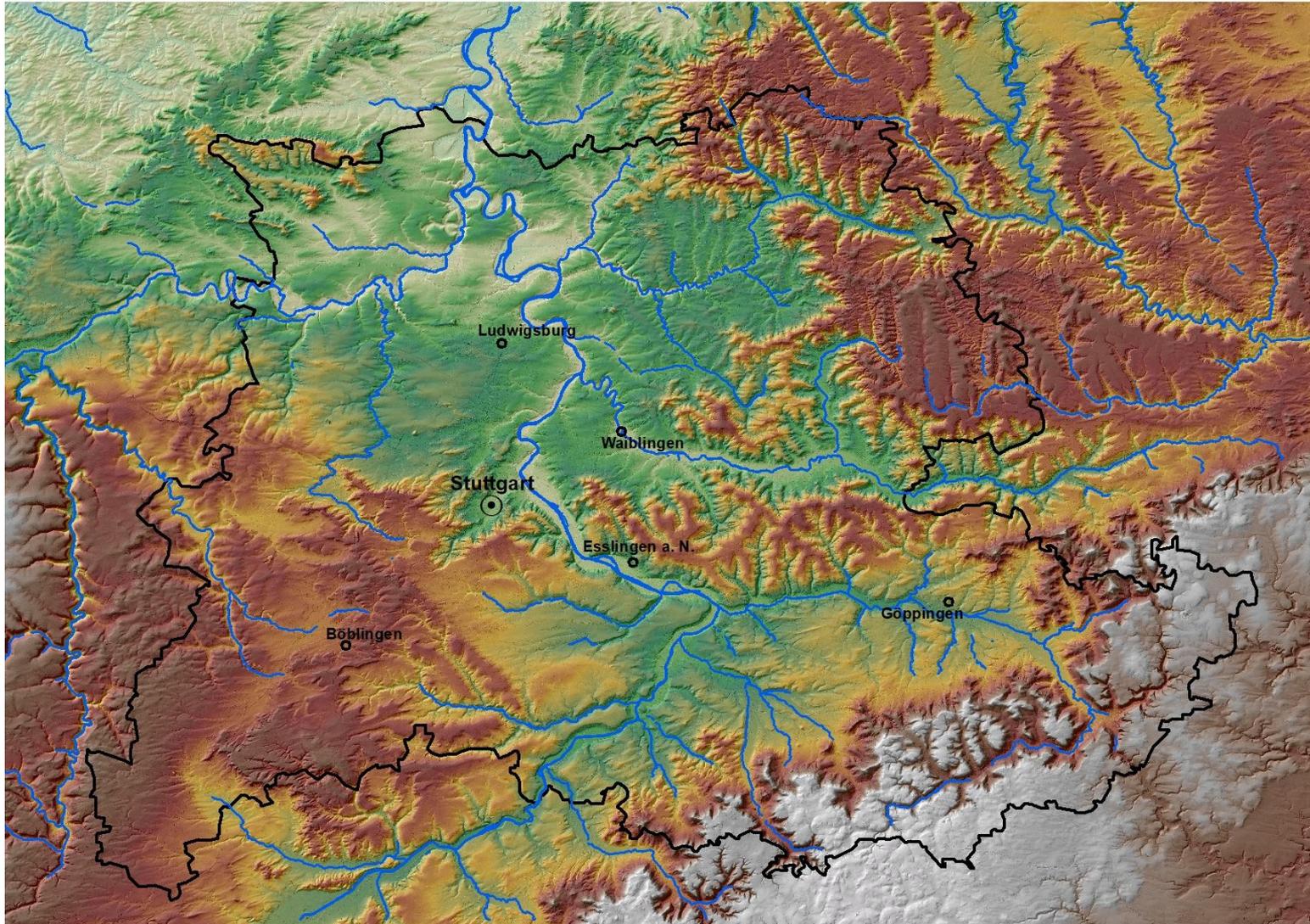


# Stuttgart Region: Land-locked but not safe

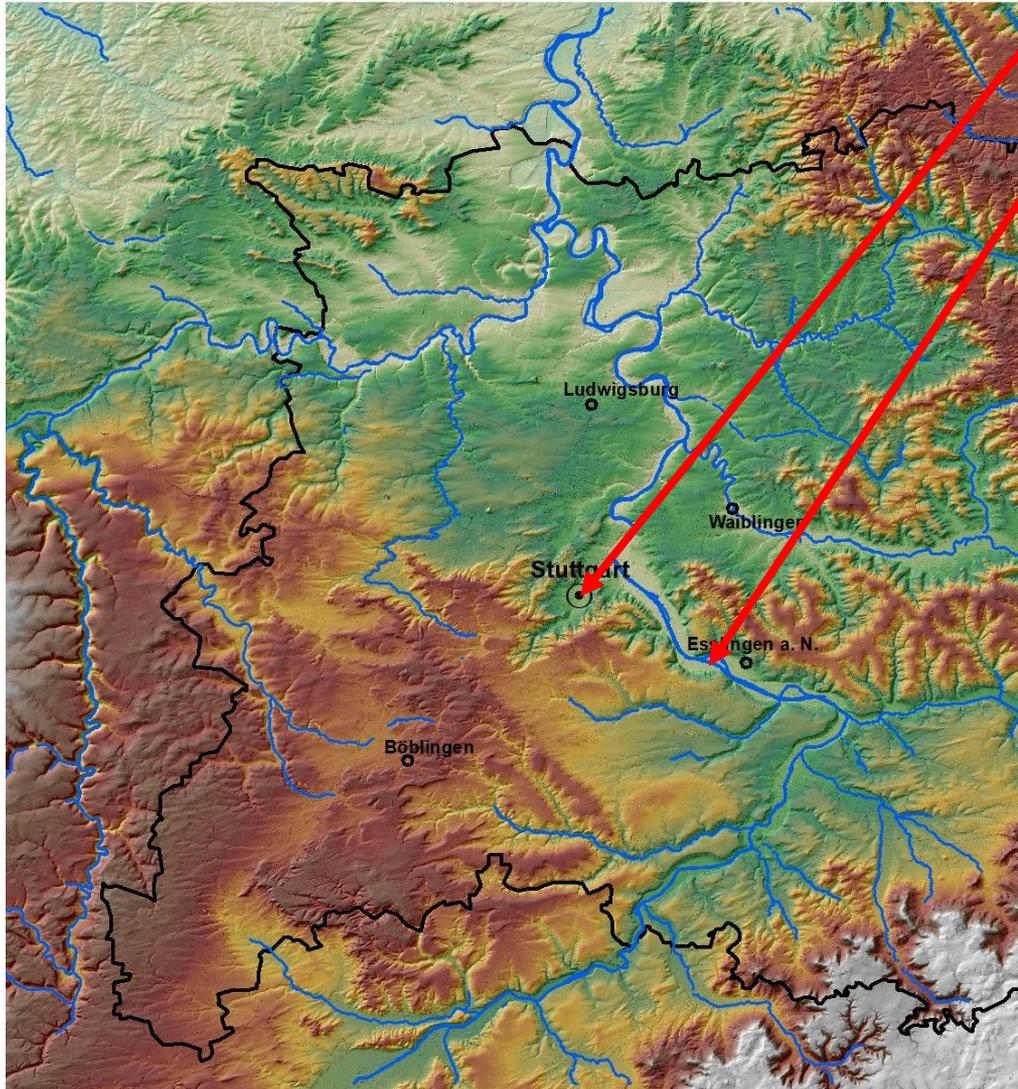


- » Rising sea-level no immediate issue
- » More rain
- » Higher temperature
- » More extremes:  
Heavy rain, heat waves

# Risks by topography



# Risks by topography – floods and flas-floods

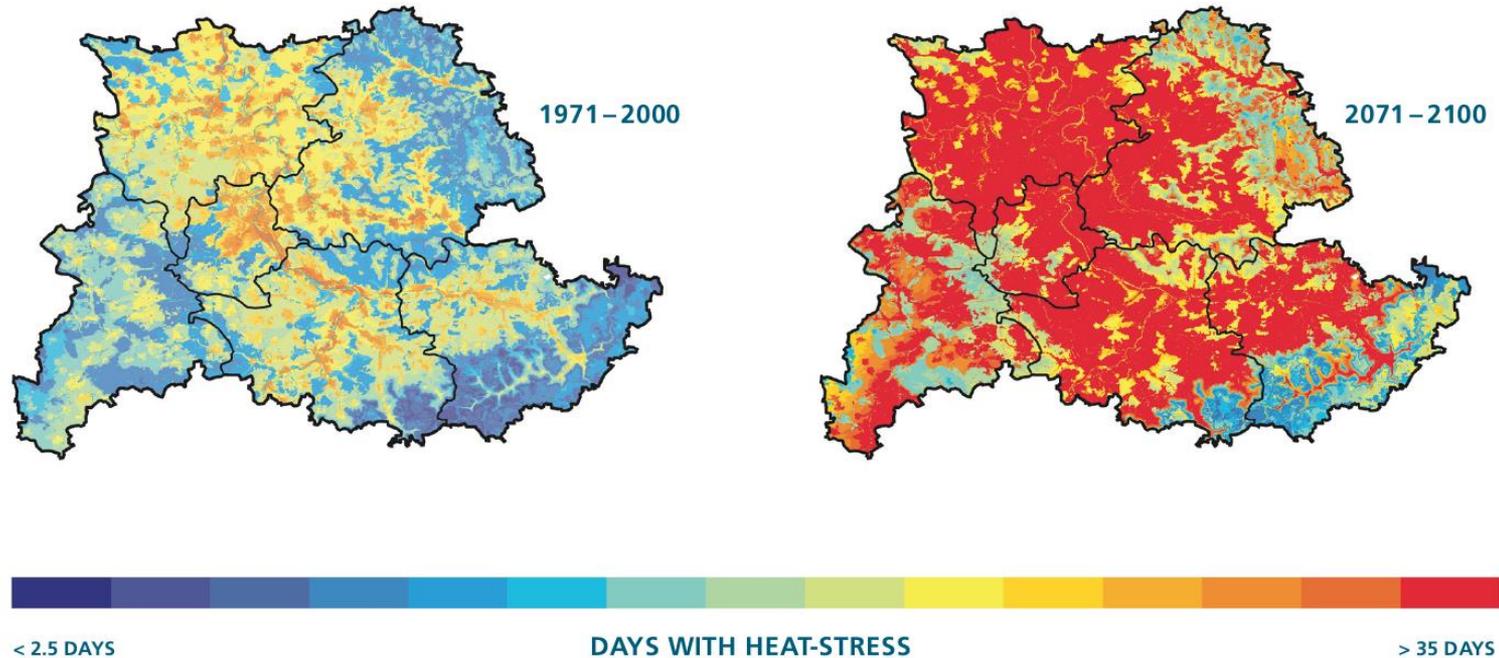


- » Urban core in caldera (“bowl”)
- » Main infrastructure along rivers – prone to flooding
- » Many industrial facilities close to rivers (historical use of hydro-power)

2 types of hazards

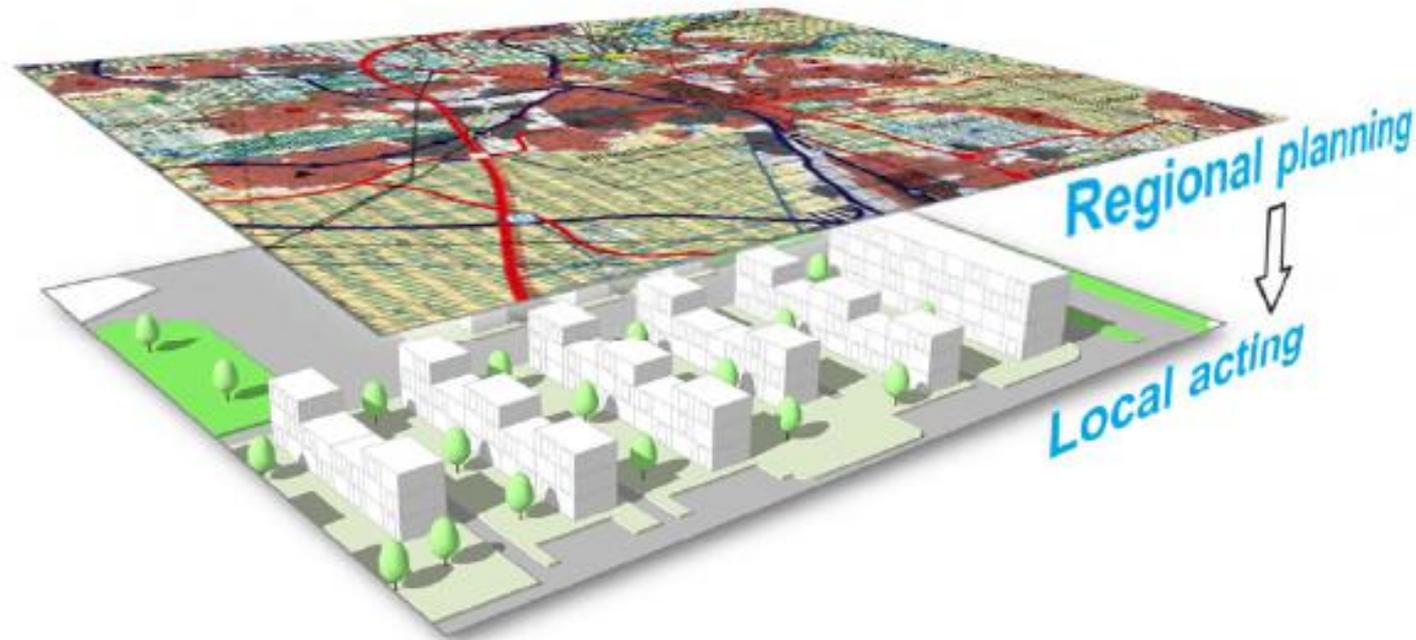
- » Flooding along rivers
- » Flash-floods caused by heavy rain + high density / sealed soil + topography
- » Safety, functionality, economy at risk

# Heat waves as a challenge



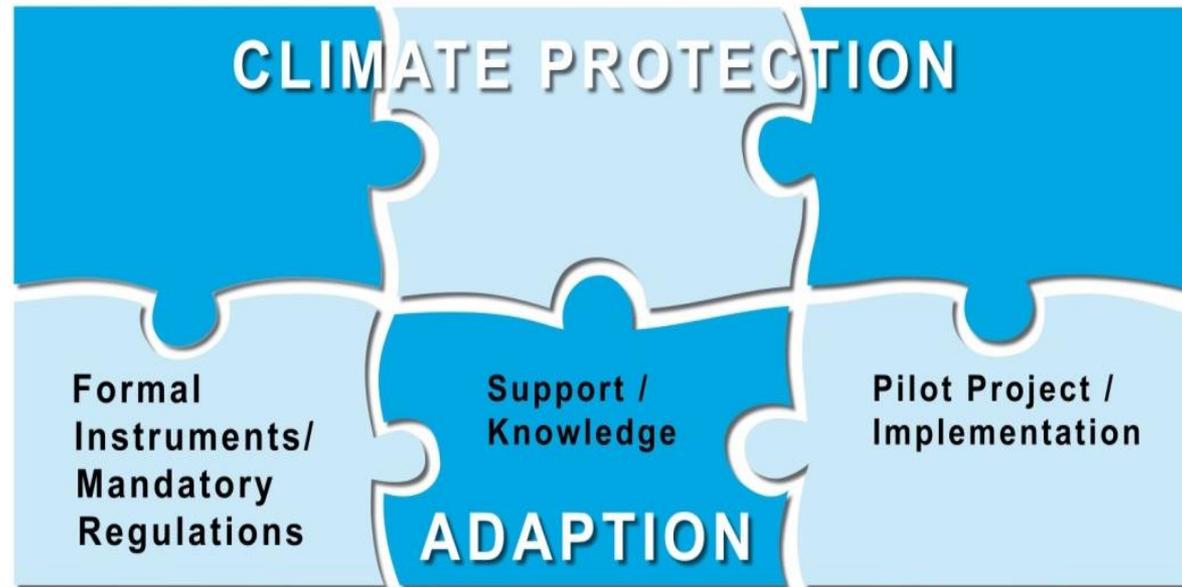
- » More day with heat –stress
- » Air – flow restricted by topography
- » Urban design for moderate climate – cities not capable
- » Comfort, quality of life, health issues – locational factor / image

# Coordinating local action



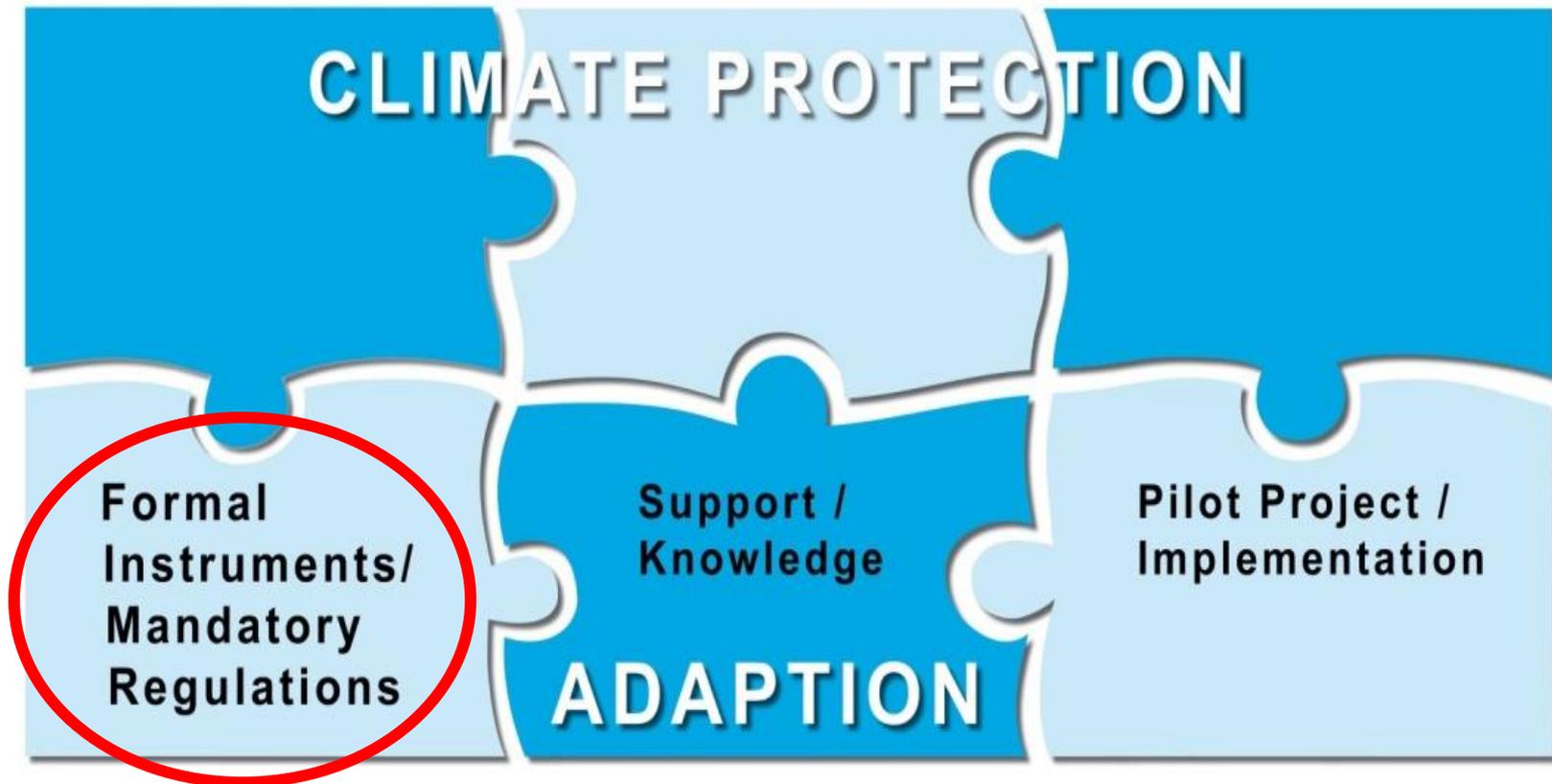
- » Water, air, climate: independent from administrative borders
- » 179 Municipalities –with a strong home rule
- » Land-use planning and zoning is local
- » Coordination is important for sustainable development

# Stuttgart Region's adaptation strategy: Joining forces between administrative levels



- » Climate protection + adaptation: both trigger actions
- » Use of all instruments / competences available
- » From legally binding to support and incentives
- » Bridging the gap between regional and local level
- » 3 instruments:

# # 1: Formal (Planning-)Instruments

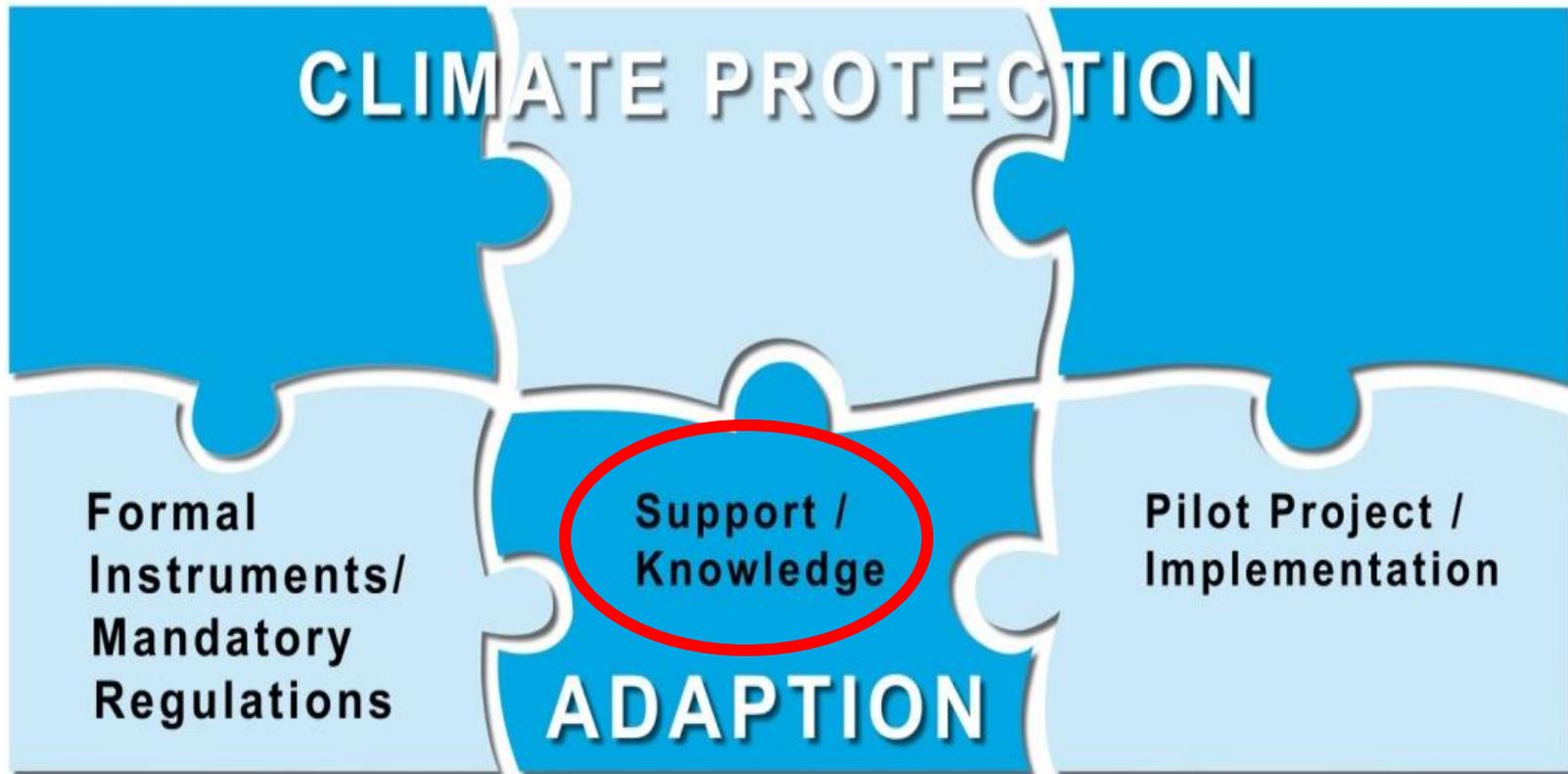


# Planning and mandatory regulations



- » Protection of areas prone to flooding
- » Protection of areas relevant for cooling air or air flow
- » Concentration of urban development along transit axes
- » Binding for local land-use plans
- » Protected areas: No zoning/buildings - strictly enforced - few exceptions
- » Vice versa: areas for safe development

## # 2: Information / Knowledge



# Information for all levels (planning and action)

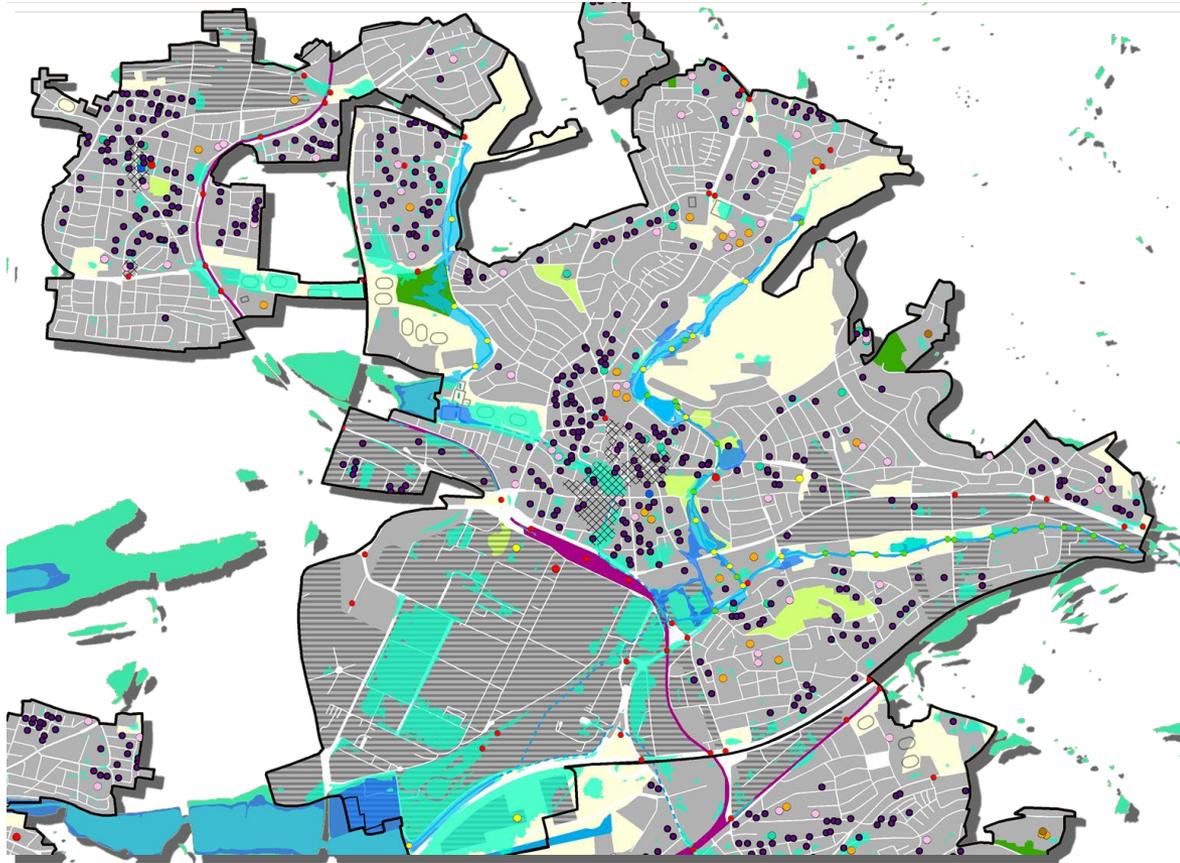
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- » Climate atlas as crucial document and reliable database - introduced in 2008
  - » Base for awareness and policy consultancy
  - » Most relevant questions: What to expect? What to do?
  - » Regional scale – but sufficient for local land-use-planning
  - » Free of charge – easy to integrate in planning procedures – more efficient
-

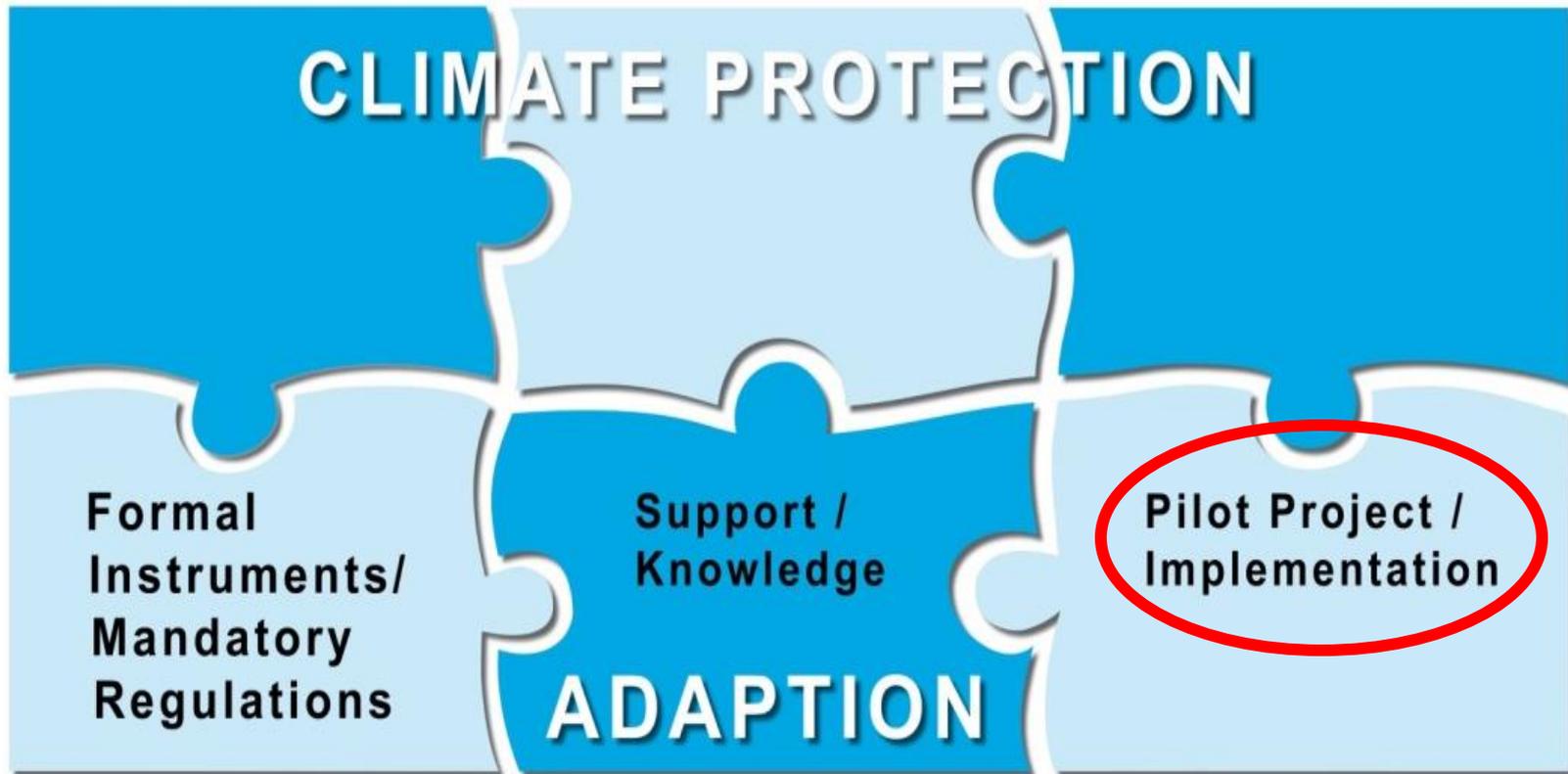
# Support for municipalities

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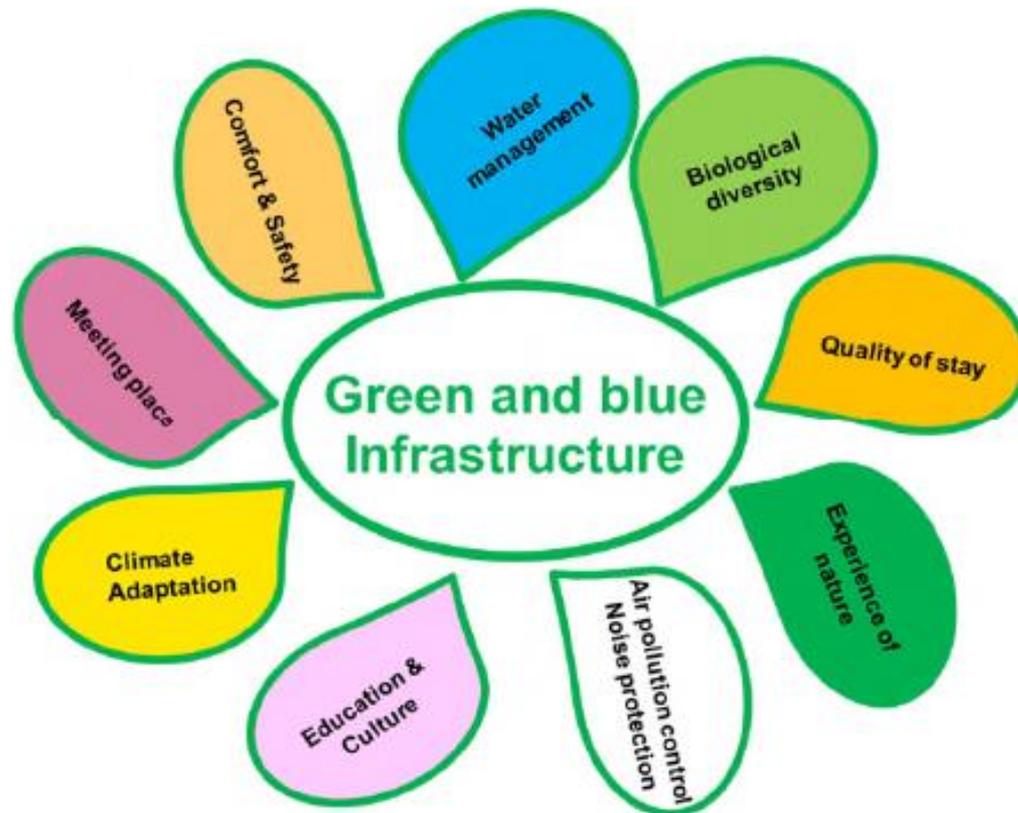


- » Common approach together with counties / municipalities
  - » Close cooperation to integrate local issues
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## # 2: Information / Knowledge



# Climate adaptations – as part of integrated open space development



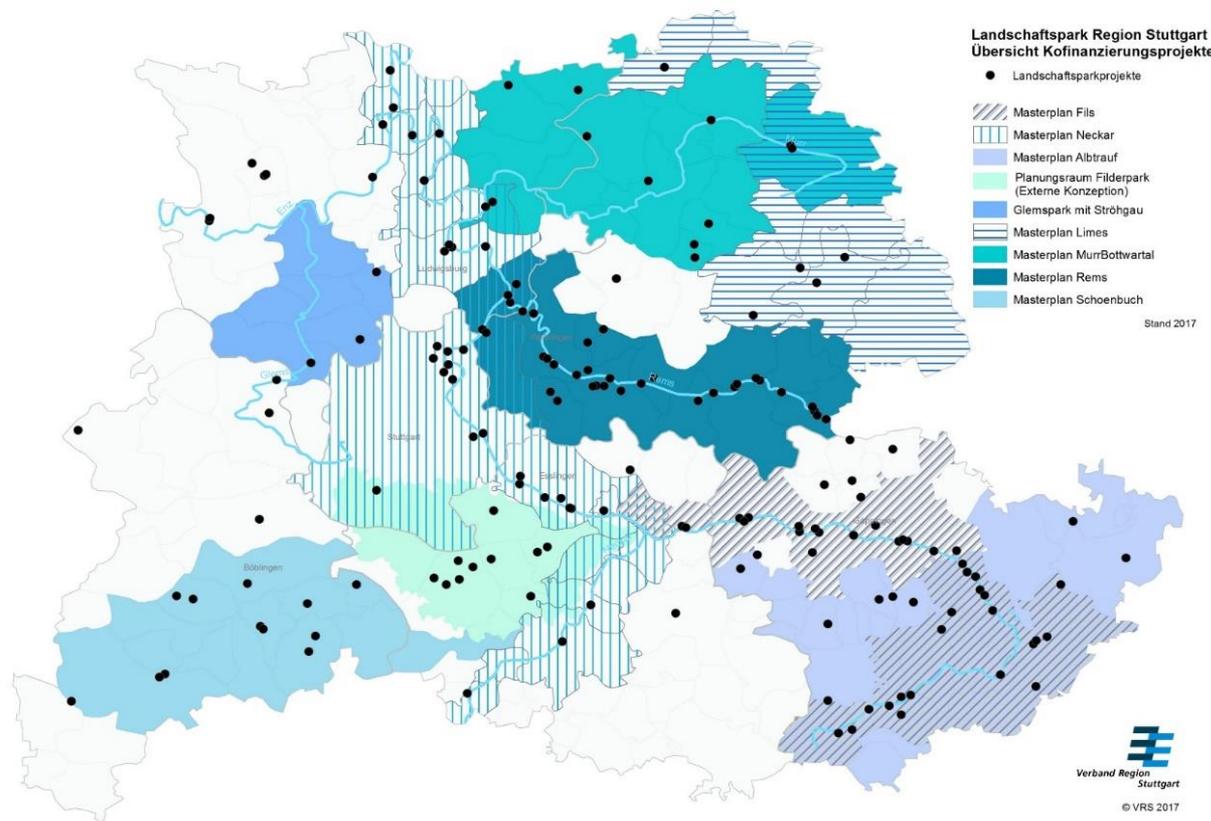
- » Limited options for open space development in metropolitan areas
- » Multi-functional approach for adaptation

# Multifunctionality: water retention, recreation, ecological enhancement



- » e.g. Wetlands for flood control + biodiversity + recreation
- » Efficient use of land + financial resources

# Implementation through Green infrastructure: Stuttgart Region Landscape Park



- » Master-plans for green infrastructure – planning together with municipalities
- » Co-financing of multi-functional green infrastructure projects:  
Financial support for municipalities

# Small scale solutions: „Green living room“ vs. Urban heat island effect

- » EU-funded pilot project in cooperation with City of Ludwigsburg: Implementation of an “urban comfort zone”
- » Example for retrofitting of dense urban zones
- » Experimental self-supporting structure
- » Scientific support and monitoring
- » Open for public use – highly accepted



# Climate Planning approach in a nutshell

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- » Metropolitan areas are drivers for the economy  
adaption secures the quality of life and has to be integrated in actions that strengthen the competitiveness of a region
- » Climate adaption has to be part of an integrated development strategy  
– on all administrative levels but coordinated on regional level!

## Crucial components:

- » Decision-making with democratic legitimation - agenda setting is important
  - » Utilising full potential of competences
  - » Coordinating with mandatory instruments
  - » Providing data and counselling to raise awareness and to capacitate municipalities
  - » Supporting implementation by funding / fund-raising assistance
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