

CLIMATE-RESILIENT SPATIAL PLANNING IN THE ALPS

Project Objectives and Results – Annual Forum 2022

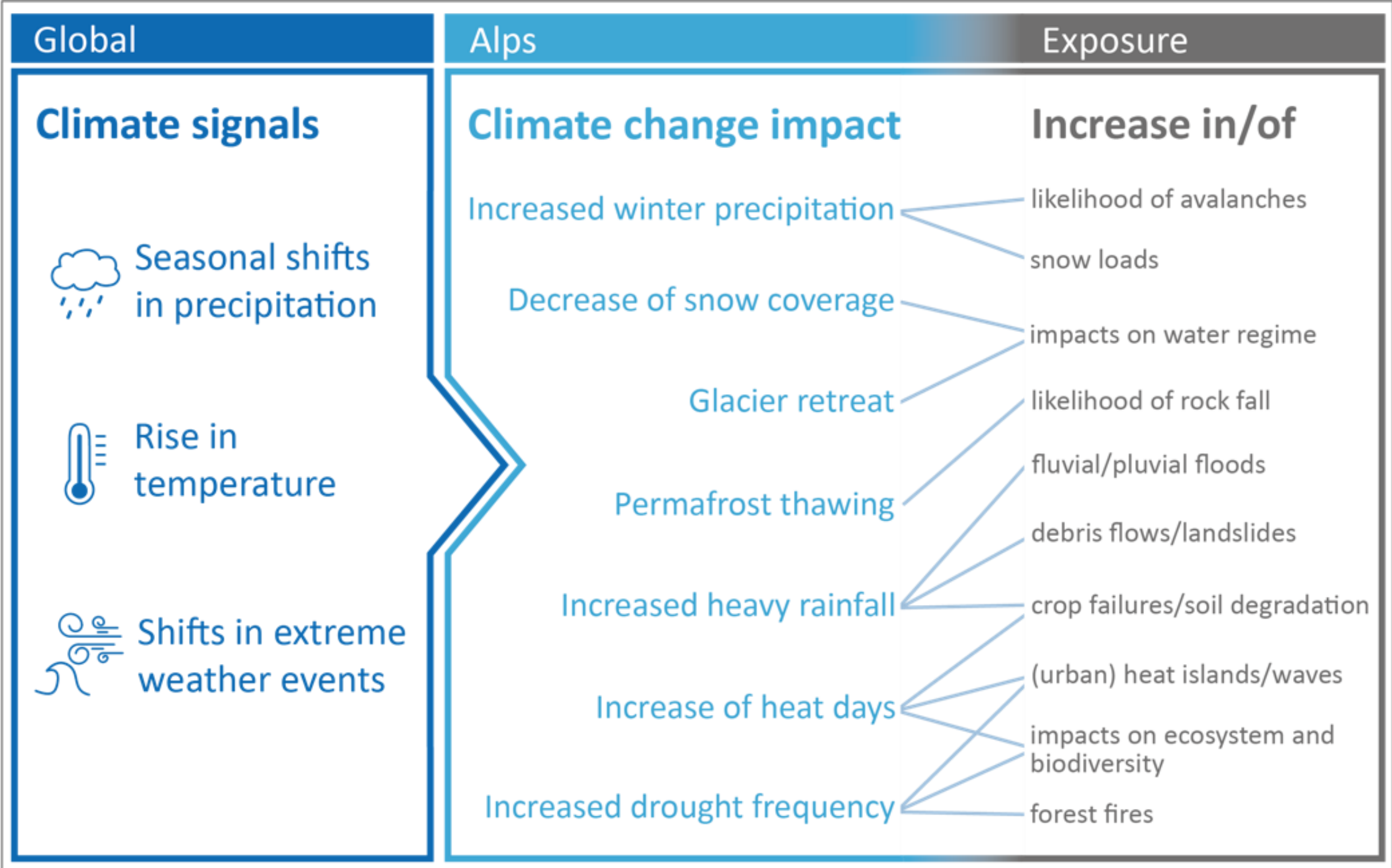
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PROJECT SPECIFICATIONS AND OBJECTIVES

- Coordinated by EUSALP AG8 Risk Governance
- Commissioned by Technical University Vienna
- Financed through INTERREG Alpine Space programme
- Objective: Evaluate the integration and implementation of climate change adaptation and climate resilience in/through spatial planning in the Alpine area
- Methodology:
 - Examination of status quo (desk research)
 - Analysis of adaptation strategies and the specific needs of Alpine areas, responsibilities assigned to spatial planning (desk research & surveys)
 - Analysis of the existing operationalisation of climate resilient spatial planning (interviews)
 - Stakeholder dialogue (Workshop)

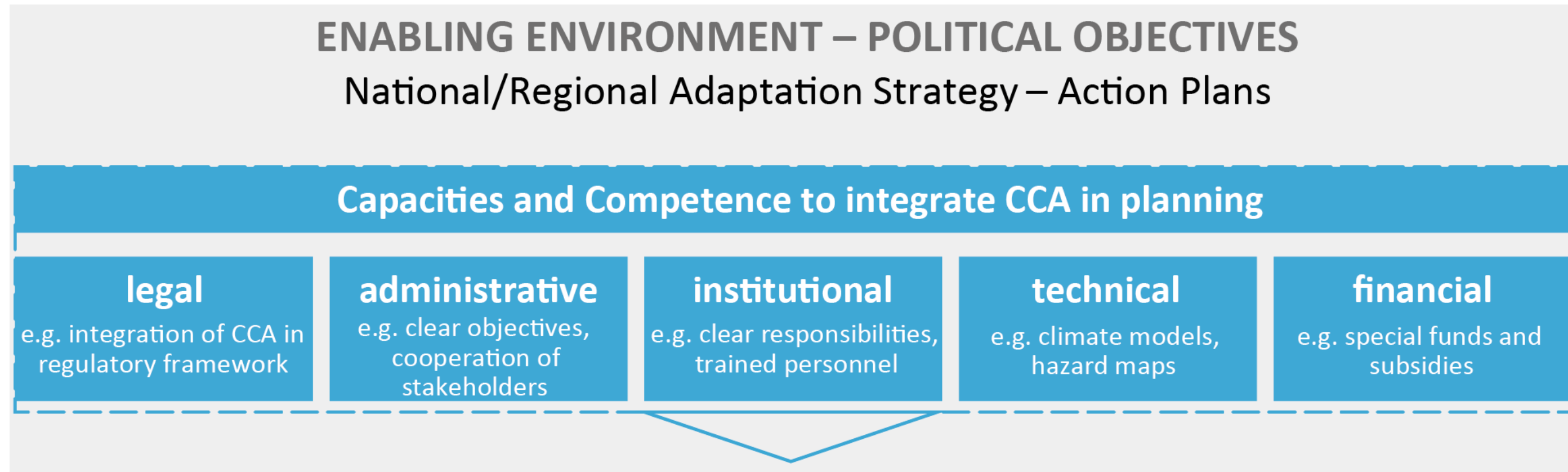
CLIMATE SIGNALS IN THE ALPS



Source: Schindelegger et al. (2022)

- Spatial planning key sector for climate change adaptaion

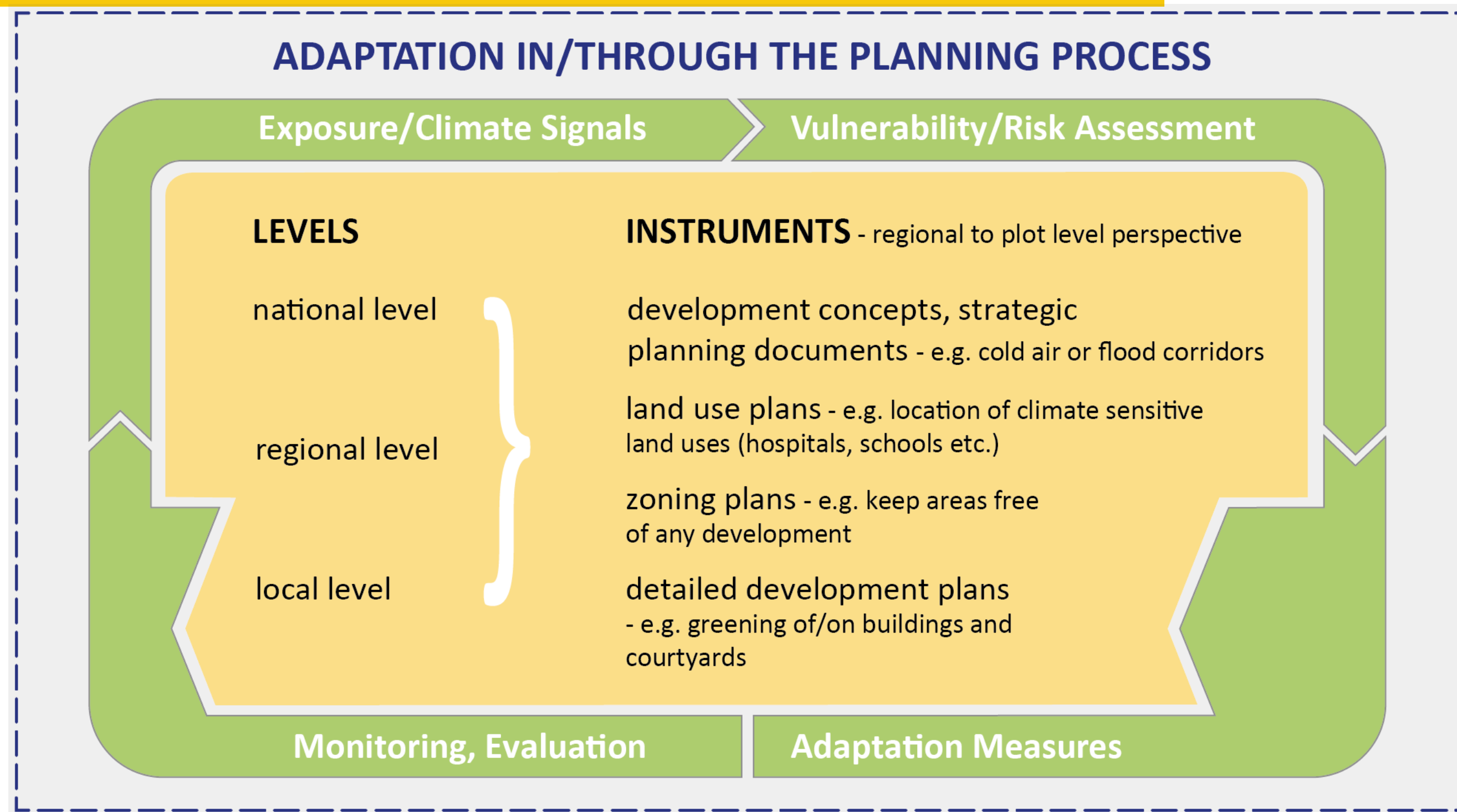
EXISTING OPERATIONALISATION



Source: Schindelegger et al. (2022)

- National Adaptation Strategies provide the general framework for developing adaptation measures to be implemented via spatial planning instruments
- It is necessary to develop sufficient capacities and competences in public administration to be able to develop and implement effective adaptation measures

EXISTING OPERATIONALISATION



- It is a prerequisite for adaptation measures to have sound knowledge of hazard exposure/climate signals as well as vulnerability and risk to be able to make informed decisions.

RESULTS – CAPACITIES AND COMPETENCES

- Legal: enhance instruments to better consider adaptation needs (indicators for monitoring, long-term orientation)
- Administrative: need for educational possibilities and according resources to ensure adaptation needs can be met
- Institutional: CCA coordination units need possibility to request action
- Technical: cities are the forerunners; experience needs to be collected and shared to enhance CCA practice in general
- Financial: need for effective systems to distribute funds (building on existing structures)

RESULTS – PLANNING PRACTICE

- Different priorities on different levels with a weak national planning level concerning CCA
- There is a sound information basis for some climate change impacts while for others the determination of proportional adaptation measures is difficult
- Resilience as an overall objective is not mainstreamed in day-to-day planning practice
- Existing planning instruments are increasingly used to safeguard climate services and adapt urban development to encounter climate change impacts
- There are hardly any evaluation and monitoring systems in place to help improve adaptation strategies and prioritise measures

RECOMMENDATIONS

- Develop adaptation pathways and improve sectoral cooperation
 - The concept of adaptation pathways describes that a system that is flexible and can adapt to changing conditions gets established.
 - This means, that planning has to mainstream data on hazard and climate risk in a consistent process into spatial planning on all levels. Priorities and necessities will change over time, while the overall objective of effective adaptation persists.
 - Such an approach needs continuous sectoral cooperation to understand and integrate dependencies of decisions.
E.g. Urban development vs. flood retention vs. ecological corridors
For this, it is important to develop adequate cooperation structures as there are no one-fits-all solutions.

RECOMMENDATIONS

- Identify dependencies of nature-based solutions
 - Any settlement structure depends on natural features (nature-based solutions) for so-called ecosystem and climate services (flood retention, water infiltration, biodiversity, cold air emergence, etc.)
 - Alpine core areas depend strongly on protective forest that is a prerequisite for any development (it protects roads, commercial and housing areas)
 - Spatial planning has to increasingly integrate such dependencies on nature-based solutions in planning documents (strategies as well as binding plans) and actually display the received services to highlight that they are managed and preserved

RECOMMENDATIONS

- Establish an iterative learning process
 - Adaptation activities need an appropriate monitoring and evaluation system to ensure that it is possible to enhance approaches and priorities; such monitoring systems and according indicators need to be still developed widely
 - Alpine cities are the forerunners in this process and implement a range of adaptation measures to handle climate change related challenges (heat islands, surface water management) and monitor impacts and effectiveness
 - National and regional planning levels need to be sensitive to adaptation experiences to be able to establish the right capacities and enhance overall adaptation strategies and revise legal foundations

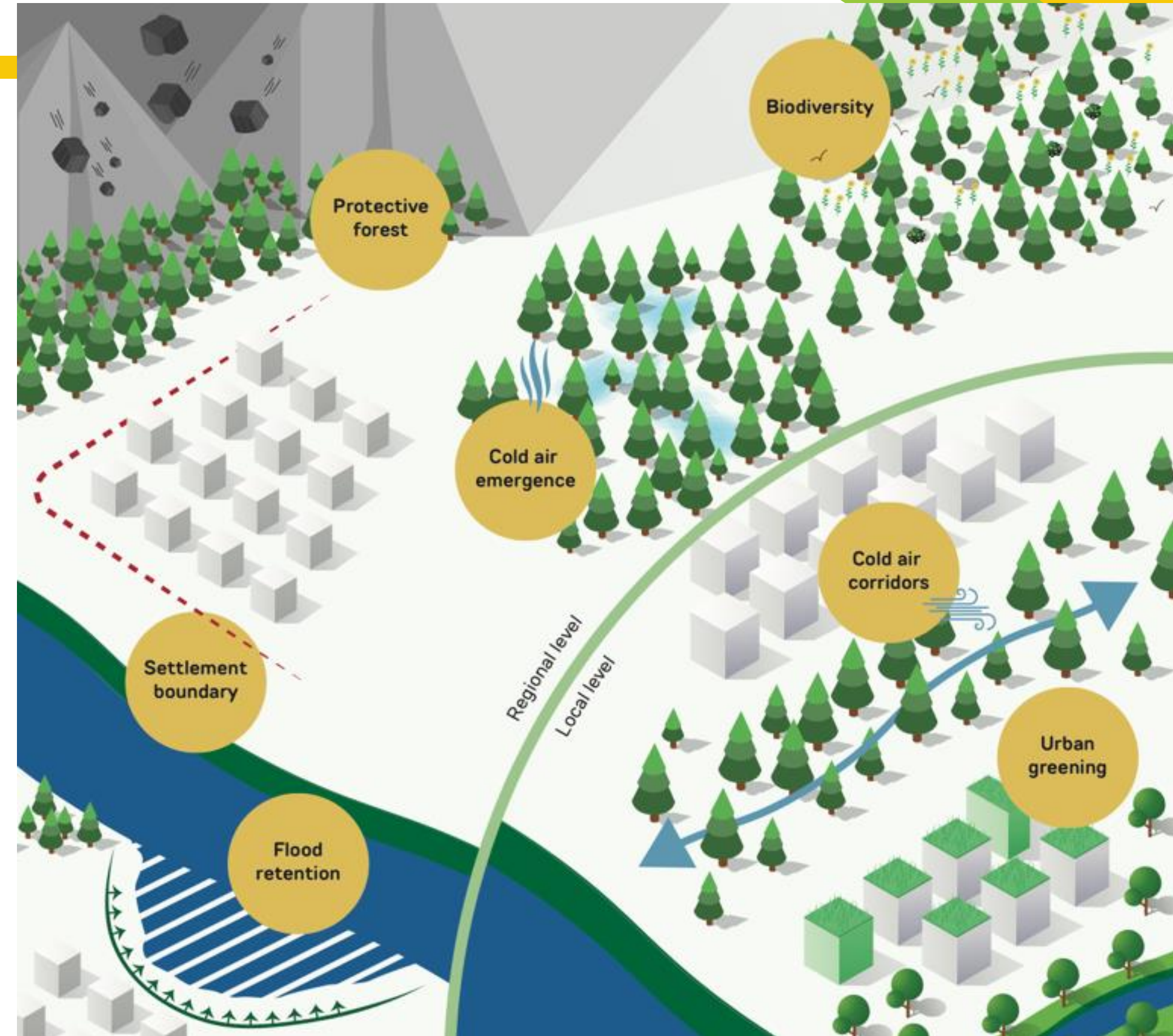
Further information and details under
<https://www.alpine-region.eu/results/climate-resilient-spatial-planning-alps>

Thank you for your attention!



ADAPTATION MEASURES IN PLANNING

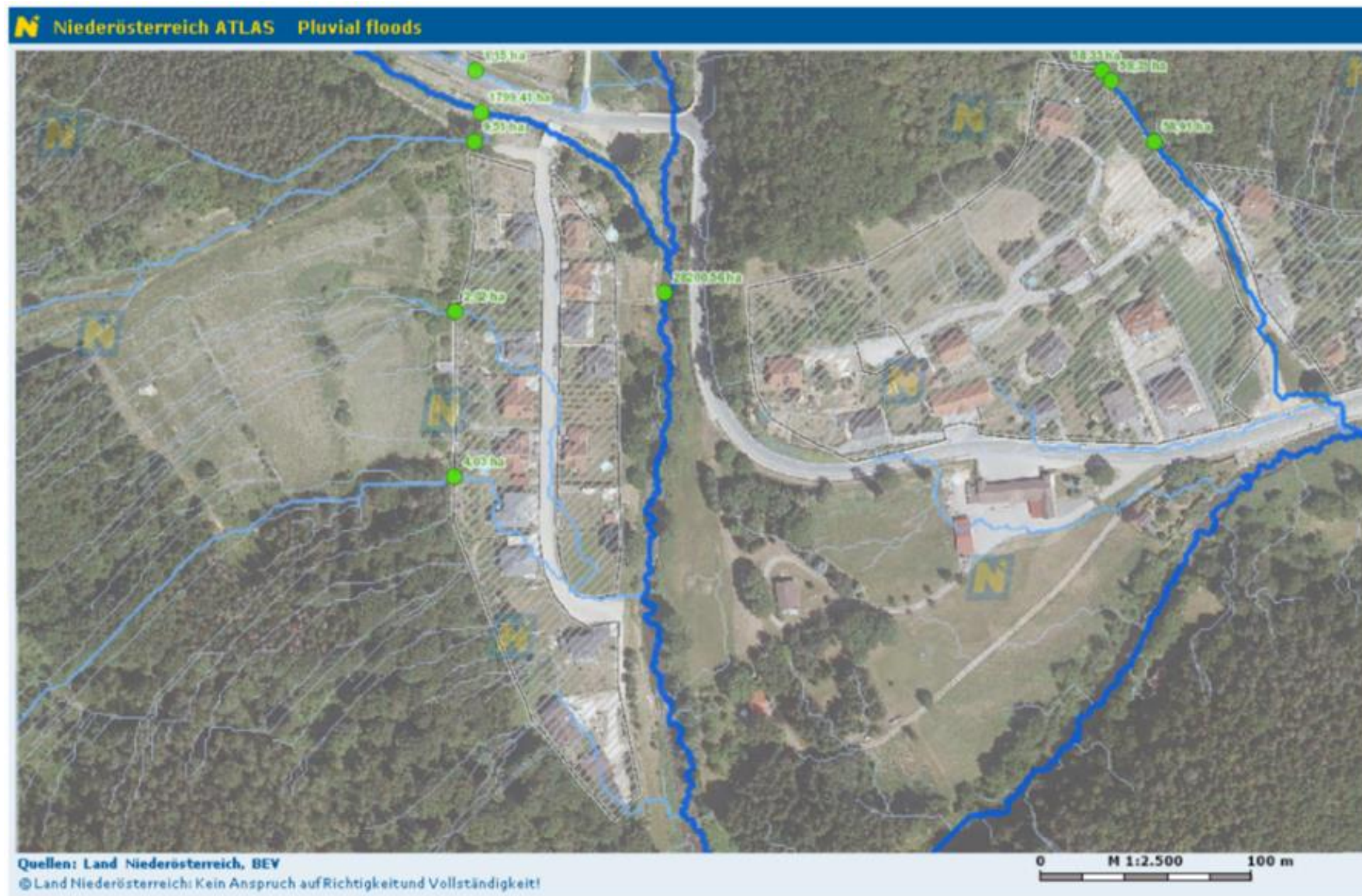
- Spatial planning can implement adaptation measures especially on regional and local level
- Areas that provide "climate services" need to be kept free of development
 - Protection (e.g protective forest)
 - Flood retention
 - Cold air emergence
 - Biodiversity
 - Soil protection (water infiltration, etc.)
- Built-up areas need to be developed in a climate-sensitive manner
 - Urban greening
 - Cold air corridors
 - Water retention/infiltration
 - Densification



Source: Schindelegger, Ertl (2022)

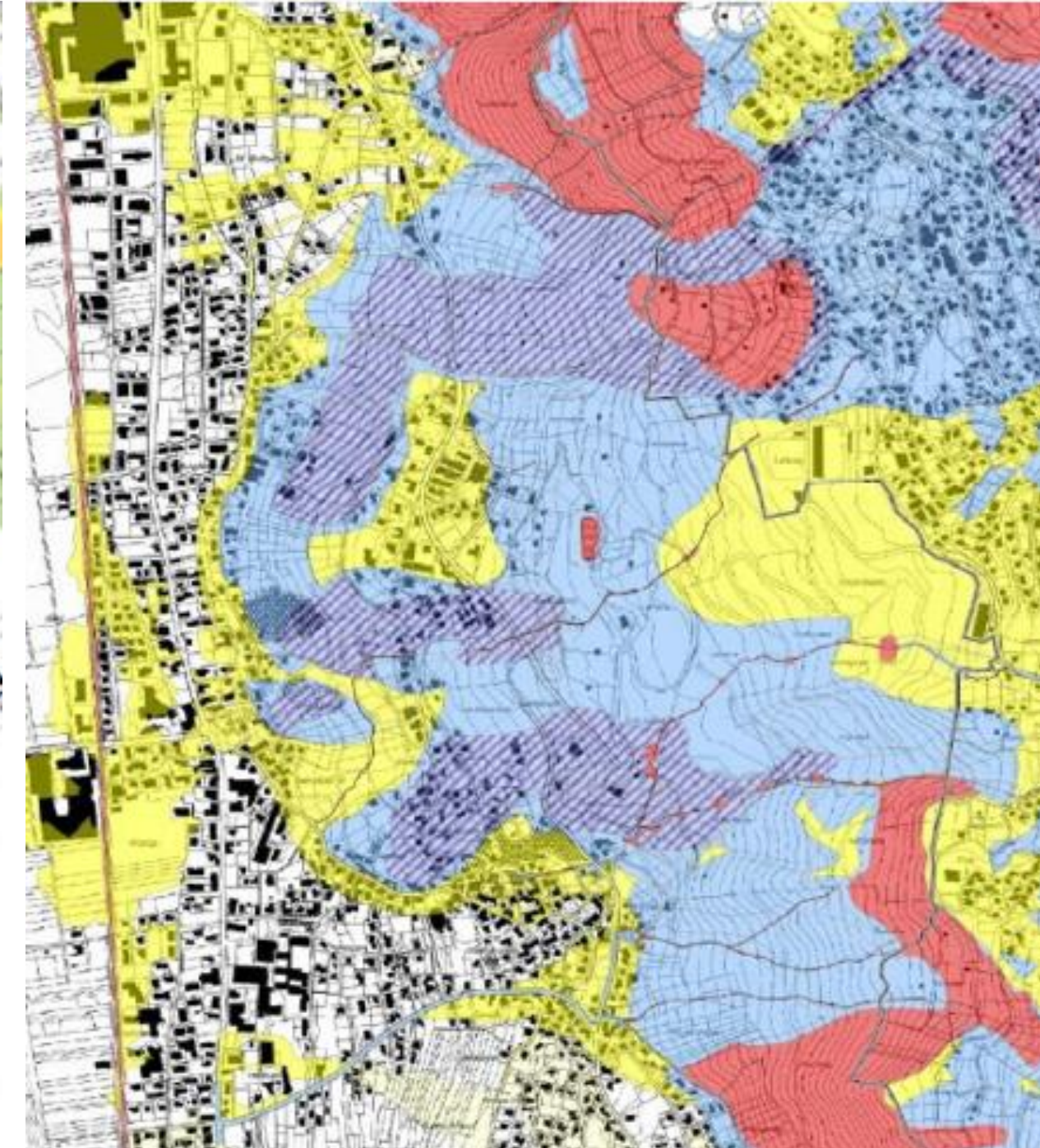
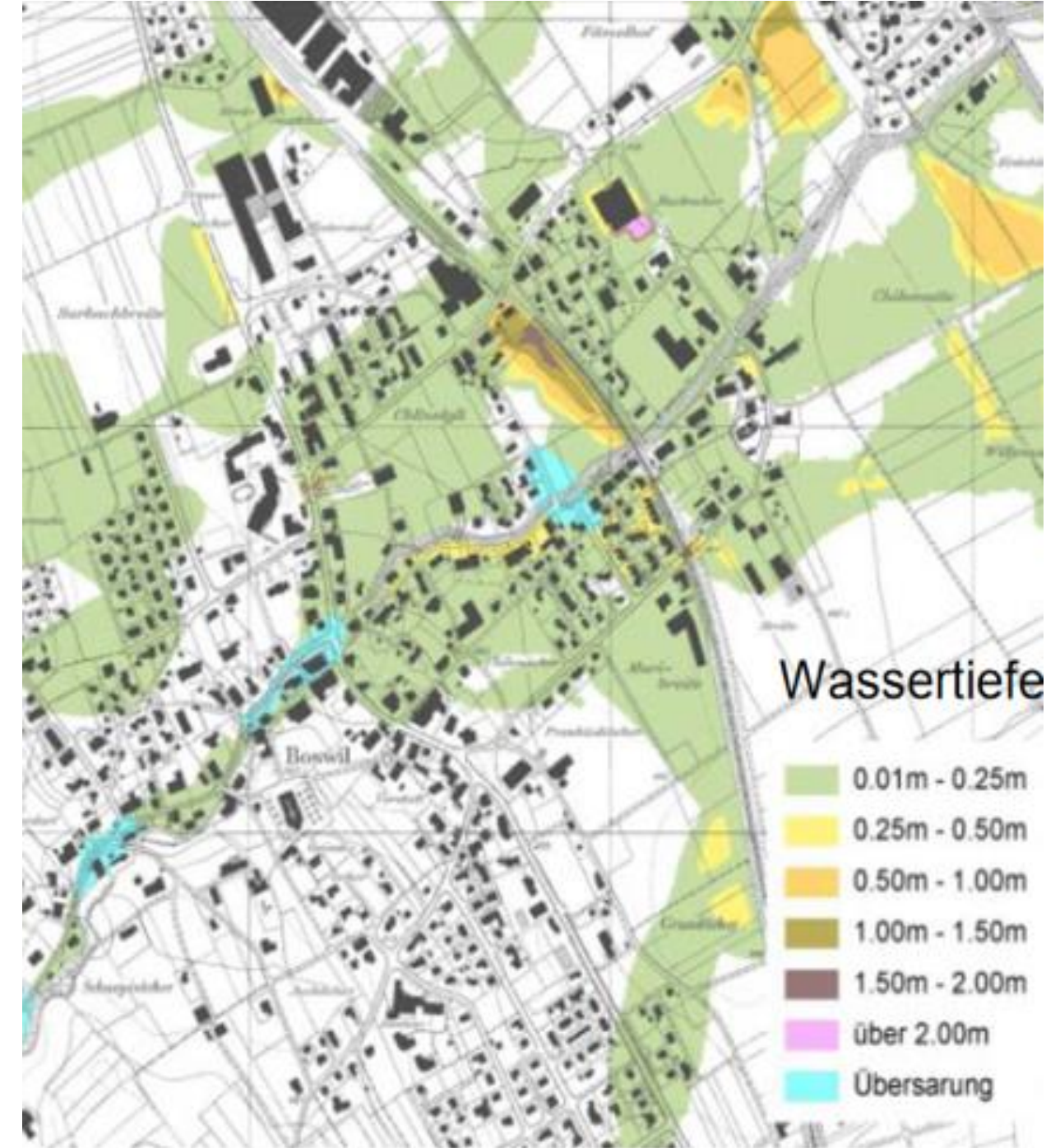
EXAMPLES, ANALYSIS OF EXPOSURE AND CLIMATE SIGNALS

- Hazard-relevant information: Pluvial flood map – *Lower Austria (AUT)*



EXAMPLES, ANALYSIS OF VULNERABILITY AND RISK

- Natural hazards: Hazard zones and intensity map (*ITA, CH, LIE*)



EXAMPLES, ADAPTATION MEASURES IN PLANNING

- Water resources: rainwater management and sponge city – *Munich and Regensburg (GER)*

