

What We Learned Across Five European Regions

Shared lessons for building climate resilience at regional and local level

Key lessons at a glance

1. Shared hazards, different impacts	2. Local-scale data is essential	3. Water is a cross-cutting concern
4. Governance and spatial planning matter	5. Preparedness saves lives and losses	6. Resilience must also be fair

ClimEmpower worked directly with five European pilot regions facing different geographical, climatic, social and economic conditions. Their experiences confirm that there is no single model of climate resilience that can simply be transferred from one region to another.

At the same time, several strong common messages emerged from the project.

Similar hazards, different vulnerabilities

Heatwaves, droughts, floods and wildfires are relevant across several ClimEmpower regions. Yet the consequences of these hazards vary substantially.

A heatwave may primarily become a public-health challenge in one location, while in another it may place additional pressure on energy systems or agriculture. Flood risk depends not only on rainfall, but also on settlement patterns, infrastructure, land use and soil sealing. Drought may affect drinking-water availability, groundwater resources, agricultural production or ecosystems differently from one region to another.

This is why ClimEmpower adopted a place-based approach. Regional climate resilience needs to reflect both climate information and the characteristics of the territory affected.

Better local data is critical

One of the clearest findings across the project was the need for information at a sufficiently local scale.

European and national climate datasets provide an essential basis for understanding climate change, but regional and local authorities often need more detailed information to support concrete decisions. Climate risk, population exposure, infrastructure, land use and resilience indicators become significantly more useful when they can be analysed at the scale at which planning and investment decisions are actually made.

ClimEmpower therefore explored approaches combining climate and meteorological information, Earth observation, socio-economic information, historical hazard records and locally relevant information.

Water connects many climate challenges

Water emerged as a particularly important cross-cutting issue.

Regional priorities included water stress, groundwater management, drought preparedness, storage capacity and flood risk. This demonstrates that water cannot be considered only within one policy sector. It links climate adaptation with agriculture, infrastructure, spatial planning, ecosystem management, health and economic development.

Among indicators assessed with stakeholders, issues such as groundwater overexploitation, water stress and multi-hazard early-warning coverage were rated particularly highly.

Governance and spatial planning are major resilience levers

Climate resilience is not achieved only through new technologies or infrastructure.

The ClimEmpower work highlighted the importance of governance, land-use management and spatial planning. Decisions that determine where and how development takes place can either increase future climate exposure or reduce it.

Managing soil sealing and land take, protecting vulnerable areas, modernising ageing infrastructure and integrating resilience into planning and investment decisions can therefore have long-term effects on regional vulnerability.

Preparedness remains essential

Even where climate hazards cannot be prevented, their impacts can be reduced.

Across regions and resilience dimensions, ClimEmpower repeatedly identified the importance of early-warning systems, emergency preparedness, institutional coordination and community capacity. Reliable information is most valuable when institutions and communities are also able to act on it.

Climate resilience must be inclusive

Another important lesson is that climate impacts are not distributed equally.

Older people, children, socially disadvantaged populations and other vulnerable groups may have fewer resources to prepare for, respond to or recover from climate impacts. Climate adaptation therefore needs to consider not only effectiveness, but also fairness.

The project emphasised the importance of Just Transition principles, including social equity, inclusion and the distribution of adaptation costs and benefits.

One action can deliver several benefits

Many effective adaptation measures can solve more than one problem.

For example, blue-green infrastructure can help manage flood risk while also reducing urban heat, supporting biodiversity and improving quality of life. Better spatial planning can reduce climate exposure while also protecting ecosystems and limiting future economic losses.

This leads to one of the main lessons from ClimEmpower:

The strongest climate-resilience actions combine scientific evidence, local knowledge, cross-sectoral planning and practical measures that generate benefits beyond climate adaptation alone.