



REDUCE POPULATION EXPOSURE THROUGH RISK-INFORMED LAND-USE, PROTECTION AND MANAGED ADAPTATION

Policy Brief

Name of Indicator: Percentage of population at high risk from natural hazards
Field of Application: Governance, Planning & Finance

This policy brief is part of the ClimEmpower policy recommendations, available from climempower.eu. It translates evidence and project findings into practical guidance for regional and local policymakers seeking to strengthen resilience to climate and other systemic disruptions. It focuses on the share of residents living in high-risk areas and the planning, protection and adaptation measures that can progressively reduce their exposure.

The main recommendation is to reduce the share of residents exposed to high-risk areas by integrating multi-hazard climate scenarios into land-use planning, zoning, building codes and investment decisions. This should combine structural and nature-based risk reduction with non-structural measures such as early warning, insurance and social protection, and with voluntary relocation where exposure cannot be adequately reduced.

Population Exposure & Risk-Informed Planning



Key Challenges

- Multi-hazard climate scenarios are not systematically integrated into land-use planning
- Residential development continues in areas of known or emerging hazard exposure
- Support for adaptation or relocation is often limited or fragmented



Good Practices

- Structural and nature-based risk reduction: drainage, retention areas, fire buffers, cooling corridors
- Non-structural measures: early warning, insurance and social protection
- Voluntary relocation support where exposure cannot be adequately reduced



Priority policy actions



Update hazard maps with climate projections

Ensure hazard maps reflect future climate scenarios, not only historical events, so exposure estimates remain accurate over time.



Identify high-risk population hotspots

Combine hazard and population data to pinpoint the areas and groups facing the highest exposure.



Adopt risk-based zoning and building requirements

Translate hazard information into binding zoning rules and building codes that limit new exposure.



Prioritise structural and nature-based protection

Direct investment toward flood, fire and heat measures — drainage upgrades, retention areas, fire buffers and cooling corridors — for critical routes and services.



Support retrofits and, where necessary, relocation

Design financial and technical support packages to help households adapt in place or relocate voluntarily when exposure cannot be reduced.

Implementation Roadmap

1

Phase 1 — Hazard assessment and exposure mapping

Update hazard maps with climate projections and combine them with population data to identify high-risk hotspots and the groups most exposed.

2

Phase 2 — Regulatory integration

Translate hazard information into risk-based zoning rules and building requirements that limit new exposure in high-risk areas.

3

Phase 3 — Protection and investment

Prioritise structural and nature-based protection measures for flood, fire and heat risks, safeguarding critical routes and essential services.

4

Phase 4 — Adaptation support and monitoring

Provide support packages for household retrofits and, where necessary, relocation, and monitor exposed population levels through post-event evaluation.

Funding

🌿 European Regional Development Fund (ERDF)

Can finance risk-informed spatial planning and protective infrastructure.

🌿 Cohesion Fund / national DRR programmes

Can support structural protection measures.

🌿 LIFE Programme

Can support nature-based risk reduction pilots.

🌿 Horizon Europe

Can fund multi-hazard risk modelling and adaptation research.

🌿 National relocation and retrofit schemes

Can further support household-level adaptation measures.



Conclusion

Reducing population exposure to natural hazards lowers casualties and damages, reduces displacement and improves equity by prioritising the most vulnerable communities.

It also encourages ecosystem-based risk reduction through floodplains, wetlands and green buffers, protecting sensitive areas from risky development.