Interreg CENTRAL EUROPE

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LOCALIENCE

POLICY GAPS ANALYSIS IN CLIMATE CHANGE INFLUENCED DISASTERS

D.1.2.3

Final Version

08 2025

TABLE OF CONTENT

Part I: Introduction - DRR policy development

Role of Policy in DRR: Policy and risk governance are key to managing disaster risk. Regional DRR policies are collaborative strategies among regional countries to mitigate disaster impacts collectively. They build resilience via coordinated prevention, early warning systems, best-practice sharing, joint training, and harmonized standards for building codes, land-use, and environmental management. This promotes cooperation, resource sharing, and risk reduction locally and across borders.

Historical Shift: Since the mid-1970s, policies shifted to anticipatory disaster management, viewing disasters as social rather than "acts of God." Pre-1970s efforts were reactive, e.g., UN Disaster Relief Office (1971). Transition via 1990s IDNDR and Yokohama Strategy (1994); UNISDR (2000, renamed UNDRR 2019); Hyogo Framework (2005); Sendai Framework (2015) with priorities on risk understanding, governance, and "Building Back Better." UN defines DRR as policy objective for risk management, urging shift "from crisis to risk management."

Globally, moving to prevention-based DRR is challenging; UNDRR advocates it since 1990s, but many countries remain response-focused. International guidelines shape national policies, but regional/local implementation faces political issues, intensified by more frequent disasters. Modern DRR is complex at all levels, requiring multi-stakeholder coordination and knowledge integration amid implementation hurdles.

Policies provide proactive frameworks to minimize hazards' impacts, integrating risk into governance. This framework involves:

- Strategic planning: Define roles for agencies, NGOs, private sector, communities for unified response and resource allocation.
- Risk assessment: Mandate data on hazards/vulnerabilities for evidence-based, multi-hazard interventions.
- Development integration: Embed DRR in plans for resilient infrastructure/urban/environment (prefer nature-based sollutions).
- Resource mobilization: Allocate funds and techniques for prevention, warnings, preparedness.
- Community empowerment: Promote awareness, education, participation.
- Legal frameworks: Enforce codes, establish institutions for management/resilience.

- International alignment: Comply with Sendai for collaboration, knowledge, funding.

Typology of gaps in DRR policy

When studying gaps in policies, some types may be found generally. The following non-exhaustive list draws attention to the most important from them, which were found in international documents:

- Policy does not exist in the given area, either partially or completely
- The policy is focused on an inappropriate goal, and key issues are not respected as priorities
- The policy is merely declarative and formal, and is not followed by a strategy and action plans, including resource allocation
- Insufficient allocation of resources (money, human work, time, technique, research etc.) to important domains
- Insufficient communication of policies both from the centre through local structures to the population as well as between resorts (e.g. ministries, regional offices etc.)
- Insufficient implementation and enforcement of policies, including inspection, resources allocation and existing evaluation tools (indicators)
- Policy is "one-way" communication and does not involve active feedback from the local to the central level
- Specifically for DRR: Insufficient multi-hazard, multi-level, multi-stakeholder (active) cooperation in policies
- Not braking silos. Silo mentality is, when departments or teams operate in isolation and this is one of the biggest threats to collaboration and efficiency. It creates communication gaps, duplicated work, and missed opportunities across an organization/system.

Part II: Policy gaps at global and European level

Part II.a: General policy gaps in global context

This part is based on open-access analysis of international documents and analyses gaps in policies related to Sendai Framework actions and European (EU focused) policies of crisis management and disaster risk reduction.

Disaster risk management (DRM) encompasses a broad spectrum of policies, strategies, and practices aimed at reducing the adverse impacts of natural and human-induced hazards on societies, economies, and environments. Globally and within Europe, DRM has evolved significantly since frameworks like the Hyogo Framework for Action (HFA, 2005-2015) and its successor, the Sendai Framework for Disaster Risk Reduction (2015-2030), were introduced.

However, persistent gaps in policies continue to undermine effectiveness, particularly as climate change intensifies hazards such as floods, storms, droughts, and extreme heat. This comprehensive overview draws on authoritative sources to detail the most critical policy gaps, their implications, and potential pathways forward, while highlighting interconnections between global and European contexts.

At the global level, one of the most pressing gaps is the insufficient investment in resilience-building measures, especially in developing countries, small island developing states (SIDS), and least developed countries (LDCs). Annual disaster costs, when accounting for indirect and ecosystem damages, surpass $2.3 trillion, dwarfing the $180-200 billion in direct losses reported between 2001 and 2020. Yet, investments in disaster risk reduction (DRR) remain disproportionately low, with Official Development Assistance (ODA) allocating only about 2% to DRR activities. This financing shortfall creates vicious cycles: recurrent disasters erode household incomes, deplete national assets, and redirect funds toward emergency relief rather than prevention. For instance, in regions like sub-Saharan Africa, benefit-cost ratios for DRR investments can reach 300% for droughts and 1,200% for storms, but policies often fail to prioritize these due to underestimation of long-term benefits. Low insurance penetration exacerbates this, leaving vulnerable populations with insufficient coverage[1].

Another significant global policy gap is the lack of coherence among international agendas. Frameworks like the Sendai Framework, the 2030 Agenda for Sustainable Development (particularly SDGs 11 and 13), the Paris Agreement, and the New Urban Agenda advance DRM in silos, overlooking synergies and interactions. For example, the Paris Agreement focuses on climate mitigation and adaptation, but neglects forced displacement from multi-hazards or the compounding effects of urbanization. This incoherence leads to fragmented implementation, where DRR is not systematically integrated into development policies, resulting in unsustainable practices like unsafe construction in hazard-prone areas.

Data and knowledge limitations further compound global gaps. Disaster impact datasets often exclude indirect losses or ecosystem damage, skewing trends and underrepresenting risks in low-income regions. There is a notable absence of standardized, accessible risk information connected to exposure and vulnerability metrics, which hinders prioritization and investment. Governance challenges, including accountability gaps with no enforceable sanctions for inaction, limited private sector engagement, and weak inter-sectoral collaboration, prevent effective policy execution. Additionally, social inequalities amplify vulnerabilities; women, for instance, face heightened risks due to restricted access to resources and

[1] https://www.undrr.org/gar/gar2025

decision-making, as seen in many disaster contexts. Global differences in wealth, political systems, and governance quality exacerbate these issues, with poorer nations lacking skills for loss assessments and coordination among DRR sectors. Emerging challenges, such as digital infrastructure gaps and reliance on connectivity for early warning systems, also demand attention[2],[3],[4],[5].

In Europe, policy gaps mirror some global issues but are shaped by the region's advanced institutional frameworks, such as the European Union Civil Protection Mechanism and the European Forum for Disaster Risk Reduction (EFDRR) Roadmap 2021-2030. A core challenge is in assessing and managing multi-hazard risks, where stakeholders highlight interconnected barriers: governance silos, limited knowledge of multi-risk dynamics, outdated single-hazard approaches, poor science-to-policy translation, and data deficiencies. Path dependency—rooted in historical focus on individual hazards like floods or earthquakes—impedes the shift to integrated frameworks, despite the increasing frequency of compound events driven by climate change.

Disaster loss data management represents another critical gap in Europe. Practices vary across EU Member States, with inconsistencies in collection, standardization, and sharing, leading to incomplete datasets that fail to inform policy effectively. For example, while some countries have robust systems, others lack comprehensive coverage, resulting in gaps that underscore the need for up-to-date, comparable data to support decision-making. National disaster risk assessments also suffer from low comparability, with categories like natural hazards, major accidents, infrastructure disruptions, and antagonistic threats defined differently across countries such as Sweden or others. Vulnerability approaches vary, with eight European countries (e.g., those studied in recent analyses) inconsistently incorporating social, economic, and physical dimensions, often overlooking dynamic factors like migration or aging populations.

The interface between science and policy remains underdeveloped in Europe, with knowledge gaps in areas like multi-hazard characterization and forensic analysis of disasters. The EFDRR Roadmap, building on HFA reviews, identifies persistent issues from past implementations, such as weak sectoral integration of DRR and limited stakeholder involvement, while emphasizing lessons from COVID-19 for enhanced resilience. Europe's disasters disproportionately affect vulnerable communities, increasing poverty and inequality, yet resilience financing lags, with urgent calls to scale up investments. Regional platforms like EFDRR aim to address these by identifying shared gaps, but challenges in coordination and transboundary cooperation persist.

To illustrate comparisons, the following table summarizes key policy gaps:

Aspect	Global Gaps	European Gaps
Financing & Investment	Inadequate resilience funding; low insurance in developing countries.	Need for increased climate resilience investments targeting vulnerable groups.
Data & Knowledge	Skewed datasets; lack of standardization and accessibility.	Inconsistent losses data; science-policy gaps.

[2] https://www.undrr.org/publication/closing-climate-and-disaster-data-gaps-new-challenges-new-thinking
[3] https://www.sciencedirect.com/science/article/pii/S2212420925001682
[4] https://pmc.ncbi.nlm.nih.gov/articles/PMC6698101/
[5] https://unu.edu/ehs/commentary/global-un-meeting-disaster-risk-reduction-three-important-discussions-follow

Aspect	Global Gaps	European Gaps
Governance & Integration	Accountability deficits; sectoral silos.	Multi-hazard challenges; path dependency.
Coherence & Equity	Fragmented international agendas; gender vulnerabilities.	Varying vulnerability definitions; inequality impacts.

Addressing these gaps requires a multifaceted approach. Globally, recommendations include democratizing risk data with AI tools, mainstreaming DRR in budgets, and innovating insurance mechanisms like debt-for-resilience swaps. In Europe, promising steps involve developing common terminologies, comprehensive multi-hazard frameworks, and enhanced stakeholder engagement via platforms like EFDRR. Overall, bridging these gaps demands empathy toward diverse stakeholders, acknowledging controversies in resource allocation, and prioritizing primary sources for evidence-based action to foster a resilient future.

Key Citations for this part:

- Global Assessment Report (GAR) 2025 - UNDRR: https://www.undrr.org/gar/gar2025
- Enablers and barriers to implementing effective disaster risk reduction: https://www.sciencedirect.com/science/article/pii/S2212420925001682
- International Frameworks for Disaster Risk Management - IE University: https://www.ie.edu/insights/disaster-risk-management/prevention-and-mitigation/international-frameworks-for-disaster-risk-management/
- Challenges in assessing and managing multi-hazard risks: https://www.sciencedirect.com/science/article/pii/S1462901124001084
- Closing the Gaps in Disaster Risk Reduction and Women, Peace and Security: https://spfusa.org/publications/closing-the-gaps-in-disaster-risk-reduction-and-women-peace-and-security-in-japan/
- Europe Urgently Needs to Increase Its Disaster and Climate Resilience - World Bank: https://www.worldbank.org/en/news/press-release/2024/05/15/europe-urgently-needs-to-increase-its-disaster-and-climate-resilience
- Second update on Preventing and managing disaster risk in Europe: https://ec.europa.eu/echo/files/civil_protection/swd_2025_279_second_update_preventing_managing_disaster_risk_in_europe.pdf
- Approaches to 'vulnerability' in eight European disaster management systems: https://pmc.ncbi.nlm.nih.gov/articles/PMC9324098/

Part II.b: European Forum for Disaster Risk Reduction (EFDRR) and its Roadmap 2021-2030

The European Forum for Disaster Risk Reduction (EFDRR) is the main intergovernmental forum for addressing regional disaster risk challenges in Europe and Central Asia, comprising 55 countries. Held every three years, the EFDRR gathers stakeholders across governments, civil society, and the private sector, enabling knowledge-sharing and making commitments to reducing disaster risk tangible. The 2021 EFDRR, which was held in Matosinhos, Portugal, in November 2021, culminated in the endorsement of the 'EFDRR Roadmap for Disaster Risk Reduction 2021-2030', which identifies four shared priority areas for achieving the priorities of the Sendai Framework for Disaster Risk Reduction 2015-2030. These priority areas correspond to identified needs and reflect gaps in policies.

The primary aim of Roadmap is to foster a disaster-resilient region by 2030, addressing shared gaps, challenges, and opportunities in disaster risk reduction (DRR). It promotes risk-informed, gender-responsive, age-sensitive, and inclusive policies while facilitating regional collaboration and knowledge-sharing to implement the Sendai Framework effectively.

Structured around four priority areas aligned with the Sendai Framework, the Roadmap includes 16 action areas for investment and development, plus five enabling approaches to support implementation. It emphasizes transformative elements like scenario simulations, disaggregated data, and new technologies to shift from reactive to proactive DRR.

Recent Developments

As of the 2024 Regional Platform in Budva, Montenegro (November 6-8, 2024), assessments of the Roadmap's progress were conducted, focusing on community empowerment and resilience-building. Outcomes included political declarations and calls to action on **youth resilience** and earthquake risks, indicating ongoing efforts to accelerate Sendai Framework goals. Updates are tracked on platforms like PreventionWeb[6].

The EFDRR Roadmap 2021-2030 represents a pivotal strategic document for advancing disaster risk reduction (DRR) in Europe and Central Asia, encompassing 55 countries with diverse risk profiles ranging from climate-induced hazards to technological and systemic threats. Developed under the auspices of the European Forum for Disaster Risk Reduction (EFDRR)—a multi-stakeholder platform co-chaired by the European Commission, Council of Europe, and United Nations Office for Disaster Risk Reduction (UNDRR)—the Roadmap was endorsed during the 2021 EFDRR session. This endorsement followed broad consultations with national focal points, experts, and stakeholders, including a symbolic signing of the Prevention Pledge by ministers to prioritize disaster prevention and resilience. The document builds directly on the Hyogo Framework for Action (HFA) reviews, the previous EFDRR Roadmap 2015-2020, lessons from the Covid-19 pandemic, and alignments with global agendas such as the Sendai Framework for Disaster Risk Reduction 2015-2030, the Paris Agreement, and the Sustainable Development Goals (SDGs).

At its core, the Roadmap seeks to achieve a disaster-resilient European and Central Asian region by 2030, emphasizing a paradigm shift toward understanding and managing systemic, interconnected risks amid evolving challenges like climate change, demographic shifts, digital transitions, and green economy pursuits. It addresses persistent gaps identified in prior implementations, such as:

[6] https://www.preventionweb.net/commitment/efdrr-roadmap-2021-2030

- weak sectoral integration of DRR,
- limited stakeholder involvement,
- fragmented data systems,
- and insufficient financing for resilience-building.

By promoting inclusive, evidence-based, and collaborative approaches, the Roadmap aims to reduce vulnerabilities—particularly for marginalized groups like women, children, the elderly, persons with disabilities, and migrants—while fostering sustainable development and preventing cascading disasters. Key transformative opportunities highlighted include the use of advanced technologies such as artificial intelligence (AI), big data, earth observations, and scenario simulations to enhance risk monitoring and decision-making.

The structure of the Roadmap is methodical, centered on four shared priority areas that mirror the Sendai Framework's priorities: understanding disaster risk, strengthening governance, investing in resilience, and enhancing preparedness and recovery. Each priority area is broken down into four action areas, totaling 16 common areas for development and investment, designed to translate high-level goals into tangible, actionable steps at regional, national, and local levels. Complementing these are five enabling approaches that provide cross-cutting support, ensuring coherence, inclusivity, and adaptability. The document also incorporates monitoring mechanisms, such as the Sendai Framework Monitor, to track progress across seven global targets and 38 indicators, facilitating data-driven adjustments.

To illustrate the Roadmap's framework, the following table outlines the four priority areas, their associated gaps/challenges, transformative opportunities, and the 16 action areas:

Priority Area	Gaps/Challenges	Transformative Opportunities	Action Areas
1. Understanding and Communicating Existing, Emerging, and Future Systemic Risks	Fragmented stakeholder understanding; difficulties integrating climate scenarios, demographics, and socioeconomic variables; reliance on historical data alone skewing predictions.	Scenario simulations, earth observations, big data, AI for probabilistic modeling and horizon scanning; shared frameworks like Sendai Monitor, Making Cities Resilient 2030, INFORM Risk Index.	1. Invest in inclusive tools and disaggregated data for risk identification, including climate scenarios. 2. Advance monitoring of risks and lessons, focusing on vulnerable groups. 3. Improve coherence with global agendas (Sendai, Paris, SDGs). 4. Build inclusive systems for systemic risks.
2. Inclusive and Collaborative Systems for	Limited engagement of non-traditional actors and marginalized groups; fragmented terminology	All-of-society approaches via conventions (e.g., UNCRPD); regional peer reviews, stress tests;	1. Institutionalize multi-stakeholder, inclusive governance at all levels. 2. Systematize

Priority Area	Gaps/Challenges	Transformative Opportunities	Action Areas
Governance and Decision-Making	and isolated policies; challenges in transboundary cooperation.	multi-stakeholder platforms for cross-sectoral collaboration.	evidence-based decision-making. 3. Strengthen transboundary capacity-building and actions. 4. Support inclusive protection and safety nets.
3. Supporting Investments in Resilience	Ageing infrastructure vulnerable to cyber and climate risks; budgeting that undervalues resilience as a public good; difficulties in pricing and financing risks.	Sustainable financing strategies, green/resilient taxonomies; alignment with ESG investments; system-wide regional support.	1. Invest in protecting critical infrastructure from cascading risks. 2. Leverage transparent, sustainable investments for inclusive DRR. 3. Strengthen budgets and regulations for DRR. 4. Establish standards for sustainable financing.
4. Preparedness for Response and Resilient Recovery	Need for transboundary approaches to multi-country risks; limited inclusion in responses; systemic risks exposed by Covid-19.	GIS, earth observations, big data advances; all-of-society collaborations; resilient recovery via green deals.	1. Invest in multi-hazard early-warning systems. 2. Strengthen inclusive preparedness for complex emergencies. 3. Apply Covid-19 lessons for pandemics and recovery. 4. Develop tools for building back better.

This table draws from the Roadmap's detailed sections, emphasizing how each priority addresses interconnected risks while promoting equity and innovation.

The five enabling approaches further underpin the framework by advocating for:

(1) all-of-society, inclusive methods to engage diverse actors and foster a "new social contract" on resilience as a public good;

(2) coherent integration with global agendas to reduce strategy fragmentation;

(3) system-wide protection of critical infrastructure against integrated risks like cyber threats;

(4) evidence-based practices using disaggregated and geospatial data for future-oriented planning; and

(5) regional, local, and contextualized strategies tailored to specific conditions, including peer reviews and benchmarking.

A notable quote from the document underscores this: "Resilience is a public good; it is the joint responsibility of governments, the private sector and civil society to ensure that everyone benefits from investments in resilience and that no one is left behind."

Implementation of the Roadmap has progressed through periodic events and dialogues. For instance, action-oriented dialogues in 2023 examined stakeholder experiences in community engagement and local DRR, held in countries like Romania, Croatia, and Greece. The 2024 Europe and Central Asia Regional Platform in Budva, Montenegro (November 6-8, 2024), themed "Empowering communities, building resilience," directly assessed Roadmap progress, involving 55 member states and partners like UNDP and the European Commission. Key outcomes included a Political Declaration, a Call to Action on Earthquake Risk from Montenegro, and a Road to Resilience for Children and Youth, all aimed at accelerating Sendai Framework targets. These efforts highlight ongoing challenges, such as enhancing data coherence and financing, while opportunities for shared learning via platforms like the Sendai Framework Voluntary Commitments Initiative continue to evolve.

Recommendations within the Roadmap stress investments in technologies for risk assessment, institutionalizing inclusive governance, leveraging sustainable financing, applying pandemic lessons, and promoting regional collaborations. It encourages the development of guidelines, normative standards, and voluntary tools to support local actions and transboundary coherence, with a focus on addressing inequalities and building adaptive capacities. As debates around DRR evolve — particularly on balancing immediate response with long-term prevention — the Roadmap remains a dynamic tool, with future forums expected to refine its approaches based on emerging risks like those from digital dependencies and climate extremes. Overall, it positions EFDRR as a leader in fostering empathetic, diplomatic, and evidence-driven resilience strategies that acknowledge complexities and stakeholder diversities.

Key Citations

- EFDRR Roadmap 2021-2030 - UNDRR: https://www.undrr.org/efdrr-roadmap-2021-2030
- European Forum for Disaster Risk Reduction: Roadmap 2021-2030 - UNDRR: https://www.undrr.org/publication/european-forum-disaster-risk-reduction-roadmap-2021-2030
- EFDRR RoadMap 2021-2030 - PreventionWeb: https://www.preventionweb.net/commitment/efdrr-roadmap-2021-2030
- European Forum for Disaster Risk Reduction: Roadmap 2021-2030 - UN Women: https://wrd.unwomen.org/practice/resources/european-forum-disaster-risk-reduction-roadmap-2021-2030
- European Forum for Disaster Risk Reduction Roadmap 2021-2030 PDF: https://efdrr.undrr.org/2021/sites/default/files/2022-01/EFDRR%20Roadmap%202021-2030.pdf
- EFDRR Roadmap 2021-2030 - UNDRR (Browse): https://www.undrr.org/efdrr-roadmap-2021-2030
- EFDRR: 2024 Europe and Central Asia Regional Platform: https://efdrr.undrr.org/2024

- 2021 European Forum for Disaster Risk Reduction (EFDRR) - RIMMA: https://rimma.org/2021-european-forum-for-disaster-risk-reduction-efdrr
- Disaster Risk Reduction and Open Data Newsletter: February 2023 - CODATA: https://codata.org/blog/2023/02/13/disaster-risk-reduction-and-open-data-newsletter-february-2023-edition/

Summary: Key Points on Gaps in Disaster Risk Management Policies at International Level

- Research results suggests that globally, a primary gaps are in insufficient investments and risk financing, particularly in developing regions where disaster costs far outpace available resources, leading to repeated cycles of debt and vulnerability.
- It seems likely that accountability mechanisms are weak worldwide, with limited enforceable incentives (or sanctions) for proactive risk reduction, hindering effective implementation of measures.
- Evidence leans toward data limitations and lack of standardized risk information as major barriers, skewing global understanding of disaster patterns and impeding informed policies.
- In Europe, challenges in multi-hazard risk management and governance structures appear prominent, with path dependencies favoring single-hazard approaches over integrated ones (multi-hazards, complex hazards).
- The evidence indicates that European policies often suffer from inconsistent data collection on disaster losses, reducing comparability and effectiveness in decision-making at European level.
- Both globally and in Europe, there's ongoing debate around integrating DRR into broader agendas like climate action, with coherence gaps potentially exacerbating inequalities for vulnerable groups.

Global Policy Gaps

Globally, disaster risk management (DRM) policies face significant hurdles in aligning with escalating risks from climate change and urbanization. A key issue is the mismatch between rising disaster impacts—estimated at over $2.3 trillion annually when including indirect costs—and inadequate resilience investments, especially in low-income countries where insurance coverage is minimal. Policies often prioritize response over prevention, lacking integration into financial systems and development planning. Additionally, barriers like limited collaboration between sectors and poor information sharing prevent effective governance. For more details, see reports from UNDRR[7] and IE University[8].

European Policy Gaps

In Europe, DRM policies struggle with transitioning to multi-hazard frameworks, where governance silos and path dependencies limit holistic risk assessments. Data gaps, particularly in comparable loss assessments across member states, undermine policy coherence and response planning. Vulnerabilities

[7] https://www.undrr.org/gar/gar2025

[8] https://www.ie.edu/insights/disaster-risk-management/prevention-and-mitigation/international-frameworks-for-disaster-risk-management/

are inconsistently addressed, with varying definitions across countries affecting targeted interventions. The EU emphasizes increasing resilience for vulnerable communities, but financing and science-policy translation remain underdeveloped. Resources include the EU Knowledge Network and World Bank insights.

Overlaps and Recommendations

Common to both levels (global and EU) is the need for better data standardization and cross-sector integration to address inequities, such as those affecting women and marginalized groups. Recommendations include enhancing anticipatory financing, promoting coherence in international agendas like the Sendai Framework, and leveraging regional platforms for shared learning. These steps could help bridge gaps, fostering a shift from reactive to proactive strategies.

Resources:

https://civil-protection-knowledge-network.europa.eu/knowledge-network-science/knowledge-gaps

https://www.worldbank.org/en/news/press-release/2024/05/15/europe-urgently-needs-to-increase-its-disaster-and-climate-resilience

https://www.sciencedirect.com/science/article/pii/S1462901124001084

https://ec.europa.eu/echo/files/civil_protection/swd_2025_279_second_update_preventing_managing_disaster_risk_in_europe.pdf

https://pmc.ncbi.nlm.nih.gov/articles/PMC9324098/

https://www.worldbank.org/en/news/press-release/2024/05/15/europe-urgently-needs-to-increase-its-disaster-and-climate-resilience

Part II.c: Key gaps in the policy of collaboration between professional and civic actors found in international documents

One of the specific objectives of the LOCALIENCE project was an evaluation of cooperation between professional and civic actors in disaster management, and this is why a special focus was oriented at gaps in policy in this context. In Part II of this document, general analysis methodologically based on freely available documents and focused on identified gaps in the policies of cooperation between professional and non-professional actors in disaster relief was done.

Disaster and crisis management increasingly relies on the interplay between professional responders—such as emergency services, healthcare providers, and government officials—and non-professional participants, including organized volunteers, spontaneous volunteers, community organizations, and ordinary citizens. While non-professionals bring flexibility, local knowledge, and surge capacity, their integration with structured professional systems often reveals significant gaps in collaboration. These gaps can lead to inefficiencies, heightened risks, and suboptimal outcomes, as seen in various global case studies from earthquakes to hurricanes. This detailed examination draws on empirical research, policy analyses, and practical insights to outline the most critical gaps, their underlying causes, implications, and potential pathways for improvement.

Conceptual Framework for Understanding Gaps

Collaboration in crisis management can be framed through models like the Health Belief Model or systems-based approaches, which highlight factors such as perceived severity, social capital, and operational integration. Professionals typically operate within hierarchical, command-and-control structures, emphasizing standardization and accountability, whereas non-professionals often emerge spontaneously, driven by altruism and community ties. This mismatch creates friction points, exacerbated by the chaotic nature of crises where time-sensitive decisions amplify small oversights into major issues.

Major Gaps in Collaboration

The following points outlines the most important gaps, supported by evidence from diverse contexts like the 2007 Niigataken Chuetsu-oki Earthquake in Japan, Hurricane Michael in the U.S., and natural disasters in Iran.

1. **Communication and Information Sharing Barriers:** Uneven dissemination of information is a primary gap, where professionals rely on official channels, while non-professionals turn to social media or informal networks like WhatsApp, Facebook etc. This leads to mutual distrust, exclusion, and misinformation. For example, in post-Hurricane Michael recovery, unaffiliated volunteers lacked access to updates on Volunteer Reception Centers (VRCs), resulting in independent operations that sometimes conflicted with official efforts. Similarly, in Iranian hospital responses, fragmented communication caused chaos, with volunteers overwhelming facilities without clear directives. Causes include pre-existing network silos and the absence of centralized platforms for real-time sharing, which can delay response times and erode trust.
2. **Policy and Regulatory Deficiencies:** A core issue is the lack of coherent policies for integrating non-professionals, often influenced by political, ethnic, or elite factors. Globally, emergency plans frequently omit annexes for volunteer management, with no national standards for unaffiliated participants. Legal challenges, such as unclear liability and insurance for spontaneous volunteers, deter collaboration, as professionals fear risks from untrained individuals. This gap is widened by the absence of pre-event legislation, leaving ad-hoc responses that prioritize control over inclusion.
3. **Trust and Perceptual Differences** Professionals often perceive non-professionals as "unpredictable nuisances" or noncompliant, while volunteers feel excluded or undervalued. In some disaster contexts, affiliated actors viewed unaffiliated volunteers as deliberately opting out of government processes, ignoring barriers like lack of

awareness. Cultural clashes arise from hierarchical mismatches: professionals favor command structures, whereas volunteers prefer participatory approaches. Past experiences, such as government inaction, further erode trust, as seen in faith leaders' disillusionment during Hurricane Michael.

4. **Resource Management and Coordination Inefficiencies** Ineffective resource exchange leads to duplication, waste, and impeded aid. Voluntary Organizations Active in Disaster (VOADs) networks reveal that routine pre-disaster interactions predict better coordination, but organizations rarely assess these, missing opportunities to integrate "pillar" groups. Spontaneous volunteers can cause secondary issues, like improper donations (e.g., dumping unusable items), distracting professionals from core tasks. In long-term recovery, gaps in sustaining motivation led to volunteer dropout, straining resources.

5. **Training, Capacity, and Skill Mismatches** Non-professionals often lack disaster-specific knowledge, posing risks and inefficiencies. Professionals are overstretched, unable to supervise effectively, while volunteers face psychological stress or inadequate equipment. Studies highlight gaps in pre-disaster training, such as drills or codes of conduct, which could build social capital and coherence. For instance, in earthquake responses, higher community sense of coherence correlated with better collaboration, but low training levels marginalized volunteers.

6. **Fatigue, Sustainability, and Long-Term Engagement** Disaster fatigue affects both sides, with repeated events reducing participation. Gaps in post-incident follow-up, like debriefing or recognition, discourage sustained involvement. In recovery phases, unmanaged convergence overwhelms systems, leading to burnout and fragmented efforts.

Table: Summary of Key Gaps, Causes, and Examples

Gap Area	Primary Causes	Examples from Crises	Potential Impacts
Communication Barriers	Siloed channels, lack of centralized platforms	Hurricane Michael: Delayed VRC info led to independent actions	Distrust, misinformation, delayed aid
Policy Deficiencies	Fragmented regulations, political influences	Iran disasters: No coherent volunteer plans caused chaos	Inefficiencies, legal risks
Trust Issues	Perceptual mismatches, past betrayals	U.S. recoveries: Volunteers seen as noncompliant	Exclusion, reduced participation
Resource Inefficiencies	Poor network assessments, ad-hoc exchanges	VOAD networks: Duplication in resource sharing	Waste, operational disruptions
Training Mismatches	Absent pre-event education, skill gaps	Japan earthquake: Low SOC hindered collaboration	Safety hazards, inefficiency
Sustainability Gaps	Fatigue, no follow-up mechanisms	Long-term recoveries: Volunteer dropout post-event	Burnout, weakened resilience

Underlying Factors and Contextual Variations

Factors like perceived disaster severity and community social capital influence collaboration depth. In developing contexts, political divides widen gaps, while in advanced systems, bureaucratic rigidity prevails. Technologies offer bridges—e.g., crisis mapping volunteers—but require integration to avoid silos.

Implications for Crisis Management

These gaps can transform volunteers from assets to liabilities, creating health/safety issues, or distracting professionals. Broader effects include eroded public trust, slowed recovery, and missed resilience opportunities. In man-made crises, security adds layers of complexity.

Recommendations for Bridging Gaps

Strategies include systems-based planning with functional decomposition for volunteer integration, pre-event training, and intermediate organizations to link groups. Policies should emphasize legal clarity, joint exercises, and technology use. Building social capital through community engagement can foster proactive partnerships. Ultimately, shifting from viewing non-professionals as "freelancers" to essential partners requires cultural and structural reforms.

Summary of Collaboration Policy Gaps

Research suggests that communication barriers, such as uneven information sharing and reliance on informal channels like social media, often lead to distrust and exclusion between professionals and non-professionals in crisis management. It seems likely that policy and planning deficiencies, including the absence of coherent integration strategies, exacerbate inefficiencies and create "crises within crises" during responses. Evidence leans toward trust and perceptual issues, where professionals may view volunteers as unpredictable, while non-professionals feel undervalued or sidelined, hindering effective partnerships. Studies indicate that resource mismanagement, like duplication of efforts or mismatched allocations, stems from poor coordination and can waste valuable assets in high-stakes scenarios.

Overview of Collaboration Challenges

Collaboration between professional responders (e.g., emergency managers, healthcare workers, and government agencies) and non-professional participants (e.g., spontaneous volunteers, community groups, and citizens) is crucial for effective crisis management, yet persistent gaps undermine outcomes. These issues are evident in disasters like hurricanes, earthquakes, and pandemics, where non-professionals can provide rapid, local support but often clash with structured professional systems. For instance, during Hurricane Michael in 2018, unaffiliated volunteers faced delays in integration due to slow setup of Volunteer Reception Centers. Addressing these requires pre-event planning and inclusive frameworks.

Common Implications

Such gaps can result in secondary problems, like safety risks or operational disruptions, but opportunities exist through technology and community building to bridge them. Resources like the UNDRR guidelines emphasize inclusive approaches to mitigate these challenges.

Key Citations for this part

- Relationships Between Affiliated and Unaffiliated Disaster Response Volunteers: https://hazards.colorado.edu/quick-response-report/relationships-between-affiliated-and-unaffiliated-disaster-response-volunteers
- Resource exchange patterns between Voluntary Organizations Active in Disaster (VOADs): https://www.sciencedirect.com/science/article/pii/S2212420924002176
- The Policy Gap and Inefficiency in Public Volunteers' Response: https://www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/article/policy-gap-and-inefficiency-in-public-volunteers-response-to-assist-the-hospitals-after-natural-disasters-in-iran-a-grounded-theory-methodology/0E13A092BB34B84037D00FAB35F64083
- Factors Influencing Collaborative Activities between Non-Professional Disaster Volunteers: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0047203
- Volunteerism in Disaster Management Opportunities, Challenges: https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/pdfs/RR-Report-Volunteers-In-Disaster-Management.pdf
- The Effective Use of Management of Unaffiliated Volunteers: https://www.ojp.gov/pdffiles1/Archive/202852NCJRS.pdf
- Strategies for Managing Volunteers during Incident Response: https://www.hsaj.org/articles/684

Part III: Differences in Crisis Management Systems in Project Member Countries

Crisis management, as well as the entire DRR structures and process, are influenced not only by differences in landscape, climatic extremes, and hydrological conditions in individual countries, but also by the organization of DRR, including crisis management, and the structure and history of crisis management bodies. On the one hand, this complicates the analysis of policy gaps due to the diversity of conditions in the individual LOCALIENCE countries, but on the other hand, it provides an opportunity to identify specific policy gaps and find those that are common to all or most of the participating countries i.e., those that are at least generally valid in Central Europe and can therefore be addressed through international cooperation.

Ten partner's organizations from five countries (Hungary, Austria, Czechia, Poland and Slovenia) are involved in the LOCALIENCE project, under the leadership of the Hungarian Ministry of Public Administration and Regional Development. The resilience building policies are interconnected with the structure and organization of crisis management in individual countries, and this is why the comparative study of those systems in all countries was done.

Structural Variations

Crisis management in these Central European countries shares roots in EU frameworks and regional hazards like floods but diverges in governance. Austria's federal model empowers states and municipalities with primary response duties, coordinated nationally via the Ministry of the Interior's SKKM unit. In contrast, Hungary's centralized approach through the National Directorate General for Disaster Management (NDGDM) streamlines national control, integrating firefighting, civil defence, and industrial safety. Poland's multi-tier system spans national to municipal levels, led by the Government Centre for Security (RCB), emphasizing coordinated planning across 50+ risks. Czechia's Integrated Rescue System (IZS) focuses on seamless coordination among fire, medical, and police services under the Ministry of Interior. Slovenia's unified model under the Administration for Civil Protection and Disaster Relief (ACPDR) ties closely to defence, treating it as a pillar of national security.

Risk and Preparedness Focus

All systems address prevention, response, and recovery, but priorities reflect geography. Austria's plans emphasize alpine-specific risks like avalanches and heat waves, with voluntary-driven exercises. Slovenia highlights earthquakes and technological disasters, with a strong training centre for commanding staff. Czechia and Poland focus on hydrometeorological threats, with advanced warning systems like sirens and apps. Hungary integrates nuclear and industrial risks, with annual local assessments.

Response and Integration

Emergency responses escalate from local to national, but military roles vary—prominent in Slovenia and Hungary, less so in Austria's volunteer-centric model. All participate in the EU Civil Protection Mechanism, with bilateral agreements enhancing cross-border aid.

Crisis management systems in Czechia, Poland, Austria, Hungary, and Slovenia represent a blend of shared European standards and national adaptations shaped by historical, geographical, and political contexts. These countries, largely in Central Europe, align with the EU Civil Protection Mechanism, emphasizing all-hazards approaches that cover prevention, preparedness, response, and recovery. However, major differences emerge in organizational structures, ministerial oversight, volunteer reliance, risk priorities, and integration with defence or security frameworks. This

comprehensive overview draws on official EU descriptions and comparative analyses to highlight these variations, providing a structured comparison for clarity.

Historical and Contextual Background

Post-communist transitions influenced systems in Czechia, Poland, Hungary, and Slovenia, leading to reforms emphasizing integration and EU compliance after accession in the 2000s. Austria, with its longstanding federal structure, differs as a pre-existing EU member since 1995, focusing on decentralized, community-based resilience. Recent crises like COVID-19 and floods have tested these systems, revealing strengths in coordination but gaps in centralization versus local autonomy. For instance, Visegrad Group countries (Czechia, Poland, Hungary) often collaborate regionally, while Slovenia and Austria emphasize bilateral ties with neighbours.

Key Institutional Frameworks

Each country's system is anchored in specific legislation and institutions:

- **Czechia**: Governed by the Crisis Act, which defines crisis states (e.g., state of danger, emergency). The Ministry of Interior – Directorate General of the Fire Rescue Service (MoI – DG FRS CR) leads, managing the Integrated Rescue System (IRS) that unifies fire, medical, and police responses. Regional headquarters handle operations in 14 areas.
- **Poland**: The Act on Crisis Management establishes a four-tier structure (national, voivodeship, county, municipal). The Government Centre for Security (RCB) under the Prime Minister coordinates, with the National Headquarters of the State Fire Service (KG PSP) as the chief civil protection body.
- **Austria**: Federal disaster relief acts delegate primary responsibility to states, with national coordination via the Ministry of the Interior's National Crisis and Disaster Management (SKKM) unit. Voluntary organizations like fire brigades dominate operations.
- **Hungary**: The National Directorate General for Disaster Management (NDGDM) under the Ministry of Interior centralizes firefighting, civil defence, and industrial safety, following 2011 reforms for integration.
- **Slovenia**: The Act on Protection Against Natural and Other Disasters places the Administration for Civil Protection and Disaster Relief (ACPDR) under the Ministry of Defence, integrating it as a national security pillar alongside defence and internal security[9]. These frameworks reflect a spectrum from Austria's bottom-up approach to Hungary's top-down control, with Slovenia's defence linkage standing out due to its post-Yugoslav emphasis on comprehensive security.

Levels of Operation and Coordination

Operations span prevention to recovery, but coordination mechanisms differ:

Prevention and Risk Assessment: All conduct regular assessments, but scopes vary. Czechia identifies 16 key risks like floods and droughts, using checklists for planning. Poland assesses ~50 risks in a classified report, led by RCB. Austria covers 18 scenarios, including climate-impacted hazards, with local hazard maps. Hungary requires annual local reviews by mayors, classifying settlements by risk. Slovenia's ACPDR monitors cross-sectoral risks like earthquakes and health threats.

[9]https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/slovenia_en

Preparedness and Training: Exercises are common, but volunteer-driven in Austria (e.g., full-scale drills). Czechia and Poland emphasize integrated training for IRS and fire services. Hungary focuses on professional control over plans, Slovenia on unified command structures.

Response: Escalation from local to national is standard. Austria relies on state governments for major events. Hungary's NDGDM activates forces centrally. Slovenia uses a tiered command with incident commanders.

Early Warning: Sirens and apps are widespread; Czechia's UANS includes pre-recorded messages, Austria's KATWARN for mobiles.

Risk Priorities and Volunteer Integration

Geographical influences shape focuses: Austria on alpine risks (avalanches, heat waves), Slovenia on seismic and technological disasters, Czechia/Poland/Hungary on floods and nuclear/industrial threats. Volunteer roles are prominent in Austria (majority of workforce), mixed elsewhere with professional emphasis.

International and EU Integration

All engage in the EU Mechanism, contributing modules (e.g., Poland's HUSAR for search-rescue). Bilateral agreements with neighbours are strong, e.g., Czechia's with Austria/Germany/Poland. Slovenia and Hungary emphasize NATO/UN ties, reflecting defence orientations.

Comparative Table: Major Aspects of Crisis Management Systems in Project Countries

Aspect	Czechia	Poland	Austria	Hungary	Slovenia
Key Ministry	Interior (DG FRS)	Interior (RCB, KG PSP)	Interior (SKKM)	Interior (NDGDM)	Defence (ACPDR)
Structure	Integrated (IRS), national/regional/municipal	Multi-tier (national to municipal)	Decentralized federal, state-led	Centralized national	Unified, national security pillar
Volunteer Role	Mixed, professional focus	Mixed	Heavy reliance (e.g., fire brigades)	Mixed, professional control	Integrated professional/voluntary units
Primary Risks	Floods, droughts, electrical disruptions	~50 risks including security threats	Alpine hazards (avalanches, heat waves), floods	Nuclear, industrial, floods	Earthquakes, floods, technological

Aspect	Czechia	Poland	Austria	Hungary	Slovenia
Warning Systems	UANS (sirens, media, mobile)	Coordinated via RCB	Sirens, KATWARN app, automated flood warnings	NDGDM duty systems, radiological monitoring	13 regional centres, sirens
EU/NATO Integration	EU Mechanism, Visegrad, bilateral with neighbors	EU modules (HUSAR), NATO, UN	EU, bilateral, international relief coordination	EU reporting, NATO, bilateral	EU Mechanism, NATO, strong bilateral with neighbors

This table underscores Austria's decentralization and Slovenia's defence focus as standout differences.

Challenges and Recent Developments

Post-COVID critiques highlight Hungary's centralized approach for efficiency but criticism for overreach. Poland and Czechia faced coordination issues in polarized environments. Climate change amplifies shared risks, prompting updates like Slovenia's flood forecasting enhancements. Overall, while EU harmonization fosters similarities, national contexts drive empathetic, tailored strategies acknowledging diverse stakeholder needs.

Summary on Differences in Crisis Management Systems

- Research suggests that organizational structures vary significantly, with Austria's system being the most decentralized and reliant on federal states, while Hungary's is highly centralized under a single national directorate.
- It seems likely that ministerial oversight differs, as Slovenia uniquely places crisis management under the Ministry of Defence, integrating it closely with national security, whereas the others (Czechia, Poland, Austria, Hungary) primarily involve the Ministry of Interior.
- Evidence leans toward volunteer involvement as a key differentiator, with Austria depending heavily on voluntary workforces like fire brigades and rescue organizations, in contrast to more professional-led systems in the other countries.
- Studies indicate variations in risk focus, such as Austria's emphasis on alpine hazards (e.g., avalanches) and Slovenia's on seismic events, while common regional threats like floods are addressed across all, but with differing levels of integration into national security frameworks.
- The evidence points to similar EU alignment across the board, but with nuances in bilateral cooperation and military roles, where Hungary and Slovenia show stronger whole-of-government or defence linkages during crises like COVID-19 or migration.

Citations

- Czech Republic - European Commission: https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/czech-republic_en
- Austria - European Commission: https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/austria_en
- Hungary - European Commission: https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/hungary_en
- Slovenia - European Commission: https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/slovenia_en
- Poland - European Commission: https://civil-protection-humanitarian-aid.ec.europa.eu/what/civil-protection/national-disaster-management-system/poland_en

Part IV: Policy gaps analysis at national, regional and local level in LOCALIENCE Partner's countries

This chapter summarizes the results of a qualitative assessment of gaps in disaster risk reduction (DRR) policy in the five countries involved in the LOCALIENCE project – Austria, the Czech Republic, Hungary, Poland, and Slovenia. The assessment was carried out at the national level by DRR experts and LOCALIENCE project partners on the basis of a structured questionnaire, with responses to specific questions in Part III of the questionnaire providing key analytical input.

The analysis is implicitly anchored in the Sendai Framework for Disaster Risk Reduction and also reflects European approaches to risk management, climate change adaptation, and resilience building, including at the local level. The document does not provide a comparison of performance or any ranking of countries, but rather seeks to identify **common trends, typical gaps**, **and different approaches to DRR policy** that are relevant for further policy development at the national and European levels.

Typology of approaches to DRR

The analysis helped identify several prevailing characteristics of approaches to DRR:

- **implementation-oriented approaches** based on strong practices and operational capacities,
- **policy-driven approaches** with an emphasis on strategic and institutional frameworks,
- **hybrid models** combining the strengths of both approaches,
- **fragmented models**, where parallel systems complicate integration and coordination.

Added value of the LOCALIENCE project

The LOCALIENCE project has provided a unique opportunity to compare the views of experts on DRR policy in different national contexts. The trends and gaps identified are not specific to individual countries, but reflect the broader challenges facing DRR policy in Europe in the context of climate change. The results of this document can serve as a basis for further development of national policies and for strengthening cooperation and experience sharing at the European level.

Methodological framework

This chapter describes the methodological framework used to assess gaps in disaster risk reduction (DRR) policy within the LOCALIENCE project. Its aim is **to explain transparently the approaches, data sources**, **and analytical assumptions used**, thereby enabling the reader to correctly interpret the findings presented in the following chapters.

The assessment is based on **a qualitative, expert approach** that allows for the capture of complex and context-dependent aspects of DRR policy. This approach is particularly appropriate in the field of disaster risk management, where the effectiveness of policies depends not only on the formal existence of frameworks and tools, but also on their practical implementation, institutional arrangements, and the ability of systems to respond to a dynamically changing risk environment.

A key analytical input was the responses of national evaluators to a structured questionnaire developed as part of the LOCALIENCE project, which contains answers to specific questions focused on the existence, quality, and implementation of DRR policies, institutional and capacity aspects, working with risks and vulnerabilities, public involvement, and evaluation and learning mechanisms.

The chapter also explains how differences in national contexts, institutional arrangements, and the depth of inputs provided were taken into account. These differences are not seen as limitations of the assessment, but as **part of the analytical picture** that contributes to a better understanding of different approaches to DRR policy across countries.

The assessment of gaps in DRR policy is implicitly anchored in **the Sendai Framework for Disaster Risk Reduction 2015–2030**, which serves as the main international reference framework for disaster risk management. The Sendai Framework emphasizes a comprehensive approach to risk, a multi-hazard approach, the involvement of different levels of government, and the importance of prevention, preparedness, and institutional learning.

At the same time, the assessment reflects **the European context**, in particular the links between DRR, climate change adaptation, critical infrastructure protection, and resilience building. European policies and initiatives provide an important framework for national approaches to DRR, both in terms of strategic direction and in terms of available tools and resources.

Assessment tools used

The basic analytical tool was a structured questionnaire developed as part of the LOCALIENCE project. The questionnaire was designed to cover key areas of DRR policy in the context of climate-related disasters and to enable qualitative assessment across different national contexts.

For the purposes of this document, **the questionnaire** is **a key source of data**, as it contains answers to specific questions concerning:

- the existence and quality of policies and strategies,
- their implementation in practice,
- institutional and capacity aspects,
- working with risks, vulnerabilities, and populations,
- and evaluation and learning mechanisms.

The responses were formulated by national DRR assessors and reflect their professional judgment based on knowledge of the national context, available documents, and practical experience.

In parallel with the use of the LOCALIENCE project questionnaire, a comprehensive analysis of documents at the global and European levels was also used, which also identified certain gaps in policy. Its results are presented in Chapters I and II above.

Nature and limits of inputs

The assessment is based on **expert qualitative inputs** rather than quantitative indicators or statistical data. This approach makes it possible to capture the complexity of DRR policy, including aspects that are difficult to measure, such as the quality of coordination, institutional culture, or the extent of learning from experience.

At the same time, however, certain limitations must be taken into account:

- differences in the depth and style of responses between countries,
- differences in institutional arrangements and terminology,
- and the subjective element of expert assessment.

These differences are not seen as a weakness, but as **analytical information in itself**, contributing to an understanding of different approaches to DRR.

Framework for synthesis

The purpose of the analytical framework is **to explain the logic, structure, and key concepts of the analysis**, which enable systematic work with qualitative inputs and their conversion into a comprehensible comparative picture of disaster risk reduction policy.

The analytical framework is designed to respect the complex nature of DRR policy and to capture not only the formal aspects of policies and strategies, but also their practical functioning, institutional links, and adaptability. It is based on international and European reference frameworks, in particular the Sendai Framework for Disaster Risk Reduction, but is not applied as a rigid assessment tool. Rather, it serves as **a conceptual structure for interpreting expert assessments**.

The basic organizational principle of the analysis is to structure the findings according to the individual phases of the DRR cycle – from knowledge base and prevention, through preparedness and response, to institutional learning and continuous improvement. This approach makes it possible to identify not only gaps in individual areas, but also **inconsistencies and weak links between individual phases**, which can often prove to be a key problem in practice.

The analytical framework also includes working with **a typology of gaps in DRR policy**, which was adopted and further developed from the original *LOCALIENCE Policy Gap Analysis* document, as discussed in Chapter I. The typology makes it possible to distinguish between the different natures of the problems identified—for example, between gaps in the existence of policies, implementation gaps, capacity gaps, or coordination gaps—and thus to refine the interpretation of the findings.

Based on a synthesis of responses, a **refined typology of countries' approaches to DRR policy** was developed, distinguishing between policy-driven, implementation-driven, hybrid, and fragmented models. This typology serves as an analytical tool for comparing approaches across countries and for better understanding why similar gaps appear in different institutional contexts.

Structuring the analysis according to DRR phases

For the purposes of synthesis, the experts' responses were analyzed and interpreted in relation to the individual phases of the DRR cycle:

- **Phase A – Knowledge base and capacities**,
- **Phase B – Risk prevention and mitigation**,
- **Phase C – Preparedness and response**,
- **Phase D – Continuous improvement and institutional learning**.

Although the questionnaire did not contain a separate section explicitly devoted to the recovery and long-term improvement phase, relevant information on this phase was identified across responses in other sections, particularly in questions related to evaluation, policy updates, institutional memory, and the use of lessons learned.

This approach allowed for consistency with international frameworks while respecting the structure of the available data.

Typology of gaps in DRR policy

The main types of gaps identified include:

- gaps in the existence or scope of policies,
- declaratory approaches without adequate implementation,
- implementation gaps,
- capacity and financial gaps,
- coordination and communication gaps,
- gaps in multi-hazard and multi-level approaches.

Typology of countries' approaches to DRR

Based on a synthesis of responses, **a refined typology of state approaches to DRR policy** was developed, which serves as an analytical tool for comparison:

- policy-driven approaches,
- implementation-driven approaches,
- hybrid models,
- fragmented models.

This typology provides a better understanding of why similar gaps appear in different national contexts and what structural factors influence them. It is not a hierarchy or quality assessment, but **a tool for interpretation and comparison**.

Synthesis of gaps in DRR policy across LOCALIENCE countries

This chapter represents the analytical core of the chapter and provides **a synthetic interpretation of gaps in disaster risk reduction (DRR) policies** across the five countries involved in the LOCALIENCE project.

The aim is not to describe individual national systems, but to provide **a thematic synthesis** of key findings across countries. This approach allows for a better understanding of structural challenges that are not limited to a single national context, but reflect broader systemic issues in DRR policy in Europe.

The analysis is structured according to the individual phases of the DRR cycle, see previous section.

Although the evaluation questionnaire did not contain a separate section explicitly focused on the recovery and long-term improvement phase, relevant aspects of this phase were identified across responses in other parts of the questionnaire, particularly in questions related to evaluation, policy updates, institutional memory, and the use of lessons learned.

Each subchapter combines:

- a description of the main trends across countries,
- the identification of typical gaps in policy and practice,
- and an analytical interpretation of their significance for the further development of DRR policy.

Emphasis is placed on **the qualitative nature of the assessment**, which reflects the professional judgment of national experts and allows for the capture of complex and context-dependent aspects of DRR policy that cannot be easily quantified. The chapter avoids performance evaluation or ranking of countries and instead focuses on understanding the nature and causes of the identified gaps.

Phase A – Knowledge base and institutional capacities

The knowledge base and institutional capacity are the starting point for effective disaster risk reduction policy. The ability to identify, analyze, and continuously update information on risks, vulnerabilities, and capacities is a key prerequisite for targeted prevention, preparedness, and response. The responses of experts (evaluators) in the questionnaire provide valuable insight into how these elements are embedded in the policies and practices of the evaluated countries and what types of gaps most commonly occur in this area.

Risk analyses, data, and their use in decision-making

Across all five assessed countries, there are formal mechanisms for identifying and analyzing risks related to climate-related disasters. Risk analyses are carried out at the national level and, to varying degrees, at the regional and local levels. The responses show that the mere existence of analytical data is not the main problem. More significant differences appear in **how these analyses are structured, updated, and, in particular, used in decision-making processes**.

In some countries, analyses are primarily designed as sector-specific or "threat-specific" documents that provide high-quality detailed information but offer only a limited overall multi-hazard perspective. Elsewhere, there are efforts to take a more integrated approach, but these approaches often encounter fragmentation of data sources, differing methodologies, and limited interoperability between systems used at different levels of government.

A recurring theme in the responses of experts (evaluators) is **the weak link between risk analysis and strategic or budgetary decision-making**. Although analyses are available, their results are not always systematically reflected in the prioritization of measures, allocation of resources, or updating of policies. This discrepancy is particularly evident at the local level, where decisions are often influenced by current capacities, historical experience, or individual initiative rather than a unified analytical framework.

From an analytical point of view, this situation can be characterized as a **shift from "data production" to "limited data use**." Although countries have invested considerable effort in developing analytical tools, their full potential for DRR policy management has not yet been exploited in all cases.

Vulnerability and socio-economic aspects of risks

Considering the vulnerability of the population, infrastructure, and socio-economic factors is one of the key principles of the modern concept of DRR, including the Sendai Framework. The responses show that this principle is recognized in all evaluated countries, at least at the conceptual level. Vulnerability is mentioned in strategic documents, analytical studies, or adaptation policies.

However, a closer look reveals that **the practical operationalization of vulnerability in planning and decision-making is uneven**. In some cases, vulnerability remains understood more as an analytical category without a direct link to specific measures. The identification of vulnerable groups or regions does not automatically lead to targeted interventions, adjustments to preventive measures, or differentiated approaches to preparedness and communication.

The level of governance also plays an important role here. While socio-economic aspects are often reflected at the national level in general terms, their consideration at the local level varies significantly depending on available capacities, data, and experience. Some municipalities and regions can use detailed knowledge of the local context, while others lack the tools or methodological support for systematic work on vulnerability.

The experts' responses also show that the link between disaster vulnerability assessment and other policy areas (e.g., social policy, spatial planning, health) is not always sufficiently developed. This limits the ability of DRR policy to respond to the complex and cumulative impacts of disasters, particularly in the context of climate change.

Institutional and human capacities

Institutional and human capacities are a prerequisite for the effective functioning of the DRR system. The responses in Part III show that all assessed countries have clearly defined institutions responsible for risk management and crisis management, particularly at the national level. Roles and responsibilities are generally enshrined in legislation or strategic documents.

However, there are significant differences in **the sustainability and uniformity of capacities across management levels**. While the national level is often assessed as relatively stable and professionally secure, capacity inequalities appear at the regional and especially local levels. These relate not only to the number of experts, but also to their specialization, continuity, and institutional memory.

A recurring theme in the responses is **the system's dependence on individuals**. In some cases, key knowledge and experience are concentrated among a limited number of experts, which increases the vulnerability of the system in the event of personnel changes. This phenomenon is particularly evident at the local level, where personnel capacities can vary significantly depending on the size of the municipality, available resources, or political support.

From an analytical perspective, this highlights the difference between the system's ability to function in crisis response mode and its ability to manage risks in the long term. While crisis situations often mobilize available capacities very effectively, long-term work on prevention, planning, and evaluation requires a stable institutional background, which is not a given in all contexts and is therefore often insufficient. This situation is also exacerbated by the fact that specific policies are often limited to short-term periods, typically to election cycles.

Synthesis of the main findings of phase A

To summarize the findings regarding the knowledge base and institutional capacities, it can be said that the evaluated countries have solid analytical and institutional foundations for DRR policy. However, the main challenges do not concern the existence of tools and structures themselves, but their **practical use, interconnection, and long-term sustainability**.

The most frequently identified gaps include:

- limited link between risk analysis and decision-making,
- uneven consideration of vulnerability in practice,
- capacity differences between levels of governance, and dependence on individuals.

Together, these factors affect the ability of DRR systems to respond to the complex and dynamic risks associated with climate change and provide an important context for further phases of DRR policy, particularly prevention,

preparedness, and institutional learning. In some cases, local specificities are also insufficiently taken into account, where local analysis and perception of risks and needs may differ significantly from the central view at the national level.

An important aspect that is not always included in policies is the need to utilize expert capacity at the local level, including by involving experts and academic institutions in local analysis and DRR solutions.

Phase B – Risk prevention and mitigation

Risk prevention and mitigation represent a key bridge between analytical risk assessment and actual risk reduction in practice. In the context of climate-related disasters, preventive measures play a crucial role not only in terms of protecting the population and infrastructure, but also in terms of the long-term sustainability of public finances and the resilience of the territory. The responses of experts (evaluators) in Part III of the questionnaires provide valuable insight into how prevention is embedded in the DRR policies of the evaluated countries and what types of gaps repeatedly appear in this area.

The position of prevention in DRR policy

Across all evaluated countries, prevention is declared as one of the fundamental pillars of DRR policy. Strategic documents, national concepts, and sectoral policies usually verbally emphasize the importance of preventive measures, especially in connection with climate change and the increasing frequency of extreme events. However, the responses from experts (evaluators) show that **there remains a significant gap between the declared priority of prevention and its practical implementation**.

One recurring theme is the imbalance between preventive and reactive measures. While crisis response and post-event recovery are generally well supported institutionally and financially, prevention often faces limited resources, fragmented responsibilities, and lower political visibility. Furthermore, preventive measures are difficult to implement in an environment where their benefits are not immediately apparent and where they compete with other short-term priorities. Shortcomings in policies in this area thus lead to insufficient use of nature-based solutions and a lack of understanding that crisis preparedness and long-term sustainability in the sense of the SDGs are interlinked.

The responses also point to the fact that prevention is often addressed **on a sectoral basis** rather than as a cross-cutting and integrated agenda. Measures in the areas of water management, nature conservation, transport, and urban planning are not always systematically coordinated within a unified DRR logic. This limits the ability of policies to respond to complex and interconnected risks and to strengthen the Nature-Based Solutions principle.

From an analytical perspective, it can be said that prevention is firmly anchored in strategic documents in most countries, but its transformation into a consistent set of interlinked measures remains incomplete. This gap has a direct impact on the effectiveness of the entire DRR cycle.

The link between prevention and climate change adaptation and spatial planning

An important aspect of prevention in the context of climate-related disasters is its link to adaptation policies and spatial planning. The responses of experts (evaluators) point to the fact that in all the countries evaluated, there is a certain degree of linkage between DRR policy and climate change adaptation. However, these linkages vary in depth, institutional anchoring, and degree of practical integration.

In some cases, climate change adaptation is seen as a natural framework for preventive measures, particularly in areas such as landscape water management, landscape protection, or urban greenery. Elsewhere, however, adaptation and DRR policies remain parallel and unconnected processes that converge at the level of general objectives rather than specific instruments.

Spatial planning is proving to be a key but problematic element of prevention. Although it is widely recognized that land use decisions have a significant impact on risk exposure, responses from experts (evaluators) suggest that **the link between risk analysis and spatial planning decisions is not always strong enough**. Risk information is not

systematically reflected in planning documents, or its application depends on the institutional arrangements and capacities of specific levels of government (public administration), and often on particular interests.

From an analytical point of view, this presents a structural challenge: prevention requires long-term, interdepartmental, and spatially sensitive decision-making that usually goes beyond the traditional framework of crisis management. Without stronger integration of DRR into adaptation and planning processes and intensive communication and cooperation between departments, the preventive potential of policies remains limited.

Nature-Based Solutions as a prevention tool

The use of Nature-Based Solutions (NBS) has become an important part of the discussion on disaster risk prevention in recent years, especially in the context of climate change. The responses to the questionnaire show that all the countries assessed reflect NBS at least at the conceptual level, particularly in adaptation strategies, environmental policies, or sectoral documents.

However, there are significant differences between countries in **the extent to which NBS are integrated into mainstream DRR policy**. In some cases, NBS are seen as a standard part of preventive measures, while in others they remain in the form of pilot projects or isolated initiatives. Barriers to wider application include insufficient multilateral communication, limited funding, inadequate institutional coordination, and uncertainty about long-term benefits.

Expert responses also suggest that NBS implementation often requires intensive cooperation across sectors and levels of government, placing increased demands on institutional capacity. Where such cooperation works, NBS are seen as an effective tool combining risk prevention, climate change adaptation, and other environmental and socio-economic benefits. There is a lack of multilevel, multistakeholder policies.

From an analytical perspective, it can be said that the potential of NBS for DRR policy is generally recognized, but their systematic integration into preventive frameworks remains one of the key challenges. The shift from a project-based approach to the widespread use of NBS requires stable political support, appropriate financial instruments, and clear institutional anchoring.

Financing preventive measures

Financing is one of the most important factors influencing the effectiveness of risk prevention and mitigation. The responses of experts (evaluators) in Part III point to the fact that although preventive measures are widely recognized as cost-effective, their financing often remains insufficient or unstable in practice.

A similar pattern emerges across countries: funds for response and recovery are generally more available and better institutionalized than funds for long-term prevention. Prevention projects are often funded through temporary programs, grants, or external sources, which limits their continuity and long-term impact. At the same time, a direct link between the allocation of funds and the results of risk analyses is not always ensured.

Financial constraints are particularly pronounced at the local level. Responses from experts (evaluators) indicate that municipalities and regions often face limited opportunities to finance preventive measures, even in cases where risks are well identified. This situation reinforces dependence on individual initiatives or external support and weakens the systemic nature of prevention.

From an analytical point of view, the financing of prevention can be seen as a key indicator of the actual priority of DRR in policy. Without stable and predictable financial mechanisms, prevention strategies remain difficult to implement and their potential for reducing future losses is not fully exploited.

Synthesis of key findings of Phase B

A summary of the findings on risk prevention and mitigation shows that the assessed countries have a solid strategic framework that recognizes the importance of prevention in the context of DRR and climate change. However, the main challenges repeatedly arise in the areas of **practical implementation, inter-ministerial coordination, and financing**.

The most frequently identified gaps include:

- the gap between the declared priority of prevention and its implementation in practice,
- limited integration of DRR into adaptation and spatial planning processes,
- the project-based (one-off) nature of NBS use instead of their systematic anchoring,
- insufficient link between risk analysis and the financing of preventive measures.

These factors together affect the ability of DRR policies to effectively reduce risks before disasters occur and provide a key context for the next phase, which focuses on preparedness, response, and community involvement.

Phase C – Preparedness and response

Preparedness and response are areas in which the assessed countries traditionally have strong institutional backgrounds and practical experience. The responses of experts (assessors) in the questionnaires confirm that crisis management, early warning, and operational response are relatively well developed in all five countries. At the same time, however, they show that **the growing complexity of climate-related risks places new demands on a multi-hazard approach, coordination between actors, and the systematic involvement of the population and non-professional actors**. It is in these areas that the most significant differences and gaps appear.

Multi-hazard approach in preparedness and response

Across the states evaluated, the multi-hazard approach is generally recognized as a prerequisite for effective preparedness for current and future risks. The responses of experts (evaluators) indicate that the multi-hazard concept is present in policies and strategies, particularly in connection with the increasing likelihood of concurrent or chain events, such as combinations of extreme precipitation, floods, landslides, heat waves, or critical infrastructure failures.

However, a closer look reveals that **the operationalization of the multi-hazard approach remains uneven in practice**. Some countries have scenarios and planning tools that consider a combination of multiple hazards, while in others, preparedness is still largely structured according to individual types of events. This is particularly evident in the planning of exercises, training, and operational procedures, which often focus on isolated scenarios.

The experts' responses also point to the limited extent of systematic testing of multi-hazard scenarios in real-world conditions. Even where combined scenarios are formally considered, they are often not regularly practiced or evaluated. This limits the future ability of institutions to respond to situations where individual hazards reinforce each other or create new types of risks.

From an analytical perspective, it can be said that the multi-hazard approach is still more of **a general strategic framework than a fully developed operational tool** in the countries assessed. A shift towards its more consistent application requires not only adjustments to plans and scenarios but also strengthened inter-agency coordination and information sharing.

Warning, informing, and responding to the population

Early warning and public information systems are one of the most visible components of emergency preparedness. All the countries assessed have technical mechanisms for disseminating warnings, whether through sirens, mobile technologies, the media, or digital platforms. The responses of experts (assessors) confirm that these systems are generally functional and regularly used.

However, there are significant differences between countries in **the extent to which the population's response to warnings is systematically monitored and evaluated**. In some cases, the emphasis is primarily on the technical aspects of the system—the reach, speed, and reliability of information dissemination—while the social dimension of warnings remains less developed.

The responses of experts (evaluators) suggest that the evaluation of the population's behaviour after a warning is rather ad hoc, often following significant events or as part of research projects. However, a systematic and uniform approach to assessing the understanding of warning messages, the trust of the population, and their willingness and

ability to respond is not standard practice in all countries. In addition, there are significant differences between regions and municipalities, which complicates the comparability of experiences and the transfer of good practice.

From an analytical point of view, there is a tendency to view warnings (and communication in general) as **a one-way process** focused on the distribution of information, rather than as part of a broader cycle of communication, learning, and adaptation. In a multi-hazard context, the complexity of communication and decision-making by the public increases, further underscoring the importance of systematic work with public responses.

Cooperation between actors and flexibility of response

Effective disaster preparedness and response require coordinated cooperation among a wide range of actors, including state institutions, local governments, emergency services, the private sector, non-profit organizations, and communities. The experts' responses show that formal cooperation mechanisms exist in all the countries evaluated, particularly in the area of crisis management.

However, a closer look reveals that **the degree of formalization and stability of these mechanisms varies between countries and levels of government**. In some cases, cooperation is firmly anchored in legal and institutional frameworks, while in others it is based more on informal relationships, personal contacts, or experience from past events. This approach may be effective in the short term, but it increases the system's dependence on individuals and limits its long-term sustainability.

The experts' responses also point to the importance of flexibility and the ability to improvise during crisis situations. In some countries, the scope for non-standard solutions and adaptation of procedures is seen as an important part of the response, while in others the emphasis is on strict adherence to pre-determined plans. Both approaches have their merits, but an imbalance between them can lead either to a limited ability to respond to new types of situations or, conversely, to unclear responsibilities.

From an analytical perspective, the ability of systems to combine **clearly defined roles and procedures with a sufficient degree of flexibility** appears to be key, especially in the context of complex and unpredictable multi-hazard events. The need to strengthen the multi-level multi-stakeholder approach through policies thus takes on a key role.

Synthesis of the main findings of phase C

A summary of the findings on preparedness and response shows that the assessed countries have strong institutional and operational capacities, particularly in the areas of crisis management and technical warning systems. However, the main challenges focus on **adapting these capacities to the growing complexity of risks and on more systematic involvement of the population and other actors**.

The most frequently identified gaps include:

- limited operationalization of the multi-hazard approach in planning and exercises,
- insufficient systematic evaluation of the population's response to warnings,
- differences in the degree of formalization of cooperation between actors and dependence on informal links,
- the tension between standardizing procedures and the need for flexibility in crisis situations.

These factors significantly influence the ability of DRR systems to respond effectively to current and future challenges, while also providing an important context for the next phase, which focuses on institutional learning, evaluation, and continuous policy improvement.

Phase D – Continuous improvement and institutional learning

The ability to learn from past events, systematically evaluate the effectiveness of measures, and continuously adapt policies and procedures is a key prerequisite for long-term disaster resilience. Although the questionnaires did not contain a separate section explicitly focused on the recovery and institutional learning phase, the responses of experts (evaluators) in Part III provide a sufficient basis for identifying the following issues: **to what extent are the principles of continuous improvement integrated into DRR policy and practice** in the evaluated countries.

Lessons learned and evaluation of emergencies

The responses of experts (evaluators) across countries show that the evaluation of emergencies and crisis situations is a common part of practice, especially after significant or media-exposed events. These evaluations usually focus on the operational aspects of the response, coordination of components, and technical functionality of systems.

However, differences between countries and levels of management are evident in the **extent to which these evaluations are systematic, standardized, and used as input for policy and plan adjustments**. In some cases, lessons learned are formally recorded and shared among relevant institutions, while in others they remain at the level of internal reports or individual experiences.

The experts' responses also show that evaluations are more often conducted after crisis events than in periods of relative calm. Smaller or "managed" events that could provide valuable insights for improving prevention and preparedness are not always systematically analysed and used to derive information and procedures for more effective decision-making. This approach limits the ability of DRR systems to learn and improve continuously and reduces the potential for timely policy adjustments.

From an analytical perspective, it can be said that evaluation and lessons learned processes are present in the countries assessed, but their **integration into formal decision-making and planning cycles remains uneven**.

Standardization of policy, plan, and analysis updates

Regular updates of policies, plans, and analytical materials are essential for maintaining the relevance of DRR policies in the dynamic environment of climate change. Responses from experts (evaluators) indicate that documents and procedures are updated in all evaluated countries, but **their regularity, systematicity, and linkage to evaluations vary significantly**.

In some cases, updates are initiated primarily in response to significant events or legislative changes. Elsewhere, there are efforts to conduct more regular reviews, but their implementation may be affected by capacity or financial constraints, particularly at the regional and local levels. This approach leads to a situation where some documents are updated reactively rather than based on systematic monitoring of trends and risks.

The experts' responses also point to differences in the degree of standardization of update processes. While some states have clearly defined procedures and responsibilities, in others the updating of plans and analyses depends on the initiative of specific institutions or individuals. This further increases the risk of uneven quality and timeliness of documents across the territory.

From an analytical perspective, this situation can be characterized as **a tension between the need for flexibility and the need for standardization**. While flexibility allows for a rapid response to new challenges, the absence of basic standards complicates coordination and reduces the predictability of the system.

Institutional memory and knowledge transfer

Institutional memory is a key but often underestimated element of DRR policy. Experts' responses suggest that knowledge transfer between institutions, generations of experts, and levels of management is not always systematically ensured. This problem is particularly pronounced in environments with high staff turnover or limited capacity at the local level.

In some cases, knowledge and experience from past events are preserved primarily through personal connections and informal networks. Although this approach may work in the short term, in the long term it increases the vulnerability of the system and complicates its adaptation to new types of risks.

The responses of experts (evaluators) also point to the limited use of tools for systematic knowledge sharing, such as lessons learned databases, standardized evaluation reports, or regular training focused on new DRR insights. The absence of these mechanisms can lead to the repetition of the same problems and the loss of valuable experience.

From an analytical point of view, this again confirms that **the ability to learn is not only determined by the existence of data and reports, but above all by an institutional framework that enables their long-term use**.

Synthesis of key findings of phase D

A summary of the findings on institutional learning and continuous improvement shows that the countries assessed have basic mechanisms for evaluating, updating, and transferring knowledge, but their systematic use remains uneven. The main challenges do not relate to a lack of information, but rather **to the ability to integrate this information into DRR policy and practice in the long term**.

The most frequently identified gaps include:

- the predominance of reactive evaluations over continuous learning,
- inconsistent and irregular updating of policies and plans,
- limited standardization of processes and dependence on individuals,
- weaker institutional memory and knowledge transfer between management levels.

These factors collectively affect the ability of DRR systems to adapt to changing risk environments and represent an important transition point between the analytical part of the document and the following chapter, which focuses on comparative profiles of individual countries.

Summary of Chapter IV across DRR phases

A synthetic analysis across phases A–D shows that the assessed countries have robust DRR policy foundations, particularly in the areas of emergency response and technical capacity. However, the most significant gaps repeatedly appear in the areas **of linking the individual phases of the DRR cycle, practical implementation of prevention, and systematic institutional learning**.

While formal frameworks and strategies are well developed in most cases, their transformation into a consistent, long-term sustainable system remains a challenge. It is precisely the ability to link knowledge, prevention, preparedness, response, and learning into a functional whole that proves to be a key factor distinguishing different approaches to DRR policy across the assessed countries.

This synthesis provides an analytical basis for the following chapter, which focuses on **profiling individual countries** and identifying their specific strengths and areas with the greatest potential for further development.

Part V: Countries profiles: a comparative view of gaps in DRR policies

This chapter complements the synthetic analysis in Part IV with **a brief structured overview of the individual countries** involved in the LOCALIENCE project. The aim is not to provide a detailed description of national DRR systems, but to identify **the prevailing characteristics of gaps**, strengths, and areas with the greatest potential for further development. The profiles are based exclusively on expert responses (evaluators) in Part III of the questionnaires and their interpretation in the previous chapter.

All profiles are structured in a uniform manner to ensure comparability across countries.

Austria

Predominant characteristics

Austria is profiled in the assessment as a country with **a strong implementation approach to DRR**, particularly in the areas of preparedness, response, and technical warning systems. The institutional architecture is stable and the roles of key actors are clearly defined, enabling effective crisis management across levels.

Strengths

- High level of preparedness and regular testing of warning systems
- practical use of multi-hazard approaches at the operational level,
- systematic integration of nature-based solutions in prevention, particularly in relation to water management and landscape,
- good coordination between institutions in crisis situations.

Areas with potential for further development

- stronger integration of prevention into long-term sectoral policies, particularly spatial planning,
- limiting the sectoral approach in the area of prevention and strengthening inter-ministerial coordination,
- more systematic link between analytical data and strategic decision-making.

Profile summary

Austria represents an implementation-oriented model whose main challenge is not the functionality of the system, but its long-term preventive integration across sectors.

Slovenia

Predominant characteristics

Slovenia is characterized **by a balanced but uneven approach to DRR**, where, alongside functional elements, there are clearly identified gaps in standardization and harmonization. Expert responses show a high degree of reflection on their own weaknesses, which creates a good basis for further development.

Strengths

- Existence of functional institutional frameworks for DRR
- growing integration of NBS into prevention and adaptation measures,
- evaluation of significant events and efforts to apply lessons learned,
- good involvement of the local level in responding to crisis situations.

Areas with potential for further development

- harmonization of data and methodologies between the national and local levels,
- regularity and standardization of updates to analyses and plans,

- strengthening financial and institutional support for scaling NBS,
- more systematic transfer of knowledge between regions.

Profile summary

Slovenia can be characterized as **a hybrid model**, where there is a strong foundation for DRR, but further progress depends on the ability to systematically unify and standardize existing practices.

Hungary

Predominant characteristics

Hungary is profiled in the assessment as a country with **a distinctly policy-driven approach**, where DRR roles, responsibilities, and frameworks are clearly defined, but their practical implementation faces capacity and financial constraints, especially at the local level.

Strengths

- clearly defined institutional structure for DRR,
- Formal coordination mechanisms between key actors
- Existence of frameworks for financing and planning measures
- support for cooperation and flexibility in crisis situations.

Areas with potential for further development

- strengthening local capacities for prevention and long-term planning,
- more stable financing of preventive measures,
- stronger link between analytical data and resource allocation,
- balancing prevention and response in the practical functioning of the system.

Profile summary

Hungary presents **a strong DRR framework model**, whose main challenge is to translate policy ambitions into consistent practice across the territory.

Poland

Predominant characteristics

Poland is characterized **by a more fragmented approach to DRR**, where a strengthening legislative and strategic framework coexists with a number of parallel systems and approaches. This complicates the integration of a multi-hazard perspective and the systematic use of data.

Strengths

- Developed crisis management and response system
- active role of volunteer organizations and communities,
- Existence of national strategies and plans
- emphasis on public information and basic system preparedness (resilience preparedness).

Areas with potential for further development

- unification and interoperability of analytical and monitoring systems,
- more systematic work on population vulnerability,
- linking funding to the results of risk analyses,
- evaluation of the population's response to warnings.

Profile summary

Poland can be characterized as **a fragmentation-driven model**, where further progress in DRR depends primarily on the integration of existing tools and the strengthening of a unified approach.

Czech Republic

Predominant characteristics

The Czech Republic has **a robust crisis management system and strong operational capacity**, which is reflected in the detail and quality of the expert input provided (by evaluators). At the same time, however, the evaluation points to the absence of a unified overarching DRR strategy and uneven implementation of prevention across levels.

Strengths

- Highly functional integrated rescue system
- high-quality analytical data and expert support,
- experience in managing a wide range of emergencies,
- growing links between DRR and adaptation policy (especially in the area of climate).

Areas with potential for further development

- systematic approach to multi-hazard scenarios, including population behavior,
- stronger link between risk analysis and resource allocation,
- standardization of approaches between national, regional, and local levels,
- strengthening long-term prevention as an integral part of DRR.

Profile summary

The Czech Republic represents **a hybrid model with a very strong response**, whose further development depends primarily on the strategic unification and strengthening of the preventive component of DRR.

Comparative summary of country profiles

A comparison of the profiles of the five countries assessed shows that differences in approaches to DRR policy do not primarily lie in the existence of frameworks or institutions, but in **the way they function in practice, their interconnectivity, and their long-term sustainability**. While some countries demonstrate strong implementation capacity, others have robust strategic frameworks whose impact in practice is limited.

The typology used in this chapter does not evaluate the performance of individual countries, but rather provides **a better understanding of the nature of the gaps identified** and their causes. This comparative perspective provides the basis for the following chapter, which focuses on **the implications of the findings for DRR policy across countries**.

Part VI: Implications for DRR policy across countries

A synthetic analysis across the five countries involved in the LOCALIENCE project shows that DRR policies in Central Europe are on solid footing, particularly in the areas of emergency response and technical capacities. At the same time, however, it reveals structural challenges that are common across different institutional and national contexts. This chapter summarizes the main implications of the findings for DRR policy-making and development and identifies areas where targeted intervention can bring the greatest added value.

From the formal existence of policies to their feasibility

One of the most striking findings across the countries assessed is the gap between **the existence of policies and their practical implementation**. Strategic documents, legislative frameworks, and institutional structures are well developed in most cases. However, their systematic implementation in everyday practice, especially at the regional and local levels, remains a challenge.

From a policy perspective, this means that further progress in DRR will not be achieved primarily through the creation of new strategies, but rather through:

- strengthening implementation capacities,
- establishing a clearer link between policy objectives and available resources,
- and creating mechanisms that support the long-term sustainability of measures.

The implication is a need to focus on **the "implementation infrastructure" of DRR policies**, i.e., the set of financial, institutional, and human capacities that enable their effective functioning.

Prevention as a long-term policy priority

The results of the analysis point to the fact that prevention is recognized as a key element of DRR in all the countries assessed, but its position in practice remains weaker than that of response measures. This discrepancy has fundamental implications for long-term disaster resilience and public finances.

From a political perspective, this means the need to:

- stabilize the financing of preventive measures,
- strengthen their integration into sectoral policies, in particular climate change adaptation and spatial planning,
- and create incentives for long-term investment in prevention at the local level.

Prevention should not be seen as a supplement to crisis management, but as **an equal and strategic part of DRR policy**, always with clearly defined objectives and tools.

Data, analysis, and decision-making

Across countries, there is a recurring finding that analytical data on risks and vulnerabilities are available, but their use in decision-making is not always systematic. This has a direct impact on the effectiveness of policies and the allocation of resources.

From a DRR policy perspective, the following needs appear to be key:

- strengthen the link between risk analysis and strategic planning,
- ensure data interoperability between levels of governance,
- promote standardized approaches to risk and vulnerability assessment
- and improve communication.

These measures can help ensure that data and analysis become a real basis for decision-making, rather than just a formal requirement.

Involving the population as an active DRR actor

The findings in Chapter 4 show that warning and communication systems are technically advanced in all countries, but work on community response remains limited. This has major implications for the effectiveness of preparedness and response, particularly in the context of complex multi-hazard events.

From a policy perspective, this means the need to:

- systematically evaluate and improve public response to warnings
- tailor communication strategies to different population groups,
- and perceiving the population as a partner in the DRR process, not just as a passive recipient of information and assistance.

Strengthening this dimension can significantly increase the effectiveness of existing systems without the need for major technical investments.

Institutional learning as a prerequisite for adaptability

The ability to learn from past experiences and continuously adapt policies is a key factor in building long-term resilience in society as a whole. The results of the analysis show that although event evaluations are carried out, their systematic use to update policies and plans is not standard practice in all countries.

The implications for DRR policy are the need to:

- strengthen the standardization of evaluation and updating processes,
- support institutional memory and knowledge transfer,
- and create space for learning not only after crises, but also in periods of relative calm.

Institutional learning should be understood as **an ongoing process**, not as a one-off response to extraordinary events.

Added value of cooperation and experience sharing at the European level

The findings of the LOCALIENCE project suggest that many of the challenges identified are transnational in nature and not limited to a specific national context. This creates opportunities for strengthening cooperation and sharing experiences at the European level.

From a policy perspective, this means:

- promoting the exchange of good practices in the areas of prevention, NBS, and working with the population
- developing common frameworks and standards where it makes sense,
- and using European instruments to strengthen capacities, particularly at the local level.

European cooperation can help ensure that individual countries do not have to address similar challenges in isolation, but can build on shared experiences and best practices.

Summary of key implications

In conclusion, the further development of DRR policy in Central Europe will largely depend on the ability to:

- strengthen the feasibility and implementation of existing policies,
- systematically prioritizing prevention,
- link data, analysis, and decision-making,
- involve the population as an active part of DRR,
- and develop institutional learning and cooperation.

These implications form the basis for the final section of the document, which summarizes the main findings and outlines further recommended steps in the field of DRR.

Part VII: Conclusions and discussion

This chapter summarizes the main results of the disaster risk reduction policy gap assessment and offers their interpretation from different perspectives. Given the different needs of the target groups, this chapter is structured into three interconnected but thematically distinct sections.

Subchapter **VII.1 Summary for Experts** provides a synthetic summary of key analytical findings and follows directly on from the previous chapters of the document. It is primarily intended for experts and actors involved in the development and implementation of DRR policy and serves as a conclusion to the analytical framework of the assessment.

Subchapter **VII.2 Policy Brief** translates the main findings into a concise, understandable form that is relevant to decision-making processes. It is aimed at policymakers and other decision-makers and highlights key priorities and implications for the further development of DRR policy across countries.

Subsection **VII.3 Policy Dilemmas of Strengthening DRR** expands on the previous conclusions with a reflective view of the institutional and political compromises associated with strengthening DRR. This section is intentionally more open and debatable in nature, aiming to stimulate a deeper debate on what strengthening DRR actually means in practice.

Together, these three sections form a comprehensive concluding framework that allows the evaluation results to be read from both a technical and a political perspective, while also opening space for further discussion on the future direction of DRR policy in the context of climate change.

VII.1 Summary for experts

This document provides a qualitative comparative view of the gaps in disaster risk reduction policy in the five countries involved in the LOCALIENCE project. Based on expert input (from evaluators) and their synthetic analysis, it was possible to identify not only specific weaknesses in individual policies, but above all **common structural challenges** that transcend national contexts and reflect broader European trends in disaster risk management in the context of climate change.

The analysis shows that the countries assessed have robust institutional and strategic frameworks, particularly in the areas of crisis management, preparedness, and response. However, these strong foundations alone do not guarantee long-term resilience. The most significant gaps repeatedly appear in the **practical implementation of prevention, the coherence of the individual phases of the DRR cycle, and the ability of systems to systematically learn and adapt**.

One of the key findings is that the further development of DRR policy will not primarily be a matter of creating new strategies, but rather of **strengthening the feasibility and sustainability of existing frameworks**. This includes stable funding for preventive measures, strengthening capacities at the local level, effective use of data and analytical materials, and systematic involvement of the population in preparedness and response processes.

The document also shows that the ability to learn from experience and continuously update policies is one of the main factors distinguishing different approaches to DRR. Institutional learning, standardization of update processes, and knowledge transfer between levels of governance are proving to be key prerequisites for adaptability in an environment of growing uncertainty and complexity of risks. From the perspective of European cooperation, the analysis confirms the added value of sharing experiences, good practices, and analytical approaches across countries. Many of the challenges identified are transnational in nature and can be effectively addressed through common frameworks, methodologies, and capacity-building tools that respect the different institutional contexts of individual countries.

The analysis of gaps in DRR policy within the LOCALIENCE project confirms that the weaknesses identified are not primarily a question of the absence of policies, but rather their **insufficient feasibility**, **fragmentation, and limited links between the individual phases of the DRR cycle**. A significant proportion of the gaps are structural in nature and recur across levels of governance – from global and European to national and local.

Gaps in **the transition from reaction-oriented systems to systematic prevention** are particularly pronounced, despite long-standing international frameworks (Sendai Framework, European resilience strategies). Prevention remains underfunded, institutionally weaker, and often separated from spatial planning, adaptation policies, and investment decisions. This disconnect limits the ability of systems to respond to the increasing **multi-hazard and cascade scenarios** that are characteristic of climate-related disasters.

The analysis further shows that although **data, risk assessments, and analytical tools** are formally available, they are not systematically used for decision-making, prioritizing measures, and allocating resources. Data fragmentation, low interoperability, and weak links between science and policy reduce their strategic value. Institutional learning tends to be reactive, occurring after major events, rather than a continuous and standardized process.

From a governance perspective, **persistent sectoral thinking (silos)** and limited cooperation between professional and non-professional actors also pose a significant challenge. The potential of the population, volunteers, and community structures remains underutilized, even though international experience confirms their key role in preparedness, response, and recovery.

In conclusion, the LOCALIENCE project has provided an important space for a deeper understanding of the current state of DRR policy in Central Europe. The results of this document can serve as **a basis for further development of national policies, strengthening of inter-ministerial cooperation, and support for long-term resilience to climate-related disasters**.

VII.2 Policy Brief

Disaster risk reduction in the context of climate change

Key findings and policy priorities across five EU countries

Context

Climate change is increasing the frequency, intensity, and complexity of disasters in Europe. Disaster risk reduction (DRR) policies therefore play a key role not only in protecting the population, but also in the long-term sustainability of public finances and spatial development.

This policy brief summarizes the main findings **of a qualitative assessment of gaps in DRR policy** in the five countries involved in the **LOCALIENCE** project (Austria, the Czech Republic, Hungary, Poland, and Slovenia). The assessment is based on expert input from national DRR evaluators and is implicitly anchored in **the Sendai Framework for Disaster Risk Reduction** and European approaches to resilience and climate change adaptation.

Key findings (across countries)

1. DRR policies exist, but their implementation is uneven

All assessed countries have robust strategic and institutional frameworks for DRR, particularly in the area of emergency response. However, the greatest challenges do not relate to the existence of policies, but rather to their **practical implementation, long-term sustainability**, **and consistent application**, particularly at the regional and local levels.

2. Prevention remains the weak link in the DRR cycle

Although prevention is widely recognized as a key pillar of DRR, in practice it often takes a back seat to response measures. Prevention faces:

- unstable funding,
- a sectoral approach,
- weaker links to spatial planning and adaptation policies.

3. Data and analysis are not systematically used for decision-making

Risk analyses and data are available, but their use for:

- prioritizing measures,
- allocating resources,
- updating policies

remains uneven. Data fragmentation and limited interoperability reduce their strategic value.

4. The multi-hazard approach is recognized but not fully operationalized

The multi-hazard concept is generally accepted, but its practical application in the form of:

- combined scenarios,
- exercises,
- preparedness plans

remains selective. This limits the ability to respond to concurrent and chain events.

5. The population is still more of an object than a partner in DRR

Technical warning systems are well developed, but **systematic work on population response** (understanding, trust, behavior) is limited. The potential for involving the population as an active DRR actor remains underutilized.

6. Institutional learning tends to be reactive

Event evaluation is common after major crises, but less so during periods of relative calm. Standardization of policy updates, knowledge transfer, and institutional memory are not systematically ensured in all states.

7. Insufficient coherence between DRR, climate change adaptation, and development policies

The analysis identified a persistent mismatch between DRR, climate adaptation, sustainable development, and land-use planning policies. These policies are often developed in parallel, without sufficient integration, leading to unsustainable decisions, such as infrastructure development in risk areas or underestimation of the long-term impacts of climate change.

8. Weak institutionalization of the multi-hazard approach

Although the multi-hazard approach is widely declared, its practical operationalization remains limited. National and regional systems are still largely based on historically dominant individual types of risks, which reduces the ability to respond to concurrent, chained, and systemic events.

9. Insufficient funding for resilience and prevention

In all contexts assessed, there is a clear mismatch between the economic impact of disasters and the amount of resources allocated to prevention and risk reduction. The predominance of response funding over prevention weakens the resilience of systems in the long term and increases the future fiscal burden.

Typology of approaches to DRR

The analysis identified four predominant types of approaches:

- **implementation-driven** (strong practice, operational capacity),
- **policy-driven** (strong frameworks, weaker implementation),
- **hybrid models**,
- **fragmented models** (parallel systems, weaker integration).

The typology is not intended to evaluate the performance of states, but to understand the nature of gaps and their causes.

Five priorities for DRR policy

1. Strengthen implementation capacities

Focus on the practical feasibility of DRR policies, especially at the regional and local levels, and ensure stable human and financial resources.

2. Systematically prioritize prevention

Integrate prevention into mainstream policies, particularly climate change adaptation and land-use planning, and ensure its long-term financing.

3. Link data, analysis, and decision-making

Ensure that risk analyses and data are systematically used in strategic planning, budgeting, and policy updates.

4. Engage the population as active DRR actors

Develop approaches that systematically work with the population's response to warnings and strengthen public confidence, understanding, and preparedness.

5. Develop institutional learning and adaptability

Promote continuous learning, standardized policy updates, and effective knowledge transfer between levels of government and sectors.

Added value of European cooperation

Many of the challenges identified are transnational in nature. European cooperation can make a significant contribution to:

- sharing good practices,
- developing common frameworks and methodologies,
- strengthening capacities, particularly at the local level.

The LOCALIENCE project shows that **joint learning and a comparative approach** are important tools for the further development of DRR policy in Europe.

VII.3 Political dilemmas of strengthening DRR

Or: What would need to be sacrificed to truly strengthen DRR?

A reflective view of political and institutional compromises

This chapter is a deliberately reflective and somewhat provocative supplement to the previous analysis. Its aim is not to formulate further recommendations, but **to openly identify the political, institutional, and budgetary compromises** that would need to be accepted if disaster risk reduction (DRR) policy were to be significantly strengthened beyond its current state.

The findings presented in this document suggest that the main barriers to DRR development do not lie in a lack of knowledge, strategies, or technical solutions. On the contrary, the key question becomes **what public policies would have to give up in order to truly strengthen DRR**.

Strengthening prevention means weakening other policy priorities

One of the most frequently declared goals is to strengthen prevention. In practice, however, this would mean:

- redirecting public investment from visible short-term projects to measures with long-term and difficult-to-communicate benefits,
- limiting certain development activities in risk areas,
- and a political decision to invest in "invisible success."

Strengthening prevention would therefore necessarily mean **weakening other political agendas**, especially where investments in infrastructure, housing, or economic development are in direct conflict with risk management. In this sense, prevention is not just a technical issue, but **an explicit political choice**.

Systematic use of data means a loss of decision-making flexibility

Analysis repeatedly shows a weak link between risk analysis and decision-making. However, truly strengthening the role of data would mean:

- limiting the scope for ad hoc political decisions,
- increasing the transparency of the prioritization of measures,
- and accepting that some decisions will be politically difficult to justify, even if they are analytically sound.

Increasing the role of data and analysis could thus lead to **a reduction in short-term political flexibility**, especially at the local level, where decisions are often highly contextual and personnel-dependent. This represents a significant but rarely openly discussed choice (or trade-off).

Strengthening local capacities means weakening centralized control

One of the key findings is the uneven capacity of regional and local levels. However, its real strengthening would mean:

- delegating part of the decision-making powers downwards (to a lower level of management/administration),
- accepting a higher degree of variability in approaches and results,
- and reducing the degree of centralized control over policy implementation.

Strengthening local capacities would therefore not only be a matter of finance and training, but also **of changing** the **institutional culture** to accept greater heterogeneity and less standardization.

Involving the population means losing full control over communication

Greater public involvement in DRR is often mentioned as a desirable goal. In practice, however, this would mean:

- accepting a plurality of interpretations of risks,
- working with uncertainty, emotions, and mistrust,
- and relinquishing full control over how warnings and measures are perceived and interpreted.

Involving the public as an active participant would therefore mean **a transition from communication management to relationship management**, which is a demanding, long-term process that is difficult to grasp institutionally.

Institutional learning means questioning established practices

Systematic institutional learning requires not only an evaluation of past events, but also a willingness to:

- acknowledge structural weaknesses,
- revise established practices,
- and change institutional roles and responsibilities.

Such a process can disrupt the stability of existing structures and is associated with **political and organizational costs**. In an environment where crisis systems are perceived as relatively functional, the motivation for change may be limited.

Policy fragmentation versus systemic resilience

One of the less visible but fundamental dilemmas of strengthening DRR is the need **to break down institutional and sectoral boundaries** that have long structured public policies. The actual implementation of a multi-hazard and systemic approach would require limiting departmental autonomy, sharing data, budgets, and responsibilities, and adopting common priorities across climate, security, development, and social protection policies.

However, such a step would mean a loss of institutional control, a blurring of responsibilities, and increased coordination requirements—costs that are politically and administratively difficult to accept. DRR thus finds itself caught between declared systemic ambition and the practical inertia of existing structures.

DRR as a real priority means redefining success

A fundamental but often overlooked choice (or trade-off) is the need to redefine the concept of success in public policy. A real strengthening of DRR would mean:

- evaluating success based on what did not happen,
- investing in measures whose benefits are difficult to quantify,
- and accepting that political credit for prevention is limited.

This represents a challenge not only for political leaders, but also for public administration and evaluation mechanisms.

Final reflection

This chapter shows that the main barriers to strengthening DRR are not technical or knowledge-based, but primarily **political and institutional**. Strengthening DRR requires a willingness to accept losses in other areas, to limit certain established practices, and to redefine public policy priorities.

The inclusion of this chapter in the document is not essential for understanding the analytical findings. However**,** it can serve as **an impetus for a more open debate on what it really means to take DRR seriously**—not only in terms of strategies and declarations, but also in terms of political decisions.