Policy Brief

Risk and Resilience in Multiple Changing Climates

Recommendations to INCREASE Integrated Disaster and Resilience Management when Facing Multiple Risks in Changing Climates

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Introduction

Climate change and other global shifts are transforming the landscape of disaster risk. We are not only facing more frequent and extreme weather events – such as unprecedented floods and wildfires – but also grappling with changes in social, political, and informational "climates." Not only are extreme events driven by climate change increasing, but new security threats, demographic shifts, and the spread of misinformation are also altering vulnerabilities and challenging traditional notions of risk and social cohesion. In this context, the INCREASE project (a four-year research effort funded by the Federal Ministry of Education and Research in Germany) has developed insights and recommendations to strengthen integrated disaster risk and resilience management. This brief distils those findings into actionable advice, aligned with global frameworks like the Sendai Framework for Disaster Risk Reduction 2015–2030, European Union policies, and international resilience strategies such as the Paris Agreement's adaptation goals, Sustainable Development Goals (SDG), or the New Urban Agenda. The aim is to help policymakers enhance disaster preparedness and societal resilience in the face of multiple evolving risks.

Changing Risk Landscape in a Changing Climate

Escalating Hazards and Evolving Risks: The climate has measurably changed in recent years, with rising average temperatures, shifting seasonal patterns, and a pronounced increase in extreme events. However, it is *not just* the physical climate that is changing. We are also experiencing shifts in the socio-political climate – from global security uncertainties to changing public mindsets about risk. Hazards themselves are becoming more complex, and what we consider "risk" is evolving as society changes. For example, demographic shifts and migration alter exposure and vulnerability, while the influence of social media and the spread of fake news can erode social cohesion and trust in risk information. These factors compound the challenges posed by climate change, creating a multi-faceted risk environment. Some may even misuse or exploit the term risk, in politics, for instance. Policymakers must recognize that today's risks are interconnected and often amplified by global trends, requiring a broad and forward-looking approach.

Stagnating Progress and Political Will: International efforts to address these issues have had mixed success. Global conferences – from climate change COPs to agreements on land degradation and biodiversity – have made only slow progress. There is growing public debate over political inaction or the misuse of such forums. At the same time, issues of climate change, national security, and civil protection have climbed the political agenda. This heightened attention could drive positive action for disaster preparedness and climate adaptation. However, it also carries the danger of being co-opted by narrow interests or "securitized" in ways that divert from the original intent of risk reduction. In some cases, scientific knowledge and evidence-based policies are challenged or politicized, undermining the risk-informed decision-making that frameworks like Sendai advocated. A robust understanding of disaster risk remains fundamental – *"a first step towards addressing risks effectively"*[1] – but we must also safeguard the progress already made from being rolled back by short-sighted policies.

[1] civil-protection-humanitarian-aid.ec.europa.eu

Re-examining Priorities: In light of these changing climates, it is important to reconsider what needs to be done now, as opposed to five or ten years ago. The Sendai Framework's priorities – such as improving risk knowledge, engaging all stakeholders, and **"**Build Back Better" in recovery – remain relevant. Yet we must ask: do we still primarily lack risk awareness and data, or is the greater challenge mobilizing political will and resources to act on what we already know? Some even question whether we need a dedicated global conference for disaster risk reduction (a "COP for DRR"), or if that energy is better spent implementing solutions on the ground. Rather than continually devising new sophisticated strategies, an emerging imperative is to protect and sustain existing disaster risk reduction measures against "backward-looking" policies. In other words, we must not only advance new initiatives but also ensure that hard-won gains (in climate adaptation, risk governance, etc.) are not eroded. This calls for steadfast commitment to resilience principles even as political climates shift.

Going back to the main targets of the Sendai Framework for Disaster Risk Reduction, we have identified some key questions still unresolved:

- Do we still need more risk knowledge? Do we still need more governments or economic actors to become interested in the topic with their vested interests? Do we still need to promote building back better?
- Or are we asking the wrong questions, looking into the wrong directions? Do we, beyond asking for even more sophisticated solutions, first of all need to discuss how already existing and implemented solutions can be protected against attacks by backward-looking policies and at least permanently secure the status quo that has already been achieved?

Key Findings from the INCREASE Project

Based on the experience of the INCREASE project – which involved international science partners, first responder organizations, disaster risk platforms, and small/medium enterprises – several insights emerged about the current state of disaster risk management:

- **Disaster Risk Knowledge in Silos:** Substantial knowledge on disaster risks exists, but often in niche pockets of expertise. There is still a need for broader awareness campaigns, knowledge-sharing, and cross-sector workshops to spread this expertise. In line with Sendai Priority 1 (Understanding Disaster Risk), a "multi-hazard management of disaster risk at all levels and across sectors" is required, so that information is not confined to silos.
- **Need for Guidance and Resources:** Many governments, public administrations, and companies lack practical guidance on conducting risk assessments and improving risk management and communication. They often require external advice and *action-oriented* knowledge to kick-start risk reduction initiatives. However, these organizations also need sufficient resources and capacity to act on that knowledge. Investing in building such capacity is crucial – an approach echoed by the EU's Civil Protection Mechanism, which calls on Member States to assess risks and capabilities regularly.
- **Value of Science-Policy Collaboration:** Transdisciplinary collaboration between scientists and practitioners is often key to initiating or justifying new processes within an organization. Scientific input (e.g., climate data, risk modelling, scenario analysis) can lend credibility and urgency to disaster risk management efforts. However, scientists

should maintain neutrality and avoid becoming mere consultants or substitutes for institutional responsibilities. The hallmark of science – independence and evidence-basis – must be preserved. Effective collaboration means co-producing solutions while ensuring that decision-makers ultimately take ownership of risk management, rather than "outsourcing" it to academics.

- **"Build Back Better" Challenges:** The ideal of *Building Back Better* after disasters – making repairs and reconstruction more resilient than before – often fails in practice. For instance, after the severe German floods of 2021, the understandable public desire to recover quickly, along with legal and funding constraints (including insurance), led to rebuilding almost exactly what existed pre-disaster. Opportunities to adapt to future flood risk were limited. This pattern, seen in many disasters, reveals a tension between short-term recovery and long-term resilience. Policies and funding mechanisms must be adjusted to encourage rebuilding in safer locations, with improved standards, rather than merely restoring the status quo. Aligning recovery funding with resilience goals (as advocated in Sendai Priority 4 on "Build Back Better") is critical to avoid re-creating risk.
- **Public Interest and Attention Span:** Disaster risk management tends to gain broad public and political attention only after major disasters. INCREASE's comparison of lessons learned and expertise in Germany with Iran, Jordan, Kazakhstan, Kyrgyzstan and other countries found a common story: interest spikes following floods, earthquakes, or other catastrophes, but quickly wanes during "quiet" periods. This reactive pattern poses a challenge for sustained preparedness. It underscores the importance of institutionalizing risk reduction (through laws, education, and continuous drills) so that readiness does not solely depend on the immediacy of a past disaster. International knowledge exchange can help maintain momentum by sharing lessons from recent events wherever they occur.
- **Emerging Focus Areas:** On a positive note, recent years have seen growing interest in advanced risk management topics that influence policy and practice. These include: integrated disaster risk management, the resilience of critical infrastructure and understanding of cascading effects, multi-risk assessments using geospatial information systems (GIS), stakeholder involvement and participatory planning processes, urban resilience and inclusive planning for cities, standardized first-responder procedures, and improved rendering and visualizations of risk and resilience data. These evolving focus areas indicate that many stakeholders are seeking more sophisticated and systemic ways to handle risk. They also reflect priorities highlighted in global frameworks – for example, developing multi-hazard early warning systems and risk assessments is a target under Sendai and a priority in EU policy. Policymakers should support and institutionalize these advancements, ensuring that regulations and funding to keep pace with the state of the art in disaster risk reduction.

INCREASE Approach

To address the challenges identified above, the INCREASE project developed a structured approach to **increase capacities** for managing multiple risks among diverse actors. This approach emphasizes integration and collaboration at every step, consisting of four key elements:

1. **Stakeholder Engagement Process**: Proactively involve a wide range of stakeholders through engagement processes. This means fostering intersectoral collaboration and reaching beyond the "usual suspects." Bringing together government agencies, private sector, civil society, academia, and community representatives ensures that different perspectives are included. Such inclusive engagement builds trust and breaks down silos, creating a shared ownership of risk problems and solutions. For example, city planners, emergency managers, health services, and environmental experts might jointly plan for climate-related hazards, ensuring all critical viewpoints are considered.
2. **Comprehensive Risk Assessment:** Expand the scope of assessments to enhance all dimensions of risk – hazards, exposure, vulnerability, and resilience. Instead of focusing narrowly on one dimension of risk (i.e., physical damage and loss) alone, the INCREASE approach evaluates how various factors (physical, social, economic, environmental) contribute to overall risk. This comprehensive view aligns with best practices urging multi-dimensional risk analysis.
3. **Multi-Risk and Systemic Analysis:** Conduct assessments of multiple overlapping and interconnected risks, rather than evaluating one hazard or one scenario at a time. Real-world disasters can trigger cascading effects – for instance, an earthquake causing industrial accidents, or a storm leading to floods and power outages. The INCREASE method explicitly examines such interdependencies and compound events. This systemic approach moves beyond single-impact chains to consider a range of possible interactions. By planning for complex scenarios, authorities can avoid blind spots that would be missed in siloed risk assessments.
4. **Integrated Communication and Inclusion:** Risk reduction measures must engage communities early and continuously. Whether designing flood early-warning systems or preparing businesses for pandemics, communication ensures measures are practical, culturally relevant, and widely supported. Informed communities cooperate better with resilience efforts, improving long-term disaster preparedness.

By applying this approach, policymakers can strengthen the fabric of resilience across society – connecting people, knowledge, and actions in a way that mirrors the interconnected nature of the risks themselves. Importantly, this approach aligns with international best practices. It fosters the kind of *whole-of-society* engagement championed by the Sendai Framework and Europe's resilience frameworks, and it builds the human and institutional capital needed to adapt in an era of uncertainty.

Policy Recommendations

The INCREASE project identifies key actions to strengthen disaster resilience in a world of evolving risks. These recommendations align with global frameworks like the Sendai Framework, Paris Agreement, New Urban Agenda, SDGs and EU risk reduction strategies.

1. **Invest in People and Skills for Resilience:** Disaster prevention hinges on human capacity. Governments must prioritize training, education, and preparedness exercises. Investing in risk awareness and local response teams reduces disaster losses and yields safer, more informed communities—offering a high return on investment.

2. **Adopt Multi-Risk Assessments:** Traditional single-hazard approaches miss interconnected risks. Policies must mandate multi-hazard assessments that capture cascading effects—for example, how floods trigger infrastructure failures or hazardous spills. Standardized risk guidelines and cross-agency data sharing will improve preparedness.
3. **Plan for Worst-Case Scenarios:** Disaster impacts are regularly exceeding projections. Policymakers must stress-test low-probability, high-impact events (e.g., unprecedented storm surges or simultaneous crises). Scenario planning helps identify weak points, ensuring systems can withstand and adapt to extreme shocks.
4. **Move Beyond Buzzwords—Ensure Real Resilience:** Resilience must be actionable, not rhetorical. Instead of rebranding outdated measures, policies should mandate forward-looking solutions—climate-proofing infrastructure, strengthening adaptation policies, and measuring resilience outcomes. Overused terms should not mask real vulnerabilities. Think beyond risk, do not simply replace the term with resilience. Resilience in decision-making is often oversimplified and provides a false sense of security by simply suggesting measures of protection or security that existed before.
5. **Break Silos—Foster Cross-Sector Collaboration:** Government bureaucracies often hinder disaster resilience. Departments should be incentivized to work across silos through joint task forces, shared funding models, and flexible policies. Disaster preparedness must extend beyond "business as usual."
6. **Connect Policymakers, Scientists, and Practitioners:** Risk reduction requires direct engagement between policymakers, emergency responders, and researchers. Regular joint exercises, scenario-based planning, and expert collaboration ensure that policy is grounded in real-world challenges and emerging science.
7. **Leverage International Cooperation—Keep Science Neutral:** Cross-border risk reduction benefits from knowledge exchange, joint research, and peer learning. However, scientific findings must remain independent and not be co-opted for political agendas. Evidence-based decision-making should guide global collaboration.
8. **Promote Transdisciplinary Action and Science-Practice Transfer**: Risk reduction is a shared responsibility. Governments should establish science-practice networks, "living labs," and resilience partnerships to co-create solutions with communities, businesses, and researchers. A bottom-up, inclusive approach ensures risk strategies are widely supported and effective.

Conclusion: Toward Integrated Disaster Risk Management

In conclusion, the INCREASE project's experience underlines that **Integrated Disaster Risk Management** in a changing climate requires integration across multiple dimensions:

- Integrating multiple hazards and risks (a multi-hazard, multi-risk, and multi-impact approach).
- Integrating transformations of risk and societal systems (recognizing how the evolving drivers of climate change, environment, and socio-economic dynamics interact).
- Integrating different disciplines, sectors, and governance levels (transcending institutional and geographic boundaries).

- Integrating risk and resilience, capturing the understanding of resilience as something dynamic and transformative rather than static.
- Integrating of compounding effects of extreme events (where on disaster can trigger or amplify another in our planning and response).

Above all, we encourage thinking of “resilience“ in a new way, one that emphasizes ever-evolving risks, societal shifts, and the need for continuous adaptation. This requires reconsidering traditional notions of protection, robustness, or simply restoring what was lost (“*building back better*” in words but not in deed). Instead, resilience should focus on flexibility, learning, and proactive engagement **with** changing conditions. Society must be ready to deal with multiple, simultaneous risks, and cascading crises in an interconnected world. A local disaster can have far-reaching impacts, and a distant event (like a disruption in global supply chains or a pandemic outbreak) can quickly cascade to affect communities everywhere. By embracing an integrated approach – one that is inclusive, informed by science, and embedded at all levels of decision-making – we can strengthen our collective resilience. Policymakers have a critical role in championing this vision.

The recommendations in this brief provide a roadmap to do so, by enhancing clarity, bolstering technical rigor, and ensuring policy actions are aligned with international standards. Implementing them will help safeguard lives, livelihoods, and social cohesion against the emerging challenges of multiple changing climates, now and in the future.