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Emerging Trends in DRR: A Comparative Overview of Sendai Framework Implementation Across 55 GADRI Member Countries

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Introduction

The Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) is the current global policy framework guiding national and international efforts in building disaster resilience. Seven global targets were developed, to be achieved via action in four priority areas including: Priority 1—Understanding disaster risk; Priority 2—Strengthening governance; Priority 3—Investing in disaster risk reduction (DRR); and Priority 4—Enhancing disaster preparedness. Nonetheless, the 2023 Midterm Review of the Implementation of the SFDRR (MTR SF) declared achieving the seven global targets by 2030 as improbable. With progress noted in only two targets, significant course correction challenges were identified to accomplish the other five global targets.

Barriers in achieving SFDRR goals are often attributed in part to the increase of frequent and intense hazard events, vulnerable urbanisation, and ineffective development practices. However, recent evidence grounded in the Emergency Events Database suggests hazard event frequencies exhibit relative stability with the increased number of reported disasters credited to improved reporting practices. This suggests that perceptions of increasing disasters can be due to changes in other driving factors within the disaster risk function.

The disaster risk function is mathematically expressed as Risk = (Hazard x Exposure x Vulnerability) / Capacity. In the MTR SF, the United Nations Office for Disaster Risk Reduction (UNDRR) recognises growing risk complexity—due to increasing exposure and vulnerability—overwhelms conventional governance systems. This is reflected in Member States MTR SF reports on national SFDRR implementation progress. However, comparative, cross-country assessments in the MTR SF remain insufficient for diagnosing systemic barriers to accomplish SFDRR targets.

To support capacity building, this study demonstrates a comparative overview of emerging trends in SFDRR implementation, highlighting system-level patterns and priority-specific asymmetries. This study employs a pilot comparative matrix, emphasising directional grading evaluation over absolute performance to identify progress and barrier trends across the SFDRR's four priorities for action. SFDRR Priority Prevalence Scoring (PPS)—used to analyse priority-based trajectory—and SFDRR Prevalence Scoring (SPS)—used to examine national implementation trajectories—are introduced as a meta-evaluative lens for interpreting global progress in SFDRR implementation.

Methodology

Dataset Scope: This study analyses national SFDRR implementation between 2015 to 2024 across 55 Global Alliance of Disaster Research Institutes (GADRI) member countries. The dataset was constructed using MTR SF, Voluntary National Reports, official reports, policy and legal documents, supplemented by other publicly available literature. The analysis is limited to natural hazards, focusing on system-level capacity.

Data Analysis Approach: Research through Design

1. Desk-based Synthesis (Historical Review, Data Coding, and Preliminary Qualitative Mapping)
2. Mixed Comparative Analysis (Pattern Extraction and Directional Evaluation)
3. Pilot Verification and Enrichment Study (Explorative Perception Survey and Expert Opinion Feedback)

Results

The study produced two indices reflecting SFDRR implementation trajectories at country, regional, and global scales. Overall, positive but uneven SFDRR implementation trajectories were noted with higher aggregation in Priority 1 and Priority 2 compared to Priority 3 and Priority 4.

Table 1

Computed Aggregation: SFDRR Priority Prevalence Scoring (PPS)

Alliance	Priority 1	Priority 2	Priority 3	Priority 4
Africa	6	7	3	5
Americas	7	6	8	5
Asia	16	11	13	14
Europe	13	16	12	15
Oceania	2	1	2	−1
PPS	**44**	**41**	**38**	**38**

Figure 1

SFDRR Prevalence Scoring (SPS): Country-level and Regional Directional SFDRR Progress Matrices

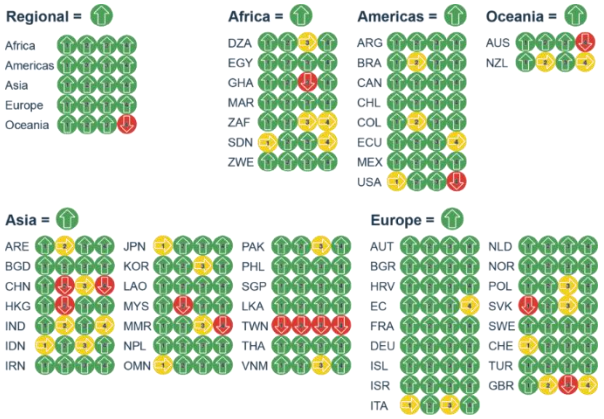
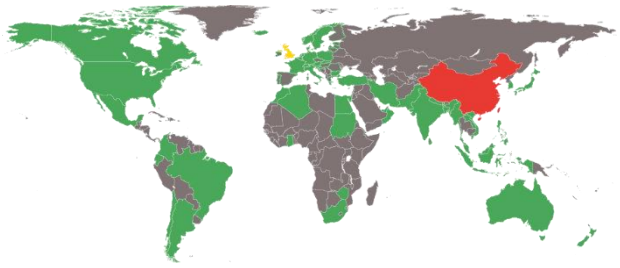


Figure 2

SFDRR Prevalence Scoring (SPS): Global Heatmap of SFDRR Implementation Progress



Discussion

Despite notable overall progress, PPS values show priority asymmetries across regional alliances, further influenced by the number of countries within each region. Hence, PPS values show possible downstream bottlenecks moving across from Priority 1 to Priority 4.

SPS values show an overall positive trajectory with >0 SPS levels across all 5 regional alliances. This indicates a general positive trajectory in SFDRR implementation with 52 countries having >0 SPS values. SPS values generated a global heatmap, enabling instant understanding of the SFDRR implementation status between 2015 to 2024.

Notable limitations include dependence on grey literature in dataset formation and the flattening of nuances of unique contexts owing to similar weighting applied for all indicators across the 55-country sample. Meta-evaluation tool refinements must address dataset robustness, indicator selection, and weighting priorities to increase appraisal accuracy in meta-evaluation.

Conclusion

This study demonstrates a first pilot meta-evaluation of global DRR policy frameworks, utilising the SFDRR as a system-level diagnostic foundation. Global progress shows positive but asymmetrical trajectory-based improvements. Future research intends to improve methodology to enhance accuracy and attain further verification.