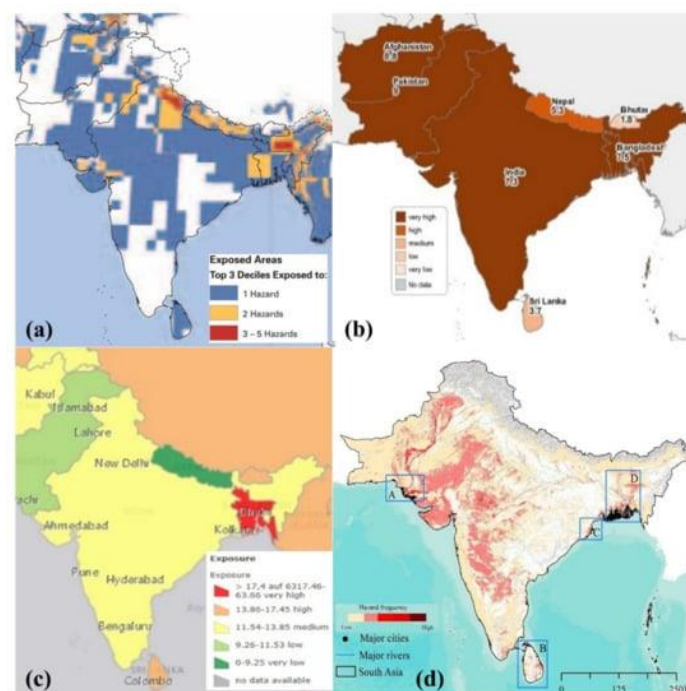


Strategic Integration of Risk Management Paradigms within National Security Frameworks: Insights from South Asia

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Introduction

In an era where natural disasters are increasing in frequency and severity, the need for effective integration of disaster risk management (DRM) within national security frameworks has never been more critical. South Asia, characterized by its diverse geographic and climatic conditions, faces a plethora of natural hazards that threaten the lives and livelihoods of millions. From devastating floods to catastrophic earthquakes, the region's vulnerability necessitates a cohesive approach that intertwines disaster risk management with national security strategies. This paper delves into the complexities and challenges of this integration, drawing insights from South Asia's unique context, and highlights the critical need for a cohesive approach that not only addresses immediate disaster risks but also fortifies the region's long-term security and resilience.



Source: MDPI and ACS Style - Amarnath, G.; Amarasinghe, U.A.; Alahacoon, N. Disaster Risk Mapping: A Desk Review of Global Best Practices and Evidence for South Asia. *Sustainability* 2021, 13, 12779. <https://doi.org/10.3390/su132212779>

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Overview of Disaster Risk Management in South Asia

South Asia is characterized by its diverse geographic and climatic conditions, making it highly susceptible to a range of natural hazards that pose significant risks to socio-economic development.

Natural Hazards and Vulnerability

Hydro-meteorological hazards, particularly floods, are a significant concern in South Asia. Seasonal monsoon rains often lead to severe flooding, displacing millions and causing extensive damage, as seen in the catastrophic flooding in Pakistan in 2010, which affected around 20 million people². Coastal regions, especially in Bangladesh and India, frequently face tropical cyclones that result in loss of life and infrastructure damage, exacerbating vulnerabilities³. Geological hazards, such as earthquakes, also pose serious threats. South Asia's location on active tectonic fault lines makes it susceptible to seismic activity, with the 2015 Gorkha earthquake in Nepal being particularly devastating. The mountainous terrains of Nepal and Bhutan are prone to landslides, worsened by deforestation and poor land management. Droughts present another critical hazard, particularly in India and Pakistan, where insufficient rainfall significantly impacts agriculture and water supply. Climate change further intensifies this vulnerability by altering precipitation patterns and increasing the frequency of heat waves, posing health risks, especially in urban areas with inadequate infrastructure⁴.



Socio-Economic Impacts of Natural Hazards

The socio-economic impacts of these natural hazards are profound and far-reaching. Natural disasters can lead to substantial casualties and the obliteration of livelihoods, particularly among communities reliant on agriculture and informal sectors. Disasters disrupt both local and national economies, necessitating costly recovery efforts and leading to long-term economic

² Shesh Kanta Kafle, 'Disaster Risk Management Systems in South Asia: Natural Hazards, Vulnerability, Disaster Risk and Legislative and Institutional Frameworks', *Journal of Geography & Natural Disasters* 7, no. 3 (2017), <https://doi.org/10.4172/2167-0587.1000207>.

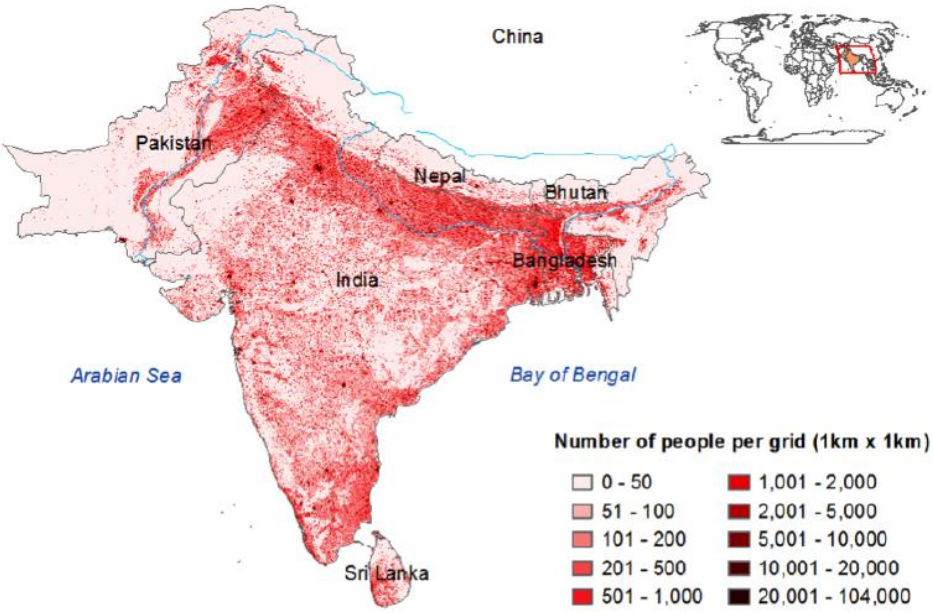
³ Pardeep Sahni And Madhavi Malalgoda Ariyabandu, *Disaster Risk Reduction In South Asia* (PHI Learning Pvt. Ltd., 2003).

⁴ Van Bronkhorst, 'Disaster Risk Management in South Asia: Regional Overview', 2012, <https://www.semanticscholar.org/paper/Disaster-risk-management-in-South-Asia-%3A-regional-Bronkhorst/94a3d839380be37a917374ab36fb5c7af3a316ba>.

setbacks. For instance, the economic toll from the 2015 earthquake in Nepal was estimated to exceed \$7 billion, highlighting the severe financial implications of such events⁵. Furthermore, critical infrastructure—including roads, hospitals, and schools—is often severely impacted during disasters, impeding immediate recovery efforts and stymying future development.

Vulnerability Factors

Several interrelated factors contribute to the heightened vulnerability of South Asian nations to natural hazards. High population density in urban centers like Mumbai and Dhaka exacerbates the impact of disasters, complicating evacuation and response efforts⁶. Additionally, a significant portion of the population in South Asia lives in poverty, lacking the essential resources and infrastructure to effectively prepare for and recover from disasters. Vulnerable groups, including women, children, and the elderly, are disproportionately affected by the consequences of these hazards⁷. Weak institutional frameworks also play a critical role in exacerbating vulnerability. Despite the establishment of various disaster management policies, their implementation remains inconsistent across the region. This inconsistency often arises from a lack of coordination among government agencies and insufficient funding.



Source: Mohammad Shamsudduha “Groundwater resilience to human development and climate change in South Asia”, 2013

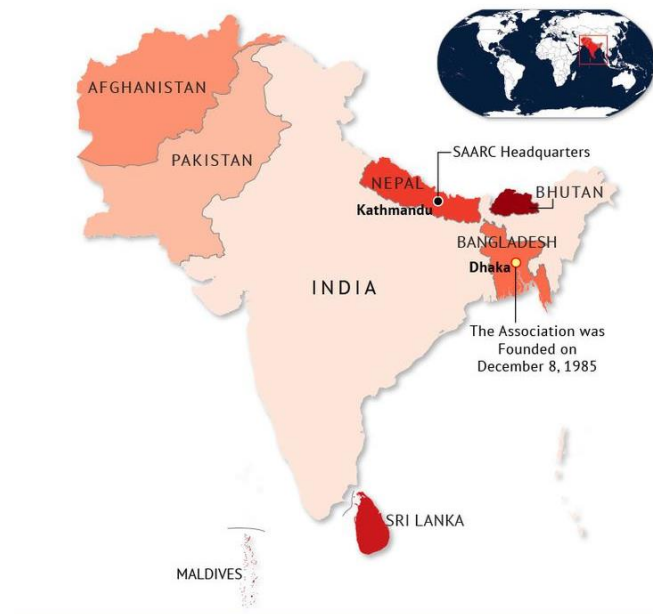
⁵ Jyoti Koirala, ‘Effects of 2015 Earthquake on Nepalese Economy’, *SSRN Electronic Journal*, 2015, <https://doi.org/10.2139/ssrn.2603212>.

⁶ Ravindra Kumar Srivastava, ‘Risk Profiles of South Asia-Urbanization Context’, in *Managing Urbanization, Climate Change and Disasters in South Asia*, ed. Ravindra Kumar Srivastava (Singapore: Springer, 2020), 1–21, https://doi.org/10.1007/978-981-15-2410-3_1.

⁷ Mihir Bhatt et al., ‘Disaster Risk Reduction and Climate Change Adaptation in South Asia’, in *Oxford Research Encyclopedia of Natural Hazard Science*, 2020, <https://doi.org/10.1093/acrefore/9780199389407.013.345>.

Current DRM Frameworks

The South Asian Association for Regional Cooperation (SAARC) comprises nations that are particularly vulnerable to natural hazards, necessitating the establishment of robust disaster risk management (DRM) frameworks⁸. Each member state has crafted its own systems and legislative frameworks to address these disaster risks, shaped by their unique geographic, economic, and social contexts.



Source: South Asian Association for Regional Cooperation members (IPIS & Somesh Upadhyay (UPSC))

- In India, the Disaster Management Act of 2005 provides a legal framework for disaster management, leading to the establishment of the National Disaster Management Authority (NDMA) and State Disaster Management Authorities (SDMAs)⁹. This framework has improved disaster response, particularly during floods and cyclones. However, implementation gaps persist, especially in rural areas, hindering timely crisis responses.
- Bangladesh's Disaster Management Act of 2012 and Comprehensive Disaster Management Programme (CDMP) focus on proactive measures and community participation¹⁰. Significant progress has been made in cyclone preparedness, highlighted by early warning systems and community initiatives. Yet, urbanization and climate

⁸ Ravinder and Dr. Sonika, 'Role of the South Asian Association for Regional Cooperation (SAARC) in Disaster Risk Management', *Irish Interdisciplinary Journal of Science & Research* 07, no. 04 (2023): 10–17, <https://doi.org/10.46759/IJISR.2023.7402>.

⁹ Kanta Kafle, 'Disaster Risk Management Systems in South Asia'.

¹⁰ M. Abul Kalam Azad et al., 'Community-Based Disaster Management and Its Salient Features: A Policy Approach to People-Centred Risk Reduction in Bangladesh', *Asia-Pacific Journal of Rural Development* 29, no. 2 (December 2019): 135–60, <https://doi.org/10.1177/1018529119898036>.

change introduce new vulnerabilities, underscoring the need for better integration of DRM into national policies.

- Nepal's National Strategy for Disaster Risk Management (NSDRM), adopted in 2010, emphasizes multi-hazard assessments and community involvement. Following the 2015 earthquake, improvements in preparedness and response have been made, but political instability and limited resources still impede effective implementation.
- In Pakistan, the National Disaster Management Act of 2010 created the NDMA to oversee disaster efforts. The response to the 2010 floods demonstrated resource mobilization and international coordination. However, weak institutional capacity and a lack of integration with broader development planning undermine risk reduction efforts¹¹.
- Bhutan's disaster management framework, guided by the Disaster Management Act of 2013, emphasizes risk reduction and preparedness. Community-based initiatives have built resilience, but limited infrastructure and technical expertise challenge effective responses.
- Sri Lanka's Disaster Management Act of 2005 established the Disaster Management Centre (DMC) to coordinate disaster efforts. Effective early warning systems and community awareness programs have been developed post-tsunami. However, there is a critical need for better integration of DRM into urban planning to address risks from rapid urbanization.
- Lastly, the Maldives established its framework through the Disaster Management Act of 2006, focusing on preparedness and response via the National Disaster Management Council¹². Significant investments have been made in tsunami preparedness, but limited land and resources pose challenges for comprehensive disaster risk management.

Key Components & Strategic Importance of Integrating Risk Management with National Security

Integrating disaster risk management (DRM) with national security strategies is crucial for enhancing resilience in regions prone to natural hazards. This integration relies on key components that support effective disaster preparedness and response¹³:

¹¹ Amir Nawaz Khan and Mushtaq Ahmad Jan, 'National Strategy, Law and Institutional Framework for Disaster Risk Reduction in Pakistan', ed. Atta-Ur- Rahman, Amir Nawaz Khan, and Rajib Shaw, *Disaster Risk Reduction* (Tokyo: Springer Japan, 2015), 241–57, https://doi.org/10.1007/978-4-431-55369-4_13.

¹² Kanta Kafle, 'Disaster Risk Management Systems in South Asia', 2017.

¹³ H. Berg, 'Risk Management: Procedures, Methods and Experiences', 2010, <https://www.semanticscholar.org/paper/RISK-MANAGEMENT%3A-PROCEDURES%2C-METHODS-AND-Berg/bc0744cf865d324abb4ef9f45d1e2e14236b33a1>.

- Establishing robust information sharing and data management systems is essential for countries to exchange meteorological and disaster-related data. Such collaboration enables nations to better anticipate disasters and implement timely interventions, strengthening regional cooperation in addressing cross-border impacts.
- Capacity building through training programs for disaster management professionals is another critical element. By investing in personnel training, countries can ensure a well-prepared workforce capable of efficient crisis responses, fostering a culture of preparedness and resilience.
- Standardizing response protocols is vital for coordinated efforts during disasters. Advocating for unified disaster response procedures across member states allows for seamless collaboration, reducing confusion and enhancing effectiveness. This is especially important in South Asia, where geographical proximity and shared vulnerabilities demand cooperative strategies.

The integration of disaster risk management (DRM) with national security is crucial. Natural disasters and climate change pose significant threats, leading to social unrest, economic instability, and cross-border tensions. These events disrupt essential services, displace populations, and strain resources, necessitating a comprehensive national security response. By acknowledging the security implications of disasters, nations can better prepare and mitigate risks, ultimately safeguarding citizens and maintaining social order. This interdependence highlights the need for a cohesive approach, where integrating DRM into national security strategies ensures effective risk management. Such integration enhances disaster resilience as a core component of national policy, strengthening overall security and stability in the region.

Challenges to Integration

In South Asia, the integration of disaster risk management (DRM) within national security frameworks faces a multitude of challenges despite the significant legislative progress made by SAARC countries. One of the most pressing issues is the political and institutional barriers that hinder effective coordination among various agencies¹⁴. Political instability in several nations often results in fragmented approaches to disaster management, where institutions operate in silos rather than engaging in collaborative efforts. This lack of coordination is exacerbated by inadequate funding mechanisms, which restrict the capacity of institutions to implement comprehensive DRM strategies. Many countries in the region lack the necessary financial and technical resources to develop and maintain robust disaster management systems¹⁵. This deficiency restricts their ability to invest in infrastructure, technology, and training needed for effective disaster risk reduction. Consequently, the limited availability of resources can severely

¹⁴ Rajesh K. Mall et al., 'Disaster Risk Reduction Including Climate Change Adaptation Over South Asia: Challenges and Ways Forward', *International Journal of Disaster Risk Science* 10, no. 1 (1 March 2019): 14–27, <https://doi.org/10.1007/s13753-018-0210-9>.

¹⁵ Kanta Kafle, 'Disaster Risk Management Systems in South Asia'.

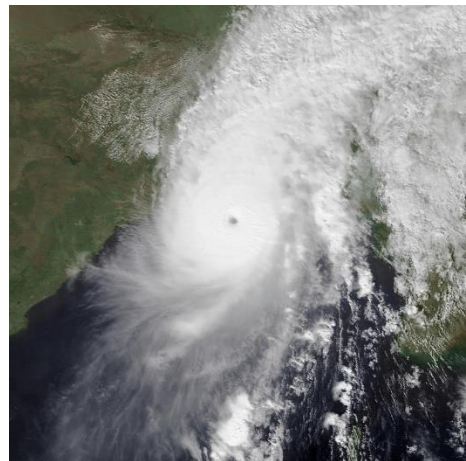
undermine the capacity to respond to disasters, impacting the overall resilience of communities and nations.

Cultural and socioeconomic factors also play a significant role in complicating the establishment of unified risk management frameworks¹⁶. South Asia is characterized by immense cultural diversity and socioeconomic disparities, which can create challenges in disaster preparedness and response. Communities with varying levels of awareness, education, and access to information are often unequally affected by disasters. This disparity can lead to ineffective communication of risks and response measures, further exacerbating vulnerabilities among marginalized populations. Efforts to promote public awareness and preparedness must therefore consider these cultural contexts to ensure inclusivity and effectiveness in disaster risk management.

Moreover, there is a limited understanding of the interlinkages between disaster and climate risks, which poses a significant barrier to effective policy formulation. Many policymakers fail to recognize how climate change exacerbates existing vulnerabilities and intensifies the frequency and severity of natural disasters. This disconnect hinders the development of integrated strategies that effectively address both climate adaptation and disaster risk reduction. As a result, policies often remain reactive rather than proactive, failing to leverage the potential synergies between DRM and climate change adaptation.

Best Practices & Strategic Recommendations

In South Asia, integrating disaster risk management (DRM) into national security frameworks has yielded valuable lessons. A notable example is the collaboration between India and Bangladesh following Cyclone Sidr in 2007, which led to shared meteorological data, joint training, and coordinated response strategies¹⁷. This partnership improved preparedness and trust, emphasizing proactive communication and mutual support among neighboring countries. Regional initiatives, particularly through the South Asian Association for Regional Cooperation (SAARC), have also strengthened disaster resilience¹⁸. The SAARC Disaster Management Centre (SDMC) promotes best practices, joint training, and standardized protocols, enhancing overall disaster management capabilities.



To further this integration, establishing regional risk-reduction centers is recommended. These hubs would focus on research and collaboration, ensuring that lessons from past disasters

¹⁶ Bronkhorst, 'Disaster Risk Management in South Asia'.

¹⁷ Kanta Kafle, 'Disaster Risk Management Systems in South Asia'.

¹⁸ Ravinder and Dr. Sonika, 'Role of the South Asian Association for Regional Cooperation (SAARC) in Disaster Risk Management'.

inform future policies¹⁹. Additionally, regular joint response exercises would improve coordination and trust among nations, enhancing preparedness for cross-border scenarios. Finally, strengthening governance and institutional frameworks is essential for effective DRM and national security integration. Clear communication and responsibility lines can streamline efforts and foster cooperation among all stakeholders involved in disaster risk reduction.

Conclusion

The integration of disaster risk management (DRM) within national security frameworks is essential for enhancing resilience in South Asia, a region frequently impacted by natural hazards. Despite significant legislative progress and established frameworks, challenges such as political instability, inadequate funding, and cultural disparities hinder effective collaboration among member states. The ongoing threats posed by climate change necessitate a unified approach that acknowledges the interconnectedness of disaster risks and climate adaptation. Best practices from regional collaborations, such as those between India and Bangladesh, demonstrate the potential for improved outcomes through shared resources and joint initiatives. Establishing regional risk-reduction centers and fostering clear communication among stakeholders will be crucial for bolstering the capacity to respond to disasters effectively. By prioritizing these strategies, South Asian nations can not only mitigate the impacts of natural hazards but also enhance overall security and sustainable development in the region.

¹⁹ Kristoffer Albris, Kristian Cedervall Lauta, and Emmanuel Raju, 'Strengthening Governance for Disaster Prevention: The Enhancing Risk Management Capabilities Guidelines', *International Journal of Disaster Risk Reduction* 47 (August 2020): 101647, <https://doi.org/10.1016/j.ijdr.2020.101647>.