Bridging the Expertise Gap in Pakistan's Disaster Management Institutions: Lessons from India, Australia, and Malaysia

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Abstract
Pakistan's disaster management institutions, such as the National and Provincial Disaster Management Authorities (NDMA and PDMAs), suffer from a critical expertise gap due to the overreliance on generalist personnel and the underutilization of highly qualified professionals. This shortfall in specialized knowledge undermines the effectiveness of disaster preparedness, response, and resilience, particularly during large-scale events like the 2022 floods. In contrast, countries like India, Australia, and Malaysia demonstrate the value of integrating trained specialists into disaster management systems, resulting in more effective interventions and risk reduction. Drawing lessons from these nations, Pakistan can enhance its disaster response by adopting merit-based recruitment practices, establishing targeted training programs, and fostering partnerships with academic and research institutions. These reforms are essential to building a skilled, responsive, and resilient disaster management framework.

Keywords
Disaster Management, NDMA, Expertise Gap, Climate Resilience, Pakistan, Capacity Building

Key Points

- Pakistan's disaster management institutions, like the NDMA and PDMAs, rely heavily on generalists, leading to an expertise gap that reduces effectiveness.
- Highly qualified professionals in Pakistan are often underutilized, wasting potential and resources.
- India, Australia, and Malaysia prioritize specialized expertise, improving their disaster response and mitigation.
- Pakistan could benefit from adopting merit-based recruitment and training programs to build capacity.

The Challenge in Pakistan

Pakistan's disaster management system, including the National Disaster Management Authority (NDMA) and Provincial Disaster Management Authorities (PDMAs), struggles with a lack of specialized staff. Many roles are filled by generalists without training in disaster management or climate resilience, which limits the ability to respond effectively to crises like floods or earthquakes. Meanwhile, professionals with advanced degrees or certifications are often unemployed or sidelined, creating an expertise gap that leads to inefficient use of resources.

Lessons from Other Countries

Countries like India, Australia, and Malaysia show how specialized expertise strengthens disaster management. India's NDMA employs leaders with deep experience in relevant fields, and job roles require advanced qualifications. Australia's

National Emergency Management Agency (NEMA) works with experts in fire ecology and meteorology, especially for bushfire management. Malaysia's National Disaster Management Agency (NADMA) invests in training programs and follows international standards, ensuring skilled personnel are ready for disasters.

To improve, Pakistan should recruit specialists with relevant qualifications for NDMA and PDMA roles, similar to India's approach. Creating training programs, like Malaysia's, and partnering with universities could build a skilled workforce. By prioritizing expertise, Pakistan can better prepare for and respond to disasters, protecting lives and resources.

Effective disaster management is vital for nations facing natural and human-induced calamities, particularly in regions prone to floods, earthquakes, and climate-related challenges. Pakistan, with its diverse geography ranging from glaciers to coastal zones, is highly vulnerable to such disasters. The establishment of institutions like the Ministry of Climate Change, the National Disaster Management Authority (NDMA), Provincial Disaster Management Authorities (PDMAs), and regional authorities in Azad Jammu and Kashmir (AJK) and Gilgit-Baltistan provides a robust institutional framework. However, a critical barrier to their effectiveness is the reliance on generalists in leadership and operational roles, coupled with the underutilization of highly qualified specialists. This expertise vacuum results in inefficient interventions and wasted resources, exacerbating the impact of disasters. By examining the approaches of India, Australia, and Malaysia—countries that prioritize specialized expertise—this essay explores strategies to bridge Pakistan's expertise gap and enhance its disaster management capabilities.

The Expertise Vacuum in Pakistan

Pakistan's disaster management institutions are predominantly staffed by generalists lacking specialized training in disaster management, climate resilience, or related fields. A study by Younus et al. (2023) highlights this issue, noting that the PDMA in Khyber Pakhtunkhwa lacked disaster risk reduction professionals with formal qualifications, with many experts working as consultants for non-governmental organizations rather than within government agencies. This reliance on generalists leads to an expertise vacuum, where decisions may not be informed by the latest scientific knowledge or best practices. For example, the 2022 floods, which affected over 33 million people and caused damages estimated at $14.9 billion (World Bank, 2022), exposed gaps in preparedness and response, partly due to insufficient specialized expertise in flood risk management. The underutilization of highly qualified professionals—those with four-year degrees, PhDs, or certifications—further compounds this issue, as their skills remain untapped, leading to ineffective interventions and squandered taxpayer funds.

Comparative Analysis: Lessons from India, Australia, and Malaysia

India: Specialized Leadership and Recruitment

India's National Disaster Management Authority (NDMA), established under the Disaster Management Act of 2005, exemplifies the integration of specialized expertise. The NDMA is led by members with extensive experience in relevant fields. For

instance, Rajendra Singh, a former Director General of the Indian Coast Guard, brings expertise in maritime emergency response, while Lt. Gen (Retd) Syed Ata Hasnain has a distinguished military background in conflict zones, and Dr. Krishna Vatsa has over 25 years of experience in disaster risk reduction, including roles with the United Nations Development Programme (NDMA India, 2023). Job postings for NDMA positions, such as Project Specialist, require post-graduate degrees in disaster management or environmental science and at least five years of experience, ensuring a high level of specialization (NDMA India, 2023). The National Institute of Disaster Management (NIDM) further supports this by training specialists and embedding them in state-level units, enhancing India's capacity to manage diverse disasters, from cyclones to earthquakes (UNDRR, 2020). This approach has led to significant improvements, such as a 90% reduction in cyclone-related fatalities between 1999 and 2013 (UNDRR, 2020).

Australia: Scientific Expertise in Bushfire Management

Australia's disaster management framework, led by the National Emergency Management Agency (NEMA), emphasizes scientific research and specialized expertise, particularly in managing bushfires, a frequent and devastating hazard. NEMA collaborates with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), which conducts extensive research on bushfire behavior, prediction, and management (CSIRO, 2020). During the 2019–2020 bushfire crisis, which burned 24 million hectares, specialist-led early warning systems and predictive modeling saved countless lives (CSIRO, 2020). Australia's bushfire management involves professionals with expertise in fire ecology, meteorology, and geospatial analysis, ensuring strategies are grounded in scientific evidence. The Department of Biodiversity, Conservation and Attractions in Western Australia, for example, is recognized internationally for its expertise in prescribed burning, a critical prevention measure (DBCA, 2023). This focus on specialists ensures that Australia's disaster management is both proactive and effective.

Malaysia: Training and International Standards

Malaysia's National Disaster Management Agency (NADMA), established in 2015, has prioritized building expertise through training and adherence to international standards. NADMA's urban search and rescue (USAR) team, the Special Malaysia Disaster Assistance and Rescue Team (SMART), is trained according to United Nations International Search and Rescue Advisory Group (INSARAG) guidelines, ensuring high operational competence (CFE-DM, 2022). The Disaster Preparedness & Prevention Centre (DPPC) at Universiti Teknologi Malaysia offers certified professional training in disaster risk management, aligned with the UNDRR Sendai Framework, covering multi-hazard risk assessment and sustainable development (DPPC, 2017). These programs attract working professionals and build a skilled workforce. Malaysia's collaboration with universities and international partners, such as during the 2021 Kelantan floods, where academic experts developed predictive models, has minimized casualties (ASEAN, 2022). This investment in training and partnerships underscores Malaysia's commitment to specialized expertise.

To address the expertise vacuum, Pakistan must adopt a multi-faceted approach inspired by India, Australia, and Malaysia. The following recommendations outline a path forward:

1. **Merit-Based Recruitment Policy**: NDMA and PDMAs should implement a rigorous, merit-based recruitment policy mandating advanced degrees or certifications in disaster management, environmental science, or related fields for leadership and operational roles. For example, flood management units should prioritize hydrologists, while seismic risk units should employ seismologists, mirroring India's approach.
2. **Phasing Out Generalist Appointments**: A five-year transition plan should gradually replace generalists with specialists, ensuring continuity while building capacity. Existing staff can be upskilled through training programs, but new hires must meet strict technical criteria.
3. **Training and Academic Partnerships**: Pakistan should establish a National Disaster Management Training Institute, similar to India's NIDM, and partner with universities like the University of Peshawar to offer certified courses in disaster risk management, drawing on Malaysia's DPPC model. These programs should cover terrain-specific challenges, such as glacial lake outburst floods in Gilgit-Baltistan.
4. **Incentives for Specialists**: Competitive salaries, research grants, and clear career pathways can attract and retain PhD holders and certified professionals, reducing brain drain and ensuring a robust talent pool, as seen in Malaysia.
5. **International Collaboration**: Adopting international standards, like INSARAG guidelines for USAR teams, can enhance Pakistan's disaster response capabilities, following Malaysia's example. Collaborations with organizations like CSIRO could also introduce advanced scientific methods, as in Australia.

Impact of a Specialist-Led Approach

A specialist-led approach would transform Pakistan's disaster management landscape. First, it would enhance preparedness and response, as demonstrated by India's success in cyclone management. Second, it would optimize resource allocation, ensuring taxpayer funds are used effectively. Third, it would foster innovation, enabling Pakistan to address unique challenges like desertification in Thar or floods in Sindh with tailored solutions. Finally, it would build public trust, as communities experience improved disaster resilience, similar to Malaysia's flood management achievements.

Conclusion

Pakistan's disaster management institutions have the potential to lead the country toward resilience, but the reliance on generalists creates an expertise vacuum that undermines effectiveness. By learning from India's specialized leadership, Australia's scientific approach, and Malaysia's training investments, Pakistan can bridge this gap. Implementing a merit-based recruitment policy, phasing out generalist appointments, and investing in training and partnerships will empower NDMA and PDMAs to deliver precise, evidence-based solutions. As Pakistan faces escalating climate risks, prioritizing specialized expertise is not just a policy choice but a strategic imperative to safeguard lives, livelihoods, and the nation's future.

Key Citations

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