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Myanmar Earthquake Aftermath – Critical Update and Expanded Analysis

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Abstract

This analysis explores the impact of the Myanmar earthquake on March 28, 2025 and its subsequent effects on Thailand and Myanmar by collecting and synthesizing data on immediate casualties, infrastructural damage, humanitarian needs, disaster preparedness in both countries, and relevant theoretical concepts. The earthquake in Myanmar has created a major humanitarian crisis, compounded by existing weaknesses, while the effects in Thailand have highlighted significant gaps in urban safety protocols. Differences in preparedness and societal awareness have influenced the outcomes in each country, emphasizing the urgent need to strengthen resilience capacities across the affected region.

The magnitude 7.7 earthquake that struck Myanmar on March 28, 2025 has caused significant devastation in both Myanmar and Thailand. Immediately, 12 minutes after the first quake, an aftershock at a magnitude of 6.4 at the same depth intensified the impacts. The current report is synthesized from multiple sources, including on-the-ground reports from humanitarian organizations, satellite imagery analysis, preliminary damage assessments from national disaster management agencies, and regional news outlets.

Pre-earthquake Status

Myanmar

Before the devastating earthquake of March 28, 2025, Myanmar consistently held a position among the most susceptible nations to natural hazard-induced disasters worldwide. This precarious standing stemmed from a confluence of geographical factors, socioeconomic conditions, and the growing consequences of climate change.[1,2] The country's exposure to a diverse array of threats, encompassing earthquakes, cyclones, floods, droughts, landslides, and extreme temperatures, was amplified by the widespread presence of substandard construction, particularly affecting rural communities heavily dependent on agriculture in disaster-prone regions. Although national disaster management frameworks existed, their effectiveness was significantly hampered by resource limitations, inadequate coordination, and restricted access, often compounded by ongoing conflict, ineffective early warning mechanisms, insufficient community involvement and understanding, lax building regulations and their enforcement, and an overstretched health care system.[1–3]

Several compounding elements further aggravated Myanmar's fragile state. The protracted civil strife diverted crucial resources and impeded access to populations in need. Elevated levels of poverty and food insecurity heightened the population's susceptibility to shocks, while the intensifying frequency and severity of natural hazards were a direct consequence of climate change. International bodies acknowledged this substantial risk and the pressing need for increased investment in proactive measures; however, existing initiatives were considered inadequate to confront the magnitude of the challenges facing the nation.[2,3]

Myanmar's inherent vulnerabilities to natural disasters carried profound ramifications. This high susceptibility inevitably resulted in loss of life, injuries, and displacement, placing immense pressure on health care systems and essential services. Recurrent disasters triggered internal displacement and migration, disrupting established communities. Damage inflicted upon health care infrastructure and sanitation facilities elevated the potential for disease outbreaks. Furthermore, disasters caused widespread destruction to vital infrastructure and the agricultural sector,

leading to considerable economic setbacks. The degradation of farmland further intensified poverty and food insecurity. The elevated risk of disasters also discouraged foreign investment, thereby impeding economic advancement. Natural resources suffered degradation due to these events, diminishing ecosystem resilience. The increased incidence of extreme weather phenomena further exacerbated existing vulnerabilities. The ongoing civil conflict and political instability consistently obstructed effective disaster response and recovery efforts. Dependence on external aid also influenced internal political dynamics. Effectively addressing these multifaceted vulnerabilities necessitates a cohesive strategy integrating disaster risk reduction, climate change adaptation, and sustainable development practices.[1–4]

Thailand

In contrast to Myanmar's more precarious situation before the 2025 earthquake, Thailand possessed a comparatively advanced disaster management framework, albeit one requiring further refinement. Its established legal foundation, the 2007 Act supported a National Disaster Prevention and Mitigation Committee (NDPMC) for policymaking, a dedicated Department of Disaster Prevention and Mitigation (DDPM) as the implementing agency, and national plans aligned with the Sendai Framework for Disaster Risk Reduction. A decentralized system, operating across 4 to 5 levels, was also in place. The existing system's strengths lay in its comprehensive approach to disaster risk management (spanning prevention through recovery), established institutional structures, the incorporation of international frameworks like Sendai and AADMER, Urban Search and Rescue (USAR), and Medical Emergency Response Team (MERT) capabilities, public awareness initiatives, and the presence of building codes, although their enforcement came under scrutiny following the Bangkok building collapse.[5,6] In addition to government-led efforts and structural approaches, Thailand benefits from the unique contributions of non-governmental organizations such as the Ruamkatanyu Foundation and the Poh Teck Tung Foundation. These well-resourced organizations play a significant role in emergency response and have long collaborated with rescuers and healthcare personnel to save lives. As a result, their operations have been integrated into the national response system. During rescue missions, volunteers from these NGOs demonstrated high levels of skill and unwavering dedication in supporting the operations.

Areas identified for improvement and existing gaps included coordination within the decentralized system (particularly regarding vulnerability registries and consistent public awareness campaigns), rigorous enforcement of building codes (especially concerning older structures and design vulnerabilities), enhancing urban resilience (necessitating thorough assessments in Bangkok and addressing soil stability issues), developing comprehensive national vulnerability data, strengthening community engagement in disaster preparedness, and more deeply integrating climate change adaptation considerations into national planning processes.[7,8]

To summarize, Thailand had a commendable framework with established agencies and plans; however, the Bangkok building collapse highlighted significant urban vulnerabilities and weaknesses in building code enforcement. Enhanced coordination, improved vulnerability data collection, greater community involvement, and a stronger focus on urban resilience were crucial areas needing attention.[5–8]

Situation Overview

Myanmar

A devastating 7.7 magnitude earthquake struck Myanmar on March 28, 2025 near the Sagaing and Magway Regions border, causing a major humanitarian crisis. Sagaing (Khin-U, Shwebo, Monywa) and Magway (Myaing, Pakokku) Regions were hit hardest, with widespread destruction and high casualties. Compared to the neighboring country Thailand, which was also affected, the situation in Myanmar is far more critical, due to pre-existing vulnerabilities, conflicts, and limited infrastructure.[9,10]

Impacts

As of Saturday, April 5th, state-run media reported a tragic increase in the death toll from the Myanmar earthquake to 3471, with other sources indicating potentially higher numbers. The disaster has also left over 4671 individuals injured and 214 still missing. The seismic event caused widespread destruction, with thousands of buildings collapsing or sustaining damage and significant impairment to roads and bridges, disrupting vital transportation networks. Essential infrastructure, including hospitals, airports, and water and electricity systems, has been affected. Despite diminishing hopes, local and international rescue teams have successfully extricated 653 survivors from the debris and recovered 682 bodies.

The earthquake has severely compounded Myanmar's pre-existing humanitarian emergency, exacerbated by ongoing civil conflict. An estimated 17 million people across 57 townships have been impacted, with over 9 million experiencing the most intense tremors. Building upon the more than 3 million already displaced before the earthquake, this number has likely surged. Urgent needs include food, potable water, health care, emergency shelter, and financial aid. Access to fundamental services like electricity, water, telecommunications, and internet remains critically disrupted in the worst-affected zones. Escalating concerns regarding hygiene and sanitation are raising the risk of disease outbreaks. Furthermore, the earthquake's damage to numerous health care facilities has severely curtailed medical capacity during critical needs, while damaged transportation routes impede aid delivery and comprehensive damage assessments. The injured population faced health care inaccessibility; most of the traumatic wounds were left open and infected. Additionally, the population with chronic diseases presented with complications from discontinuity of medications, such as hyperglycemia and hypertensive crisis. In the meantime, international emergency medical teams from various countries (e.g., Indonesia, the Philippines, Japan, and Thailand) were deployed through the Ministry of Health and/or the Military and sporadically supported various parts of the affected areas.

To facilitate relief operations, the ruling military government has declared a temporary ceasefire until April 22, a move mirrored by similar announcements from some armed resistance factions. International assistance is beginning to arrive, with various nations dispatching rescue teams and essential supplies. The United Nations and other humanitarian organizations are urgently appealing for increased financial contributions to address the immense scale of the crisis. The Quad nations (Australia, India, Japan, and the US) have collectively pledged over USD 20 million in humanitarian aid.[11] The region continues to experience numerous aftershocks, some exceeding magnitude 5.0, posing ongoing threats.

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Thailand

The seismic waves from the Myanmar earthquake extended to the eastern and middle parts of the country, significantly impacting 18 provinces, including Bangkok, triggering the catastrophic collapse of a 33-story high-rise under construction near the Chatuchak market.[6,12]

Impacts

Initial reports of at least 3 fatalities and numerous trapped individuals tragically escalated to 18 deaths and over 80 injuries as rescue efforts progressed. This incident underscored the vulnerabilities of urban infrastructure and the critical necessity for more stringent building regulations. Ongoing structural evaluations and disruptions to transportation and business activities persisted in the aftermath. Despite the tireless efforts of rescue teams, including international units, the diminishing likelihood of finding survivors led to the withdrawal of some foreign teams.

Besides the high building collapse, several major hospitals in Bangkok sustained structural cracks significant enough to prevent sheltering in place. As a result, a large number of patients required evacuation and referral to other facilities. An improvised patient management plan and rapid expansion of bed capacity were implemented. Most hospitals prioritized transferring patients within their own hospital networks to minimize complications related to financial matters and documentation. The Public Health Emergency Operations Center was activated immediately following the incident. Its primary objective was to assess the risks and damages sustained by each hospital and to develop plans for capacity building and resource reallocation. Health regions unaffected by the earthquake were instructed to prepare for the potential influx of patients transferred from the affected areas.

Thailand's decentralized disaster management framework, while generally better equipped than Myanmar's, still grapples with challenges in maintaining comprehensive national vulnerability registries, ensuring consistent public awareness campaigns, and achieving seamless coordination across its various levels. The Bangkok building collapse specifically emphasized the urgent need for rigorous building code enforcement and enhanced emergency response capabilities within urban environments. Thailand's emergency services faced significant strain following the collapse, highlighting the importance of robust surge capacity planning for urban disaster scenarios. Potential reductions in international aid could further impede Thailand's recovery efforts.

Addressing the aftermath requires Thailand to reconstruct the collapsed building, conduct thorough structural assessments of existing constructions nationwide, and implement revisions to the national building codes. Authorities in Thailand are currently engaged in widespread evaluations of structural integrity, with the Bangkok Metropolitan Administration (BMA) establishing an online resource to track buildings that have passed safety inspections. The collapse has ignited public apprehension regarding construction standards and safety protocols within Bangkok. An official inquiry into the alleged use of "substandard steel" in the collapsed structure is underway, with a 1-week deadline for its findings. The Prime Minister has publicly acknowledged the damage inflicted on Thailand's reputation by this event and pledged to restore public confidence. Figures 1, 2, and 3 demonstrate the working environment during the response to the collapsed building in Bangkok.

Discussion

The data presented illustrate the devastating consequences of the March 28, 2025 earthquake, highlighting significant disparities in impact and preparedness between Myanmar and Thailand.

Myanmar: A Cascade of Vulnerabilities

In Myanmar, the earthquake has tragically exacerbated pre-existing vulnerabilities, creating a complex humanitarian crisis. The sheer scale of casualties (over 3471 deaths and rising), injuries (over 4671), and missing persons (214) underscores the fragility of infrastructure and the lack of earthquake-resistant construction, particularly in the



Figure 1. Rescue teams assembled around the incident site. Photo by Mediclife.Co., Ltd.

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Figure 2. MERT staff working at the scene. Photo by Mediclife.Co., Ltd.



Figure 3. Foreign rescue staff close to the collapsed building. Photo by Mediclife.Co., Ltd.

affected 57 townships. The collapse and damage to buildings and essential infrastructure like hospitals, airports, and utilities underscore the widespread destruction and the long road to recovery.[1,4]

Several factors contributed to this catastrophic outcome. Myanmar's consistent ranking as highly vulnerable to natural hazards before the event, attributed to its geography, socioeconomic conditions, and climate change impacts, proved tragically accurate. The prevalence of poorly constructed buildings, especially in rural, agriculture-dependent areas, meant that structures offered little resistance to the strong tremors. Furthermore, the existing national disaster management structures, while in place, were overwhelmed by the scale of the disaster, hampered by limited resources, weak coordination, and restricted access due to ongoing civil conflict. The fact that over 3 million people were already displaced before the earthquake highlights the precarious living conditions and the heightened vulnerability of this population.[2,3]

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The humanitarian crisis is deepening rapidly. The disruption of essential services, coupled with damaged health care facilities and sanitation infrastructure, creates a perfect storm for disease outbreaks. The destruction of roads and bridges not only hinders rescue efforts but also severely impedes the delivery of crucial aid to the estimated 17 million affected people. The temporary ceasefire declared by the ruling military government and some resistance groups is a positive step, but its effectiveness will depend on consistent adherence and unhindered access for humanitarian organizations. The international response, while underway with aid and pledges from various countries and the UN, needs to be significantly scaled up to address the immense needs on the ground. The continued aftershocks further compound the challenges, posing ongoing risks to both survivors and aid workers.[13,14]

Thailand: A Wake-Up Call in Urban Resilience

In contrast, the impact in Thailand, while tragic with the collapse of the high-rise in Bangkok resulting in 18 deaths and over 80 injuries, reveals a different set of vulnerabilities – those inherent in rapid urban development and the enforcement of safety standards. Thailand's relatively developed disaster management framework, with its legal basis, dedicated agencies, and alignment with international frameworks, seemingly offered a stronger foundation for preparedness.[5,6] The presence of USAR/MERT capabilities and collaboration, together with public awareness efforts, is indicative of a more resourced system compared to Myanmar.[5–7] Beyond the immediate response to the building collapse, many residents of other high-rise buildings experienced displacement due to concerns over structural safety. As part of the initial relief efforts, the Bangkok Governor promptly designated 11 public spaces to serve as temporary shelters for the affected population.

However, the Bangkok collapse serves as a stark reminder that even with a more established framework, significant gaps exist, particularly in ensuring the resilience of urban infrastructure and the consistent enforcement of building codes. The investigation into "substandard steel" points to potential systemic issues in construction quality control. The strain on Bangkok's emergency services highlights the need for better surge capacity planning in densely populated urban areas.[10]

The incident also reveals the challenges within Thailand's decentralized disaster management system. While decentralization can offer localized responses, the need for "comprehensive national vulnerability registries, consistent public awareness, and streamlined coordination" suggests that information sharing and standardized practices across different administrative levels require strengthening. The focus on urban resilience, including assessments of existing structures and addressing soil issues in a sprawling metropolis like Bangkok, is now paramount.[7,8,10] The Prime Minister's acknowledgment of the damage to Thailand's image underscores the broader implications beyond the immediate human cost, potentially affecting investor confidence and tourism.

Comparative Analysis and Key Takeaways

The earthquake's impact starkly contrasts with the disaster preparedness and resilience levels of the 2 neighboring countries. Myanmar's pre-existing socioeconomic vulnerabilities, compounded by conflict and weaker infrastructure, created a context for widespread devastation. Thailand, while possessing a more robust framework, experienced a localized but significant tragedy in its capital, exposing critical weaknesses in urban building safety and emergency response.

In Myanmar, the ongoing civil conflict has significantly exacerbated the disaster's impact by hindering access, diverting resources, and weakening governance structures necessary for effective disaster management. In Bangkok, however, the collapse underscores the unique challenges of ensuring building safety and emergency preparedness in rapidly growing urban centers, even in countries with relatively developed systems. Effective enforcement of building codes and robust oversight are crucial.[3,10] Although not the direct cause of this earthquake, the broader context of increasing climate change impacts exacerbates vulnerabilities to various natural hazards in the region, necessitating deeper integration of climate adaptation into disaster risk reduction strategies. Both countries highlight the need for detailed and accessible vulnerability data at the national and local levels to inform preparedness efforts and target resources effectively.[2,15]

The reliance on international assistance, particularly for Myanmar, underscores the global responsibility of supporting disaster-stricken nations.[16] However, building local capacity and resilience in the long term is equally critical. While mentioned as a strength in Thailand, community engagement and awareness are areas for improvement in both nations.[17] Empowering communities to understand risks and participate in preparedness measures is essential for building resilience. Situational awareness (SA) and disaster mindset (DMS) are crucial elements in how individuals and communities prepare for, respond to, and recover from disasters. While distinct, they are interconnected and play a significant role in determining the overall impact of an event like the recent earthquake in Myanmar and Thailand.[18,19]

SA refers to the ability to perceive, understand, and project the immediate and near-future environment. In the context of disasters, this involves a) **Perception,** that is, recognizing potential hazards and warning signs (e.g., feeling tremors, receiving alerts), b) **Comprehension,** that is, understanding the meaning of these signs and the immediate risks they pose (e.g., realizing an earthquake is occurring, understanding the potential for building collapse), and c) **Projection,** that is, anticipating the near-term consequences and potential evolution of the situation (e.g., expecting aftershocks, understanding evacuation routes might be blocked). A DMS, also known as a disaster readiness mindset, is a proactive and prepared mental state focused on survival and resilience in the face of potential or actual disasters. It encompasses a) **Preemptive Thinking,** that is, regularly considering potential hazards and their impacts, b) **Proactive Preparation,** that is, taking concrete steps to mitigate risks, such as preparing emergency kits, knowing evacuation plans, and reinforcing homes, c) **Adaptive Response,** that is, maintaining a calm and focused approach during a disaster, enabling effective decision-making and action, and d) **Resilience Focus,** that is, a mental orientation towards recovery and the ability to persevere despite losses and setbacks.[18]

SA and DMS are not fixed traits; they can be shaped and enhanced by various factors, including education, training, experience, and cultural norms.[20–22] Analyzing the situation in Myanmar and Thailand following the earthquake suggests potential differences in both SA and DMS, stemming from their distinct socioeconomic, political, and historical contexts. SA might be lower in the general population in Myanmar due to restrictions on media and communication, particularly in conflict-affected areas, which can hinder the dissemination of early warnings and information about disaster risks. In addition, the ongoing civil conflict and widespread poverty may prioritize daily survival over long-term disaster preparedness, potentially leading to less attention paid to subtle warning signs. As noted in the analysis, gaps exist in the

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effectiveness of early warning systems, limiting the population's ability to perceive and comprehend impending threats. DMS may be shaped by exposure to conflict. While conflict can foster resilience in some ways, it may also lead to a sense of fatalism or a focus on immediate conflict-related threats rather than natural hazards. High levels of poverty restrict the ability of individuals and communities to invest in preparedness measures. Insufficient community involvement in disaster preparedness initiatives may result in a less proactive and prepared populace.[17,23] While Myanmar is prone to disasters, the capacity to translate this awareness into a strong preparedness mindset may be limited by the factors above.

In Thailand, SA is likely higher in urban areas, but with potential gaps. A more developed media landscape and communication infrastructure facilitate the dissemination of warnings and disaster-related information. The presence of a more developed disaster management framework, including the DDPM, suggests a greater capacity for issuing alerts and raising awareness. The Bangkok building collapse, however, indicates potential blind spots regarding specific urban vulnerabilities and the perception of risk in rapidly developing areas. People might be less aware of structural vulnerabilities if building codes are not consistently enforced.

DMS is potentially more developed in certain segments of the population. The mention of public awareness efforts as a strength suggests some level of proactive engagement. Thailand experiences a range of natural hazards, which may have contributed to a greater awareness of risks in some communities. A generally higher standard of living in many parts of Thailand allows for greater investment in preparedness measures at the individual and community levels. The Bangkok collapse is likely to increase SA and potentially strengthen DMS, particularly concerning urban building safety.

Conclusion

In conclusion, the current data reveals a tragic event that has disproportionately affected Myanmar, a nation already grappling with significant challenges. For Thailand, it serves as a critical learning opportunity to address specific urban vulnerabilities and strengthen the enforcement mechanisms within its disaster management framework. The experiences of both countries underscore the complex interplay of geographical, socioeconomic, political, and environmental factors in shaping disaster risk and the urgent need for comprehensive and context-specific approaches to building resilience. SA and DMS are essential components in how individuals and communities prepare for, respond to, and recover from disasters. They are not fixed traits but rather dynamic states influenced by a multitude of factors. The analysis suggests that Myanmar, facing a complex interplay of conflict, poverty, and limitations in its disaster management infrastructure, likely has lower levels of widespread SA and a less proactive DMS compared to Thailand.

Thailand, while possessing a more developed framework, still faces challenges in ensuring consistent SA across its decentralized system and needs to cultivate a stronger disaster mindset focused on urban-specific risks and rigorous enforcement of safety standards, as highlighted by the Bangkok tragedy. The earthquake event itself will likely catalyze increased awareness in both countries, but sustained efforts in education, preparedness programs, and addressing underlying vulnerabilities are crucial for building long-term resilience. This short communication recommends the following for both countries, as shown in Table 1.

Table 1. The recommendations based on the current analysis of the impacts of the Myanmar earthquake

Recommendation	Myanmar	Thailand
Immediate and massive scale-up of international humanitarian aid	Increase financial and in-kind aid for emergency shelter, food, water, sanitation, health care, and protection. Faster, flexible aid delivery is critical.	Increased funding is also needed for Thailand's initial recovery, particularly for those directly affected by the building collapse.
Intensified diplomatic efforts to secure humanitarian access	Negotiate safe, sustained, and unimpeded access for humanitarian organizations to all affected populations, establishing clear corridors and ensuring the safety of aid workers.	Not Applicable
Prioritize and strengthen disaster preparedness for future events	Support robust early warning systems reaching communities, invest in community-based risk reduction, strengthen local response, and improve coordination where possible.	Enhance vulnerability registries, public awareness, inter-agency coordination, and building code enforcement in urban areas. Invest in urban search and rescue.
Proactive measures to mitigate the impact of potential aid cuts	Prioritize aid to affected regions, explore alternative funding, and advocate for sustained humanitarian support.	Should be considered in long-term assessment.
Early and comprehensive planning for long-term recovery	Plan an inclusive long-term reconstruction involving communities, authorities, and international organizations. Focus on building back better, addressing vulnerabilities, promoting sustainable development, and enhancing resilience. Consider the political and conflict dynamics.	Plan an inclusive long-term reconstruction involving communities, authorities, and international organizations. Focus on building back better, addressing vulnerabilities, promoting sustainable development, and enhancing resilience.

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