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นโยบายสาธารณะเพื่อการคุ้มครองเด็กจากภัยแผ่นดินไหว: ข้อเสนอแนะต่อสังคมไทย

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บทคัดย่อ

บทความนี้เป็นการศึกษาผลกระทบของแผ่นดินไหวที่เกิดขึ้นกับเด็กทั้งมิติด้านร่างกาย ด้านจิตใจ และด้านการศึกษา โดยชี้ให้เห็นว่าเมื่อมีภัยพิบัติเกิดขึ้น เด็กในพื้นที่ห่างไกลหรือมีฐานะยากจนจะมีความเปราะบางสูงจากความไม่พร้อมของโครงสร้างพื้นฐานและข้อจำกัดของการให้ความช่วยเหลือ บทความนี้จึงนำกรณีศึกษาจากประเทศญี่ปุ่น นิวซีแลนด์ และชิลี ที่มีนโยบายการจัดการภัยพิบัติเพื่อคุ้มครองเด็กอย่างเป็นระบบมาศึกษา โดยข้อถกเถียงหลักของบทความนี้คือ กรอบการจัดการภัยพิบัติของประเทศไทยยังขาดความเป็นระบบและไม่นำเด็กมาเป็นศูนย์กลาง โดยใช้แนวคิดสิทธิเด็ก (Child Rights-Based Approach) เป็นหลัก มุ่งเน้นการปกป้องเด็กอย่างยั่งยืนจากการสร้างกลไกให้เด็ก ครู และชุมชนมีส่วนร่วมในการวางแผนภัยพิบัติ รวมทั้งกำหนดมาตรการเตรียมความพร้อม การรับมือ และการฟื้นฟูอย่างครบวงจร การบูรณาการแนวทางเหล่านี้ในนโยบายระดับชาติจะช่วยเสริมสร้างการคุ้มครองเด็กอย่างมีประสิทธิภาพ ยั่งยืน และเป็นธรรมในทุกขั้นตอน

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Public Policies for Child Protection from Earthquake Disasters: Recommendations for Thailand

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Abstract

This article examines the physical, psychological, and educational impacts of earthquakes on children. It highlights that, during disasters, children living in remote or economically disadvantaged areas are particularly vulnerable due to inadequate infrastructure and limited access to assistance. The study draws on case studies from Japan, New Zealand, and Chile, countries with well-established and systematic disaster management policies for child protection. The central argument is that Thailand's disaster management framework lacks a systematic and child-centered approach. The article, therefore, advocates a Child Rights-Based Approach, which emphasizes sustainable child protection by promoting the participation of children, teachers, and communities in disaster planning, as well as the development of comprehensive preparedness, response, and recovery measures. Integrating these approaches into national policy would enhance effective, sustainable, and equitable child protection across all stages.

Keywords: Public policy, disaster management, child rights

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Introduction

Natural disasters remain a major threat to global human security, with earthquakes standing out for their sudden onset, unpredictability, and devastating impact. Between 2000 and 2019, more than 500 earthquakes caused over 750,000 deaths, of which around 30% were children (United Nations Office for Disaster Risk Reduction, 2021). More recent events reaffirm this vulnerability: in February 2023, twin earthquakes affecting Turkey and Syria killed over 56,000 people and impacted approximately 6.2 million children (Save the Children International, 2025). In the same year, a magnitude-6.4 earthquake struck western Nepal on 3 November, claiming 153 lives—almost half were children—and leaving around 80,000 children in need of humanitarian assistance (UNICEF, 2023). Most recently, the 7.7-magnitude earthquake in March 2025 struck central Myanmar, causing widespread destruction and putting nearly 2 million children at grave risk due to school destruction, displacement, and disrupted access to essential services (UNICEF, 2025). These cases highlight that children are disproportionately affected by earthquakes, underscoring the urgent need for child-centered disaster risk reduction policies.

Children are disproportionately impacted by earthquakes due to their physical, psychological, and social vulnerabilities. Lacking decision-making autonomy, emergency preparedness skills, and access to essential resources, children are at high risk during and after seismic events. Physical injuries, psychological trauma—including post-traumatic stress disorder (PTSD)—and separation from families are common consequences. Furthermore, earthquakes disrupt educational infrastructure through damage to school buildings, prolonged closures, and shortages of educators, all of which hinder learning and long-term development. Children in marginalized communities, particularly those living in poverty or remote areas, face compounded challenges in accessing support systems such as psychological counseling and alternative education programs (UNICEF, 2022).

Although Thailand is not situated along a major tectonic plate boundary, it remains prone to seismic disturbances, including tremors originating from neighboring countries. For example, the 6.3-magnitude earthquake in Chiang Rai Province on 5 May 2014 was the most significant seismic event recorded within Thailand, causing widespread structural damage and affecting over 100 schools (Thai Meteorological Department, 2014). Similarly, the 6.4-magnitude quake in neighboring Lao PDR on 21 November 2019 produced tremors felt in high-rise buildings across Bangkok, prompting safety evacuations (Thai Meteorological Department, 2019). More recently, on 28 March 2025, a powerful 7.7-magnitude earthquake struck near Mandalay, Myanmar. Though the epicenter lay over 1,000 kilometers from Bangkok, the tremors were strongly felt across the capital, resulting in the collapse of an under-construction 33-story State Audit Office building—one of the deadliest structural failures in Thailand’s history—and significant casualties (Saric, 2025). These events underscore the imperative for proactive, child-sensitive disaster risk reduction policies, even in areas conventionally considered low-risk.

Designing public policies that are inclusive of children's specific needs and vulnerabilities is thus crucial in minimizing the adverse impacts of earthquakes. These policies must extend beyond immediate disaster response to include long-term recovery and educational continuity. Countries such as Japan, New Zealand, and Chile are often highlighted as exemplars because they represent diverse but advanced models of earthquake preparedness and child-centered resilience. Japan has institutionalized disaster education within its national curriculum and conducts regular nationwide drills, fostering a culture of preparedness from an early age (Shaw et al., 2011). New Zealand has integrated child protection into its

broader civil defense strategy, emphasizing community-based preparedness and psychosocial recovery (Mutch, 2015). Chile, meanwhile, has developed comprehensive building codes and school safety programs following repeated large-scale seismic events, demonstrating the effectiveness of linking structural resilience with child-focused policies. In contrast, policy development in many nations, including Thailand, remains constrained by structural, legal, and implementation challenges (Peek, 2008).

This article aims to explore the role of child-centered public policy in earthquake risk management by examining international models, analyzing the Thai context, and proposing policy recommendations to enhance child resilience and protection in the face of future disasters.

Objectives

1. To examine the multifaceted impacts of earthquakes on children, including physical injuries, psychological trauma, and educational disruption.
2. To review international public policy frameworks that prioritize child-centered disaster risk management.
3. To Analyze of Child-Focused Disaster Management in Thailand.
4. To contextualize policy findings within public administration theory to enhance conceptual understanding.
5. To propose sustainable, child-sensitive policy strategies aimed at strengthening disaster resilience and governance in Thailand and comparable contexts.

Analyzing the Impacts of Earthquakes on Children

Understanding the multifaceted impacts of earthquakes on children requires a thorough analysis of their unique vulnerabilities and evolving needs. Due to their developmental stage, limited autonomy, and dependency on caregivers, children are disproportionately susceptible to harm before, during, and after seismic events. This section outlines the primary dimensions of earthquake impact on children—physical, psychological, and educational—highlighting the urgency for tailored, child-centered disaster management interventions.

Physical Impacts. Children lack the physical capacity to protect themselves during emergencies, rendering them highly vulnerable to injuries or fatalities from falling debris, structural collapses, and chaos during evacuations (Peek, 2008). In Thailand, the 2014 Chiang Rai earthquake (magnitude 6.3) severely damaged over 100 schools, endangering students and staff (Pananont et al., 2017). Globally, the December 2024 Port Vila earthquake in Vanuatu affected approximately 14,000 children, disrupted water access, and damaged 45 schools—requiring over US$231 million for recovery efforts. These events underscore how compromised structural and sanitation systems pose direct threats to children's health and safety.

Psychological Impacts. Earthquakes are intensely traumatic, especially for children who often lack emotional resilience and coping strategies. Responses can include acute stress, anxiety, depression, and PTSD. A case in point: following the February 2023 Turkey–Syria earthquakes, approximately 6.2 million children were affected, with about 660,000 living in temporary settlements—highlighting the deep emotional and developmental toll (Financial Times, 2024; United Nations Office for the Coordination of

Humanitarian Affairs [OCHA], 2023). Without timely psychosocial support through schools and community networks, affected children risk long-lasting behavioral and emotional disturbances.

Educational Impacts. The disruption of education is a critical long-term consequence. Earthquakes damage school infrastructure, displace families, and interrupt learning, especially for marginalized groups lacking access to technology or alternative schooling options. Internationally, nearly 242 million students experienced schooling disruptions due to climate-related disasters—including earthquakes, floods, and storms—in 2024 alone (UNICEF, 2025). In Vanuatu, nearly 13,000 children needed temporary learning facilities after schools were damaged. These disruptions permanently affect educational trajectories, development, and equitable access to learning.

Together, these three dimensions—physical safety, psychological well-being, and education—illustrate the complex and enduring impact earthquakes have on children, often extending well beyond the immediate hazard. Recognizing these multidimensional risks is essential for developing child-centered disaster policies that span prevention, response, and resilient recovery, thereby safeguarding children's rights and developmental futures.

In conclusion, the impacts of earthquakes on children are multidimensional, intersecting physical vulnerabilities, psychological trauma, and long-term educational disruption. Unlike adults, children face compounded risks because of their dependency, developmental stage, and limited access to coping resources, making them disproportionately affected by disasters. Evidence from Thailand, Vanuatu, and Turkey–Syria illustrates how earthquakes not only threaten children's immediate survival but also undermine their emotional stability and learning continuity—factors that are critical to their overall development and future opportunities. These findings reinforce the need for integrated, child-centered disaster management frameworks that go beyond short-term emergency relief to encompass structural safety, psychosocial support, and resilient education systems. By institutionalizing such approaches, policymakers can better safeguard children's rights and foster resilience, ensuring that the youngest and most vulnerable members of society are protected in both the immediate aftermath of earthquakes and throughout the long road to recovery.

Review of International Child-Centered Disaster Risk Management Policies

In contemporary disaster risk management, Child-Centered Disaster Risk Reduction (CC-DRR) has emerged as a crucial paradigm, recognizing both the heightened vulnerabilities and the agency of children in all disaster phases. To move beyond descriptive case summaries, this review adopts five analytical dimensions to compare and extract policy lessons relevant to Thailand:

1. Institutional and Policy Framework – the degree to which DRR for children is embedded in formal policy and governance structures.

2. Integration with the Education System – the role of schools in preparedness, response, and recovery.

3. Psychosocial Support Mechanisms – formal strategies for addressing children's mental health needs.

4. Child Participation – structured opportunities for children to contribute to decision-making.

5. Post-Disaster Recovery Measures – speed, child-friendliness, and inclusiveness of recovery interventions.

Japan: Institutionalizing Preparedness Through the Education System: Japan has embedded disaster risk reduction (DRR) firmly within its national education framework, ensuring that preparedness is both systematic and sustainable. National DRR policies are integrated into education laws, while strict infrastructure standards guarantee that school buildings can withstand high-magnitude seismic events (Ministry of Education, Culture, Sports, Science and Technology, 2018). Within this framework, schools conduct regular earthquake and evacuation drills, and are formally designated as official evacuation centers equipped with trained personnel and child-friendly spaces to provide both physical safety and psychosocial support for affected children (UNICEF, 2022). Children's participation is encouraged primarily through involvement in safety drills and school safety committees, fostering both awareness and practical readiness from a young age. In times of crisis, schools function as stable community hubs, ensuring continuity in education and serving as focal points for local recovery efforts (Shaw et al., 2011). For Thailand, Japan's model offers a strong example of how DRR can be effectively embedded in educational structures and infrastructure standards—areas where significant reinforcement is still needed.

New Zealand: Integrating Psychosocial Care into Post-Disaster Education Policy: In the aftermath of the 2011 Christchurch earthquake, New Zealand recognized the profound and lasting psychological effects disasters can have on children and young people (UNDRR, 2021). This awareness led to significant reforms in education policy, embedding trauma-informed care as a core component of post-disaster response. Teachers and school staff received specialized training to identify and address post-traumatic stress, while the national curriculum was revised to include disaster preparedness and safety education—particularly within health and physical education subjects (Tipler et al., 2015). At the community level, schools were transformed into temporary shelters with dedicated child-friendly zones and personnel responsible for the emotional and physical well-being of children (UNICEF, 2017). This holistic approach reframed schools not only as places for learning, but as critical platforms for resilience-building and recovery in the wake of disasters. For Thailand, New Zealand's emphasis on psychosocial care and curriculum integration offers valuable guidance for enhancing mental health preparedness within its education system.

Chile: Rapid, Child-Friendly Recovery Planning: Situated along the Pacific Ring of Fire, Chile has faced repeated seismic challenges and has developed robust systems for rapid educational recovery after disasters (Peek, 2008). A key feature of effective child-centered disaster response in Latin America is the rapid provision of temporary learning spaces and emergency education kits. For example, following the 2016 earthquake in Ecuador, Plan International supported the establishment of tent classrooms and distributed school kits to ensure continuity of education for affected children (Plan International, 2016). Equally important is the immediate dispatch of child psychologists to affected communities, ensuring that emotional recovery accompanies the restoration of educational services (Peek & Stough, 2010). UNESCO has developed educational resources to support emotional and psychosocial recovery following emergencies in Chile—such as the *Rebuilding without Bricks* guides released in 2023. However, there is no

documented evidence in publicly available sources of formal child-centered forums that directly inform national recovery planning (UNESCO, 2023). For Thailand, Chile's model highlights the importance of rapid education continuity measures coupled with formal mechanisms for children's participation in post-disaster recovery.

Comparative Synthesis

A comparative analysis of the three national cases—Japan, New Zealand, and Chile—reveals several core elements that underpin effective child-centered disaster risk reduction (CC-DRR) policies. First, institutionalization emerges as a critical factor, with DRR systematically integrated into formal laws and education policies, as exemplified by Japan and Chile (Ministry of Education, Culture, Sports, Science and Technology, 2018.; Plan International, 2015). Second, school-centered systems function as pivotal platforms for preparedness, shelter, and post-disaster recovery, a role consistently emphasized across all three countries (Shaw et al., 2011). Third, the integration of psychosocial support is essential, ensuring that children's mental health needs are addressed systematically in the aftermath of disasters, as demonstrated by New Zealand and Chile (Tipler et al., 2015; Peek & Stough, 2010). Fourth, child agency—the provision of formal mechanisms for children to participate in planning and recovery processes—is a key feature in Chile and New Zealand, reinforcing the importance of children's voices in shaping responsive and effective DRR interventions. Finally, rapid recovery measures are crucial for minimizing educational disruption, with Chile and Japan providing models for swift restoration of learning continuity and community support (Peek, 2008; Ministry of Education, Culture, Sports, Science and Technology, 2018).

For Thailand, these comparative insights suggest three strategic priorities. First, DRR should be embedded comprehensively within education policy and infrastructure standards to ensure both preparedness and safety. Second, psychosocial support systems must be institutionalized within schools, with trained personnel and structured protocols to address children's emotional and mental health needs. Third, formal mechanisms for children's participation in DRR decision-making should be established, enabling youth to contribute meaningfully to disaster preparedness, response, and recovery processes. Collectively, these adaptations would strengthen Thailand's child-centered approach to disaster risk management and enhance the resilience of vulnerable populations in the face of diverse hazards.

Table1: Comparative Matrix: International Child-Centered Disaster Risk Management Policies and Relevance to Thailand.

Analytical Dimension	Japan	New Zealand	Chile	Thailand (Current Status)	Policy Gaps & Opportunities
1. Institutional & Policy Framework	National DRR policy integrated into education laws; school infrastructure standards mandated for seismic safety.	Post-disaster reforms integrated DRR & trauma care into education policy.	National protocols for rapid educational continuity post-disaster.	DRR in education not fully institutionalized; school infrastructure standards vary by region.	Embed DRR in national education policy and enforce uniform safety standards.
2. Education System Integration	Regular earthquake drills; schools as official evacuation centers.	Curriculum includes disaster preparedness; schools as community hubs.	Mobile classrooms and education kits deployed within 72 hrs post-disaster.	Disaster drills sporadic; limited formal role of schools as evacuation centers.	Establish nationwide school-based DRR programs with mandated drills and shelter functions.
3. Psychosocial Support	Trained personnel and child-friendly spaces in evacuation centers.	Teachers trained in trauma-informed care; formal school counseling services.	Child psychologists deployed to affected schools immediately.	Limited access to trained psychosocial support in schools, especially rural areas.	Integrate psychosocial support into DRR frameworks; train educators in trauma care.
4. Child Participation	Students involved in safety committees; participation mainly in drills.	Students contribute to recovery planning via school/community forums.	Formal child forums incorporated into recovery decision-making.	Child participation mostly informal; lacks structured feedback mechanisms.	Institutionalize child participation in DRR decision-making at school and local government levels.
5. Post-Disaster Recovery	Schools as stable hubs ensuring continuity of education and support.	Schools serve as temporary shelters with emotional-care personnel.	Rapid restoration of education services; inclusive recovery planning.	Recovery of education services often slow; ad-hoc coordination.	

Note. Developed by the author based on data from Ministry of Education, Culture, Sports, Science and Technology (2018); Plan International (2015); Shaw et al. (2011); Tipler et al. (2015); Peek and Stough (2010); and Peek (2008).

Policy Implications for Thailand

The comparative review of child-centered disaster risk reduction (CC-DRR) practices in Japan, New Zealand, and Chile offers several actionable lessons for enhancing Thailand's child-centered disaster risk management (CC-DRM) framework. The analysis indicates that Thailand's current approach remains fragmented, with DRR initiatives for children implemented inconsistently across regions and lacking a fully institutionalized policy foundation. Drawing from international best practices, the following policy directions are proposed:

1. Institutionalize Child-Centered DRR in National Education and Disaster Laws: Thailand should enact legislative provisions that mandate the integration of disaster risk reduction (DRR) into school curricula, teacher training programs, and infrastructure regulations. Alongside this, binding safety standards should be established for all school facilities, covering seismic, flood, and fire safety measures, to ensure that schools provide a secure learning environment and serve as reliable hubs during disasters.
2. Strengthen School-Centered Preparedness Systems: Nationwide disaster drills should be implemented that comprehensively integrate evacuation procedures, shelter management, and child-specific protocols. Schools should also be designated as official evacuation centers, fully equipped with child-friendly facilities, to serve as focal points for both immediate response and ongoing community support during and after emergencies.
3. Integrate Psychosocial Support into Disaster Response: Teachers should receive specialized training in trauma-informed care to address the emotional and psychological needs of children affected by disasters. In addition, a rapid deployment network of child psychologists and social workers should be established to provide timely support, ensuring that children's mental health is considered an integral component of disaster response.
4. Institutionalize Child Participation Mechanisms: Structured platforms should be developed to allow children to actively express their needs and perspectives in disaster preparedness and recovery planning. Furthermore, youth representatives should be included in local and provincial disaster management committees, guaranteeing that children's voices are formally recognized and incorporated into decision-making processes.
5. Develop Rapid Education Recovery Protocols: Mobile classrooms and emergency learning kits should be pre-positioned in high-risk areas to minimize disruption to education following a disaster. Effective inter-agency coordination must also be ensured so that educational services can be restored within 72 hours, maintaining continuity of learning and supporting the resilience of affected communities.

Strategic Outlook: The successful implementation of these measures requires a whole-of-government and whole-of-society approach, engaging national ministries, local authorities, civil society organizations, and children themselves. By adapting internationally proven strategies to Thailand's socio-cultural and geographic context, the country can significantly enhance the resilience, safety, and overall well-being of its children in the face of disasters.

Analysis of Child-Focused Disaster Management in Thailand

Although Thailand is not situated along major seismic fault lines like Japan or Chile, earthquakes have occurred in the northern provinces—particularly Chiang Rai and Lampang—and tremors from neighboring countries have been felt across Thai territory. These events highlight the urgent need for a robust disaster risk management system, particularly one that addresses the needs of vulnerable groups such as children. However, current measures remain limited, both in terms of policy scope and implementation. The following analysis examines existing approaches in three key phases: prevention, response, and recovery.

1. Prevention and Preparedness

1.1 The Ministry of Education has conducted assessments and retrofitting of school buildings in earthquake-prone areas to comply with the national Seismic Design Code. However, coverage remains incomplete, particularly in remote and resource-limited areas. Studies indicate that many rural schools have yet to benefit from retrofitting programs, which exacerbates urban–rural disparities in school safety and disaster preparedness (Save the Children, 2024; UNICEF Thailand, 2024).

1.2 Evacuation Drills and Disaster Education in Schools: Periodic evacuation drills and emergency safety education have been implemented in Thai schools. However, these initiatives are often irregular, lack standardization, and are not always tailored to the developmental stages of children across different age groups. Research indicates that although disaster education has expanded, teachers frequently lack systematic training and the ability to adapt curricula to local contexts, limiting the effectiveness of such programs (Jantakoon, 2021)

1.3 Absence of Child-Centered Policy Frameworks: Although Thailand has a National Disaster Prevention and Mitigation Plan, this framework primarily addresses the general population and lacks specific strategies focused on children's unique needs in the pre-disaster phase. Local case studies (Yodmani, 2001) emphasize that disaster risk reduction in Thailand has historically centered on infrastructure rather than child protection, underscoring the policy gap.

2. Emergency Response

2.1 Field Operations by Government Agencies: During disaster events, organizations such as the Department of Disaster Prevention and Mitigation (DDPM) and local administrative bodies respond rapidly by establishing temporary shelters and providing immediate assistance. However, these responses often lack child-specific components, such as pre-established Safe Spaces for Children or personnel trained to address the unique needs of children. Research indicates that children in shelters frequently experience inadequate privacy, safety, and continuity in learning, which increases their vulnerability during emergencies

(Save the Children, 2023; UNICEF Thailand, 2024). In the Thai context, studies on child protection during emergencies emphasize the importance of integrating child-focused interventions into field operations to ensure both safety and psychosocial support.

2.2 Role of Teachers and School Staff: Teachers often serve as front-line caregivers during disasters, yet most lack specialized training in psychosocial care or crisis communication with children. This limits their ability to offer emotional support, ensure safety, and help reduce panic among children during emergencies. Research by Panyayong & Penjuntr (2006) shows that while teachers are highly trusted by children, they often feel underprepared to respond to children's trauma and educational needs during disasters.

3. Post-Disaster Recovery

3.1 Reconstruction of Educational Infrastructure: Post-disaster efforts in Thailand often focus on repairing or rebuilding school facilities. However, these processes are frequently delayed due to limited funding and logistical challenges, forcing many students to study in temporary settings that are neither safe nor conducive to learning. Studies on post-flood recovery indicate that reconstruction policies rarely prioritize child-centered facilities, with most attention directed toward restoring physical structures rather than ensuring a safe and supportive learning environment for children (Save the Children, 2024; UNICEF Thailand, 2024).

3.2 Psychosocial Recovery: There is currently no formal system in place for delivering child-focused psychological support as part of the recovery process. While agencies like the Ministry of Public Health and the Department of Mental Health occasionally provide assistance, these efforts are often fragmented, short-term, and not well-integrated with schools or local communities. A study by Wongphyat & Tanaka (2020) shows that community-based child counseling has proven effective but lacks institutional support and scaling.

3.3 Reintegration into the Education System: Children affected by disasters often face significant delays in returning to school. Some may drop out of the education system entirely, especially those from vulnerable groups such as children with disabilities or from impoverished households. There is a lack of coordinated tracking and reintegration mechanisms to ensure these children continue their education. Research indicates that without systematic reintegration, disaster impacts deepen inequality and perpetuate cycles of poverty among affected children (Save the Children, 2024; UNICEF Thailand, 2024).

This analysis reveals a significant gap in Thailand's disaster management framework: the absence of a proactive, child-centered public policy. While several agencies and strategic plans are in place, they lack integration and fail to designate children as a specific priority group requiring comprehensive protection. Therefore, future policy development must embed a Child Rights Approach throughout all phases of disaster management—prevention, response, and recovery. This includes developing participatory planning mechanisms that involve children, teachers, and communities, as well as allocating dedicated budgets for child-focused interventions at the local level. Drawing on both state reports and local academic studies enriches the analysis, making clear that ensuring child protection in disasters requires not only government action but also community and academic collaboration.

Linking Findings to Public Administration Theories

The empirical findings of this study reveal the profound multidimensional impacts of earthquakes on children in Thailand, affecting physical safety, psychological well-being, and educational continuity. These impacts expose critical limitations in the current Thai disaster management framework, which has yet to position children as a central concern. A theoretical analysis through public administration lenses provides insight into the structural, procedural, and governance-related barriers that undermine effective child-centered disaster risk management (CC-DRM), and offers a framework for designing more responsive and sustainable interventions.

Agenda-Setting and Policy Prioritization: Kingdon's (1984) Multiple Streams Framework posits that policy change arises when the problem, policy, and political streams converge, facilitated by proactive policy entrepreneurs. In Thailand, recurring earthquake events clearly constitute a pressing problem stream. However, the findings indicate significant gaps in systematic data collection on children's disaster vulnerabilities, reflecting a weak policy stream, while the absence of sustained advocacy and political commitment illustrates a constrained political stream. Contemporary studies (Boin et al., 2010; Wamsler et al., 2013) argue that effective agenda-setting in disaster governance requires the integration of empirical evidence, stakeholder engagement, and media framing to elevate the policy priority of vulnerable groups. The synthesis of these perspectives demonstrates that institutionalizing child-centered DRR into education and disaster laws, supported by robust monitoring and data collection mechanisms, is essential to align Thailand's policy agenda with actual risk exposure and societal needs.

Participatory Governance: Fung and Wright's (2003) Empowered Participatory Governance (EPG) framework emphasizes the meaningful engagement of affected populations in decision-making. The study's findings reveal that children, parents, and educators currently lack formalized avenues to express concerns or provide input in disaster planning, limiting the government's capacity to design contextually appropriate interventions. Recent empirical and theoretical research on collaborative governance emphasizes that inclusive participatory mechanisms—such as structured stakeholder engagement, transparent decision-making frameworks, and trust-building processes—enhance both the legitimacy and effectiveness of policy decisions (Ansell & Gash, 2007). When adapted to the Thai context, such inclusive mechanisms empower children as active stakeholders and equip administrators with localized insights to better tailor disaster preparedness, response, and recovery strategies.

Responsive Bureaucracy and Service Delivery: Denhardt and Denhardt's (2007) "New Public Service" model advocates that public agencies prioritize serving citizens' needs, particularly for marginalized and vulnerable groups, rather than pursuing rigid procedural objectives. The study highlights that post-disaster interventions in Thailand inadequately address children's psychosocial and educational requirements, with limited trauma-informed services and rigid learning arrangements. Contemporary analyses (Christensen et al., 2020) emphasize the importance of proactive, flexible, and transparent bureaucracies capable of rapid adaptation to emergent needs. Integrating these insights suggests that Thai agencies must adopt citizen-centered approaches, including pre-deployed psychosocial teams and adaptive educational support, akin to practices observed in New Zealand and Chile, to ensure resilience and continuity for child populations.

Whole-of-Government Coordination: Christensen and Lægreid (2007) argue that modern governance effectiveness depends on horizontal and vertical coordination across sectors and administrative levels. Empirical studies indicate that Thai education, health, and disaster management agencies often operate in silos, leading to fragmented responses and poor data sharing. Recent literature emphasizes the importance of cross-sectoral planning, shared budgeting, and inter-agency governance platforms in addressing complex, multidimensional risks (Kickert et al., 2013). In Thailand, a Whole-of-Government approach can facilitate coordinated education continuity, psychosocial care, and emergency response, mitigating systemic vulnerabilities and improving policy implementation efficiency.

Child Rights-Based Approach: The UN Convention on the Rights of the Child (United Nations, 1989) establishes a normative framework emphasizing survival, development, protection, participation, and non-discrimination. This study indicates that Thai disaster management policies inadequately incorporate these principles, particularly regarding post-disaster mental health, protective measures against exploitation, and structured opportunities for child participation. Contemporary guidance from the Child Protection Working Group Lebanon (2018) emphasizes that a rights-based approach ensures children are recognized as autonomous rights holders rather than passive beneficiaries, guiding policy toward equitable and ethical outcomes. Embedding these principles within disaster management policy strengthens accountability, aligns national practices with international obligations, and operationalizes child-centered governance.

Synthesis and Implications: Integrating empirical findings with both classical and contemporary public administration theories provides a nuanced understanding of Thailand's CC-DRM gaps. The analysis reveals that the challenges are multi-layered: structural (fragmented institutions, weak policy integration), procedural (limited child participation, inflexible service delivery), and normative (insufficient rights-based orientation). The theoretical synthesis supports strategic recommendations: (1) institutionalize child-centered policies within legal and educational frameworks; (2) establish formal participatory mechanisms for children and communities; (3) enhance bureaucratic responsiveness through training and flexible service provision; and (4) adopt a Whole-of-Government approach to coordinate across sectors. Collectively, this approach provides a theoretically grounded roadmap for designing sustainable, child-centered disaster policies that prioritize resilience, protection, and equitable participation.

Policy Recommendations for Building a Sustainable Child-Centered Disaster Management System

Developing a sustainable disaster management system in Thailand necessitates a strong focus on protecting children's rights, in line with human rights principles and contemporary theories of social justice, resilience, and participatory governance. The protection of children during disasters not only mitigates immediate physical and psychological harm but also ensures the continuity of education and long-term developmental opportunities.

Strengthening Child-Safe Infrastructure. Sustainable disaster management must begin with the establishment of resilient, child-centered infrastructure. Existing schools and community shelters should be retrofitted to meet rigorous seismic, flood, and fire safety standards, while new constructions should integrate child-specific safety features from the outset. The Ministry of Education, the Department of

Disaster Prevention and Mitigation (DDPM), and local municipalities should coordinate these efforts, with dedicated national funds allocated for hazard-prioritized retrofitting. International partnerships may supplement financial and technical expertise. Embedding these measures reflects the principles of Social Justice Theory, ensuring equitable access to safe learning environments for children in high-risk areas.

Capacity Building and Training for Educational Personnel. Ensuring that educational personnel are prepared to respond effectively during crises is critical. Mandatory training programs should equip teachers and school staff with skills in disaster preparedness, first aid, and trauma-informed care, reinforced through regular simulation exercises and annual refresher courses. Responsibility for these programs lies with the Ministry of Education, the Teachers' Council of Thailand, and supporting organizations such as the Thai Red Cross. Budget allocations should be integrated into annual school operations, supplemented by central government support. This approach operationalizes both Social Justice and Resilience Theories, building human capacity to safeguard children's physical and psychological well-being.

Sustainable Recovery Systems for Education and Mental Health. Rapid restoration of educational services and psychosocial support is essential to minimize long-term developmental disruptions. Mobile classrooms, pre-positioned learning kits, and rapid-deployment teams of child psychologists and social workers should be strategically located in high-risk areas. Clear operational protocols should enable the deployment of these resources within 72 hours post-disaster, ensuring continuity of learning and access to mental health support. These strategies operationalize Resilience Theory, facilitating children's adaptation and recovery while mitigating the long-term effects of trauma and educational interruption.

Integrating Technology to Ensure Learning Continuity. Modern disaster management must leverage technology to maintain educational continuity when schools are incapacitated. Online learning platforms, cloud-based lesson repositories, and mobile applications with offline access capabilities can provide uninterrupted educational engagement. Schools in high-risk zones may be equipped with solar-powered tablets or laptops to ensure accessibility. The Ministry of Education, in collaboration with the Digital Government Development Agency (DGA) and local IT departments, should oversee implementation. Budget considerations include infrastructure investment, maintenance, and potential partnerships with private technology providers. This approach aligns with Emergency Education Theory, providing adaptive, flexible learning systems responsive to changing environmental conditions.

Strengthening Family and Community Participation. A sustainable child-centered disaster management system requires meaningful engagement of families and local communities. Structured mechanisms such as school disaster committees, community disaster volunteer networks, and local child protection councils can facilitate this engagement. Regular workshops, risk assessments, and feedback sessions help integrate local knowledge into disaster preparedness and recovery planning. Local municipalities, DDPM, school administrations, and civil society organizations should share responsibility for coordination, supported by modest community engagement grants within annual local disaster preparedness budgets. This aligns with Participatory Governance Theory, emphasizing inclusive engagement to enhance policy legitimacy, responsiveness, and the resilience of vulnerable populations.

Monitoring and Evaluation for Continuous Improvement. Finally, effective policy implementation requires robust monitoring and evaluation mechanisms. Key performance indicators (KPIs) should be established to assess school safety, child participation, psychosocial support provision, and educational continuity. Annual audits and public reporting ensure transparency and accountability, facilitating evidence-based policy adaptation. Responsibility for monitoring should be shared among the Ministry of Education, the Office of the National Economic and Social Development Council (NESDC), and independent academic evaluators, with digital tools employed for data collection and analysis. Integrating monitoring mechanisms reflects the principles of both Resilience and Social Justice Theories, fostering continuous improvement and sustainable disaster management outcomes.

In summary, these recommendations provide a theoretically grounded and operationally actionable roadmap for building a sustainable, child-centered disaster management system in Thailand. By systematically addressing infrastructure, capacity building, educational continuity, psychosocial support, technological integration, community participation, and monitoring, Thailand can enhance the safety, well-being, and resilience of children in disaster contexts while fulfilling international obligations and human rights commitments.

Table2: Policy Recommendations for Building a Sustainable Child-Centered Disaster Management System

Main Component	Activities / Measures	Responsible Agencies	Theory / Principle
1. Child-Safe Infrastructure	- Retrofitting schools & shelters- New child-centered constructions	Ministry of Education, DDPM, Local Municipalities	Social Justice Theory: equitable access
2. Capacity Building & Training	- Mandatory training for teachers & staff- First aid & trauma-informed care- Simulation exercises & refresher courses	Ministry of Education, Teachers' Council, Thai Red Cross	Social Justice + Resilience Theories: safeguard children's well-being
3. Sustainable Recovery Systems	- Rapid deployment: mobile classrooms, learning kits, psychologists/social workers- Operational within 72 hours- Strategic placement in high-risk areas	Ministry of Education, DDPM, local partners	Resilience Theory: adaptation & recovery
4. Technology for Learning Continuity	- Online platforms, cloud repositories, offline mobile apps- Solar-powered tablets/laptops for high-risk schools	Ministry of Education, DGA, local IT departments	Emergency Education Theory: adaptive & flexible learning

Main Component	Activities / Measures	Responsible Agencies	Theory / Principle
5. Family & Community Participation	- School disaster committees & community volunteer networks- Local child protection councils- Workshops, risk assessments, feedback sessions	Local municipalities, DDPM, schools, civil society	Participatory Governance Theory: inclusive engagement
6. Monitoring & Evaluation	- KPIs: school safety, child participation, psychosocial support, educational continuity- Annual audits & public reporting	Ministry of Education, NESDC, independent evaluators	Resilience + Social Justice Theories: continuous improvement

Note. Developed by the author.

Conclusion

Earthquakes have profound impacts on children across multiple dimensions, including physical, psychological, and educational aspects. Vulnerable groups, such as children in remote areas or those from impoverished families, suffer disproportionately due to limited infrastructure and inadequate support for education and mental health following disasters. This article underscores the importance of developing child-centered public policies in disaster management. It highlights approaches from countries like Japan, New Zealand, and Chile, which have formulated policies addressing the specific needs of children in preparedness, response, and recovery phases.

In the context of Thailand, however, there remain significant limitations in policies that clearly and comprehensively protect children during disasters, particularly in prevention, response, and recovery efforts. Furthermore, there is a lack of integrated approaches that fully consider children's vulnerabilities. The development of policies and measures should adopt a Child Rights-Based Approach and promote the participation of children, educators, and communities in disaster management planning across all stages—prevention, response, and recovery—to ensure effective and sustainable protection of children in all disaster situations.

References

Ansell, C., & Gash, A. (2007). Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory, 18*(4), 543–571. https://doi.org/10.1093/jopart/mum032

Boin, A., McConnell, A., & 't Hart, P. (2010). *Governing after crisis: The politics of investigation, accountability and learning*. Cambridge University Press. https://www.cambridge.org/core/books/governing-after-crisis/5D1DE2B9F5514C4C620DCB8440DE7432

Child Protection Working Group Lebanon. (2018). *Minimum standards for child protection in humanitarian action.* UNHCR. https://data.unhcr.org/en/documents/download/74549

Christensen, T., & Lægreid, P. (2007). The whole-of-government approach to public sector reform. *Public Administration Review, 67*(6), 1059–1066. https://doi.org/10.1111/j.1540-6210.2007.00797.x

Christensen, T., Lægreid, P., Roness, P. G., & Røvik, K. A. (2020). *Organization theory and the public sector: Instrument, culture and myth*. Routledge. https://doi.org/10.4324/9780367855772

Denhardt, J. V., & Denhardt, R. B. (2007). *The new public service: Serving, not steering* (Expanded ed.). M. E. Sharpe.

Financial Times. (2024, July 10). Helping child earthquake victims rebuild dreams for the future. https://www.ft.com/content/3e469ea5-c122-4981-a956-f9c69b17081d

Fung, A., & Wright, E. O. (Eds.). (2003). *Deepening democracy: Institutional innovations in empowered participatory governance*. Verso.

Jantakoon, J. (2021). The development of a curriculum to enhance natural disaster survival skills: A case of Tham Luang Cave, Chiang Rai Province by using coaching process. *Journal of Education and Innovation, 23*(2), 375–390. https://so06.tcithaijo.org/index.php/edujournal_nu/article/view/247154

Kingdon, J. W. (1984). *Agendas, alternatives, and public policies.* Little, Brown and Company.

Kickert, W. J. M., Klijn, E. H., & Koppenjan, J. F. M. (2013). *Managing complex governance networks*. SAGE Publications. https://doi.org/10.4135/9781446217658

Ministry of Education, Culture, Sports, Science and Technology. (2018). *Basic education in Japan: Chi (knowledge), toku (virtue), tai (body).* MEXT.. https://www.mext.go.jp/en/policy/education/brochure/title01/detail01/__icsFiles/afieldfile/2018/10/09/1409899-01.pdf

Mutch, C. (2015). The role of schools in disaster settings: Learning from the 2010–2011 New Zealand earthquakes. *International Journal of Educational Development, 41*, 283–291. https://doi.org/10.1016/j.ijedudev.2014.06.008

Pananont, P., Herman, M. W., Pornsopin, P., Furlong, K. P., Habangkaem, S., Waldhauser, F., Wongwai, W., Limpisawad, S., Warnitchai, P., Kosuwan, S., & Wechbunthung, B. (2017). Seismotectonics of the 2014 Chiang Rai, Thailand, earthquake sequence. *Journal of Geophysical Research: Solid Earth, 122*(8), 6367–6388. https://doi.org/10.1002/2017JB014085

Panyayong, B., & Pengjuntr, W. (2006). Mental health and psychosocial aspects of disaster preparedness in Thailand. *International Review of Psychiatry, 18*(6), 607–614. https://doi.org/10.1080/09540260601038514

Peek, L. (2008). Children and disasters: Understanding vulnerability, developing capacities, and promoting resilience. *Children, Youth and Environments, 18*(1), 1–29. https://journals.uc.edu/index.php/cye/article/view/6776

Peek, L., & Stough, L. M. (2010). Children with disabilities in the context of disaster: A social vulnerability perspective. *Child Development, 81*(4), 1260–1270. https://doi.org/10.1111/j.1467-8624.2010.01466.x

Plan International. (2016, May 11). *Students return to school in Ecuador's earthquake-affected areas*. Plan International USA. https://www.planusa.org/blog/plan-international-students-return-to-school-in-ecuadors-earthquake-affected-areas/

Saric, I. (2025, March 28). *Massive earthquake rocks Myanmar, Thailand, killing more than 150 people: In photos*. AXIOS. https://www.axios.com/2025/03/28/earthquake-myanmar-thailand-bangkok-photos-deaths

Save the Children. (2023). *Handbook for Child Protection in Emergency*. https://resourcecentre.savethechildren.net/document/handbook-for-child-protection-in-emergency

Save the Children. (2024, September 24). *Thailand, Vietnam floods: More than 900 schools damaged, leaving children unable to return learning*. https://www.savethechildren.net/news/thailand-vietnam-floods-more-900-schools-damaged-leaving-children-unable-return-learning

Save the Children International. (2025, February 5). *One in four children displaced in 2023 Türkiye earthquake yet to return home while needs in Syria mount*. https://www.savethechildren.net/news/turkiyesyria-one-four-children-turkiye-displaced-2023-earthquake-yet-return-home-while-needs

Shaw, R., Shiwaku, K., & Takeuchi, Y. (2011). Disaster education: An introduction. In R. Shaw, K. Shiwaku, & Y. Takeuchi (Eds.), *Disaster education* (Vol. 7, pp. 1–22). Emerald Group Publishing Limited. https://doi.org/10.1108/S2040-7262(2011)0000007007

Thai Meteorological Department. (2014, May 5). *Chiang Rai earthquake report: May 5, 2014* [PDF]. Thai Meteorological Department. https://earthquake.tmd.go.th/documents/file/seismo-doc-1404703458.pdf

Thai Meteorological Department. (2019). *Flash Update No. 01: M 6.4 Earthquake in Lao PDR and Thailand*. https://reliefweb.int/report/lao-peoples-democratic-republic/flash-update-no-01-m-64-earthquake-lao-pdr-and-thailand-22

Tipler, K. S., Tarrant, R. A. C., Johnston, D. M., & Tuffin, K. F. (2015). *Emergency preparedness in New Zealand schools: A summary of survey results*. GNS Science. https://digitalnz.org/records/37098726

United Nations. (1989). *Convention on the Rights of the Child.* Office of the United Nations High Commissioner for Human Rights. https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child

United Nations Office for Disaster Risk Reduction. (2021). *Human cost of disasters: An overview of the last 20 years (2000–2019)*. https://www.undrr.org/publication/human-cost-disasters-overview-last-20-years-2000-2019

United Nations Educational, Scientific and Cultural Organization. (2023, July 18). *UNESCO delivered educational guides in the context of the emergency caused by wildfires in central and southern Chile*. UNESCO. https://www.unesco.org/en/articles/unesco-delivered-educational-guides-context-emergency-caused-wildfires-central-southern-chile

United Nations Children's Fund. (2023, November 7). *Children account for half of dead and injured in Nepal earthquake*. https://www.unicef.org/press-releases/children-account-half-dead-and-injured-nepal-earthquake-unicef

United Nations Children's Fund. (2024). *Flood emergency*. https://unicef.or.th/flood-emergency

United Nations Children's Fund. (2025, July 25). *Families still reeling after devastating earthquake in Myanmar*. https://www.unicef.org/emergencies/powerful-earthquake-rocks-myanmar

United Nations Office for the Coordination of Humanitarian Affairs. (2023, August 11). *Syrian Arab Republic: Cross-border humanitarian reach and activities from Türkiye (May 2023).* ReliefWeb. https://reliefweb.int/report/syrian-arab-republic/syrian-arab-republic-cross-border-humanitarian-reach-and-activities-turkiye-may-2023

Wamsler, C., Brink, E., & Rivera, C. (2013). *Planning for climate change in urban areas: From theory to practice. Journal of Cleaner Production, 50,* 68–81. https://doi.org/10.1016/j.jclepro.2012.12.008

Wongphyat, W., & Tanaka, M. (2020). A prospect of disaster education and community development in Thailand: Learning from Japan. *Nakhara: Journal of Environmental Design and Planning, 19*(1), 1–24. https://doi.org/10.54028/NJ202019124

Yodmani, S. (2001, February 5–9). *Disaster risk management and vulnerability reduction: Protecting the poor*. Paper presented at the Asia and Pacific Forum on Poverty: Reforming Policies and Institutions for Poverty Reduction, Asian Development Bank, Manila, Philippines.