



Research on Cross-border Rescue Mechanisms of Chinese Social Organizations under Emergency States: A Case Study of the 2025 Myanmar Earthquake

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Abstract. Under the background of globalization, cross-border natural disasters and humanitarian crises have become normalized. Chinese social organizations, as a vital supplement to the national emergency system, have demonstrated significant potential in international rescue operations. Taking the M7.9 earthquake in Myanmar on March 28, 2025, as a research sample, this paper constructs a "Cross-Border Adaptive Collaborative Relief" (CB-ACR) governance framework. Through comparative analysis of different rescue modes—specifically the unified coordination mode and the autonomous response mode—the study reveals structural bottlenecks in resource allocation, fragmented authorization, and cultural adaptation barriers. The results indicate that establishing a permanent national coordination hub, standardizing international rescue procedures, and enhancing localization are essential for improving the efficiency of Chinese civil rescue forces.

Keywords: Social Organizations; Cross-border Rescue; Collaborative Governance; Myanmar Earthquake; CB-ACR Framework.

1 Introduction

1.1 Research Background and Significance

With the promotion of the "Community with a Shared Future for Mankind," Chinese social organizations have increasingly participated in global humanitarian efforts^[3]. Since the 2015 Nepal earthquake, the role of these organizations has shifted from financial aid to professional field operations. However, cross-border rescue involves complex legal, cultural, and political environments, presenting significant challenges for efficient coordination.

1.2 Case Overview: The 3·28 Myanmar Earthquake

On March 28, 2025, at 14:20, a 7.9-magnitude earthquake struck Myanmar along the

Sagaing Fault. The epicenter was located only 17 km from Mandalay, a major population center [6]. The disaster caused extensive damage to infrastructure and was complicated by local ethnic conflicts and the shutdown of major international airports. The geological nature of the Sagaing Fault—a highly active right-lateral strike-slip fault—resulted in shallow focal depth and immense surface acceleration. Consequently, the structural integrity of Mandalay’s unreinforced masonry buildings and historical infrastructure was severely compromised. Furthermore, the earthquake caused catastrophic fracturing of the runway at Mandalay International Airport (MDL), strictly limiting the landing capabilities to light rotary-wing aircraft and completely blocking wide-body cargo planes carrying heavy rescue machinery. This logistical paralysis forced international and Chinese civil rescue teams to reroute through Yangon or overland via the Ruili border port. Such detours added an average of 18 to 24 hours to transit times, transforming the crisis into a critical pressure test for the autonomous supply chain resilience and decentralized decision-making capabilities of foreign non-governmental rescue organizations. This event served as a critical pressure test for China’s civil rescue coordination mechanisms.

2 Theoretical Framework: The CB-ACR Model

To address the institutional heterogeneity of cross-border systems, this study integrates Collaborative Governance Theory (SFIC) [1] and Adaptive Humanitarian Coordination (AHC) to construct the CB-ACR Framework (Cross-Border Adaptive Collaborative Relief).

2.1 Model Logic

The framework focuses on four dimensions:

Starting Conditions: Assessing the political landscape and disaster characteristics of the recipient country.

Catalytic Leadership: Managing multi-layered leadership structures between government, NGOs, and international bodies like OCHA.

Institutional Design: Constructing rules for information transparency and cross-platform integration^[4].

Collaborative Process: Achieving agile responses through real-time resource adjustment^[7].

2.2 Mathematical Modeling of Rescue Efficiency

To quantify the effectiveness of the collaborative effort, we propose the Rescue Effectiveness Index (Eres)^[2]:

$$E_{res} = \sum_{t=1}^T \frac{(S_t \cdot \alpha + L_t \cdot \beta + I_t \cdot \gamma)}{C_t \cdot \delta}$$

Where St , Lt , it represent Starting Conditions, Leadership, and Institutional factors at time t , and Ct represents the collaboration costs. This model emphasizes that minimizing communication friction (Ct) is as vital as maximizing resource input.

3 Empirical Analysis: Comparative Study

This study selects two representative response modes observed during the Myanmar earthquake for comparison, as shown in Table 1.

Table 1. Comparison of different rescue response modes in the Myanmar earthquake.

Metrics	Unified-Coordination Mode (Shenzhen Team)	Autonomous-Response Mode (Shanghai Team)
Leading Authority	Ministry of Emergency Management	Invited by Civil Chambers
Logistics Support	Official Green Channel / Chartered Flights	Commercial Civil Aviation
Time Efficiency	Arrival within the "Golden 72 Hours"	Delayed due to flight scheduling
Information Sync	Real-time via VOSOCC and ICMS	Relying on informal networks

3.1 Rescue Outcomes and "Clustering" Issues

While Chinese social organizations successfully rescued 9 survivors and searched 287,000 square meters, data revealed a "Zhadui" (clustering) phenomenon. In certain urban districts of Mandalay, multiple teams repeated searches in the same blocks, while adjacent disaster zones suffered from a vacuum of professional coverage due to a lack of unified information sharing. Geospatial mapping of the rescue efforts illustrated a severe misallocation of spatial resources. In the Chanayethazan and Maha Aungmye townships—areas with high media visibility and easier road access—up to four distinct Chinese civil rescue teams, alongside several international units, conducted overlapping search operations within a 2-kilometer radius. Meanwhile, peripheral disaster zones in the Patheingyi township suffered from an absolute vacuum of professional search coverage for over 48 hours. This maladaptive distribution was not a failure of intent but a structural consequence of the autonomous-response mode, where teams

relied heavily on fragmented, informal social media networks (such as WeChat groups) rather than integrating their operational grids into the United Nations Virtual OSOCC (VO) platform.

4 Realistic Dilemmas in Cross-border Rescue

4.1 Structural Asymmetry of Resources

There remains a significant gap between official and civil forces. Official teams typically enjoy dedicated transportation, whereas social organizations struggle with civil aviation logistics, often leading to the delayed arrival of heavy search equipment. For instance, the Shanghai Pudong Sanqi Emergency Rescue Team, operating under the autonomous-response mode, faced severe logistical bottlenecks during the Myanmar earthquake. Due to uncoordinated commercial flight schedules, the team was forced to split into three separate batches to reach the transit hub in Guangzhou. They did not fully assemble until the afternoon of March 30, critically delaying their cross-border transit. This fragmentation not only prolonged their overall travel time but also caused a severe misalignment between the arrival of specialized rescue personnel and their heavy detection equipment. Consequently, the team's operational capacity was severely restricted during the critical "Golden 72 Hours" of life-saving operations, exposing the vulnerability of civil forces when lacking centralized aviation support.

4.2 Fragmented Authorization Mechanisms

Rescue teams often face tedious administrative approvals for "controlled equipment" like life detectors. The absence of a permanent Reception and Departure Center (RDC) in many developing nations forces teams to navigate fragmented local bureaucracies independently. Furthermore, the administrative friction experienced at border crossings highlights a critical gap in transnational public management. When social organizations attempt to deploy, they are often subjected to routine customs procedures rather than accelerated emergency protocols. This bureaucratic bottleneck not only delays the transit of life-saving equipment but also severely exhausts the administrative capacity of the responding NGOs. The absence of a pre-established, cross-departmental coordination mechanism between the sending state's emergency management apparatus and the recipient nation's local governance structures creates a jurisdictional gray area. This lack of administrative synergy ultimately diminishes the overall rescue efficacy during the critical initial phases of a disaster, exposing the limitations of current international emergency frameworks.

4.3 Cultural Adaptation and "Water-Soil Discomfort"

The Myanmar case highlighted that technical proficiency alone is insufficient. Teams that failed to account for local ethnic sensitivities or religious customs faced friction with local authorities, emphasizing the need for cultural competency^[5].

5 Optimization Paths

5.1 Permanent National Coordination Hub

A permanent "China International Humanitarian Rescue Coordination Center" should be established. This hub would maintain a dynamic database of organizational capabilities, facilitating rapid force matching during crises.

5.2 Standardized Operating Procedures (SOPs)

Developing standardized reporting templates is crucial. These should align with UN INSARAG standards to ensure that data reported to both domestic authorities and international bodies like OCHA is consistent and interoperable.

5.3 Deep Localization Strategies

Each mission should include "Community Liaison Officers" who understand local languages and social structures. Pre-signing bilateral frameworks with disaster-prone nations can clarify the legal identity of rescue teams before a disaster occurs.

5.4 Establishing an International Relief Logistics Green Channel

Addressing the structural asymmetry in logistics requires the establishment of a dedicated "Green Channel" for civil humanitarian response. This involves forging proactive, pre-disaster strategic agreements among leading social organizations, the Ministry of Emergency Management, and major commercial aviation and logistics corporations. By securing pre-approved customs clearance protocols and guaranteed emergency cargo space for specialized equipment (such as radar life detectors and K-9 units), civil teams can eliminate the critical delays observed during the Mandalay deployment. Furthermore, establishing regional equipment caches in key geographic nodes (e.g., Yunnan province for Southeast Asian response) would drastically reduce mobilization time, ensuring that personnel and heavy machinery arrive synchronously within the optimal rescue window.

5.5 Enhancing Administrative Capacity and Policy Evaluation

Beyond logistical and structural optimization, there is an urgent need to enhance the internal administrative capacity of Chinese social organizations. Developing robust organizational governance structures, transparent operational reporting systems, and standardized personnel training programs will significantly bolster their international credibility. Moreover, establishing a comprehensive public policy evaluation mechanism post-deployment is essential. By systematically analyzing the administrative friction, collaborative costs, and operational successes of each mission, policy-makers can iteratively refine the legal and regulatory frameworks governing civil society's overseas activities. This evidence-based approach to emergency management policy will ensure

that future cross-border collaborations are not only reactive but strategically and legally aligned with global humanitarian standards.

6 Conclusion

The 2025 Myanmar earthquake rescue demonstrates the increasing maturity of China's civil rescue forces. By shifting from an "event-driven" to a "system-driven" model through the CB-ACR framework, Chinese social organizations can play a more influential role in the global humanitarian landscape, contributing to a more resilient international disaster response network. Moving forward, the institutionalization of civil cross-border rescue will require sustained dialogue between state actors and non-governmental entities. The transformation from fragmented, ad-hoc responses to a cohesive, system-driven model demands not only logistical upgrades but also a fundamental shift in public administration philosophy—recognizing social organizations as indispensable partners in global emergency governance. Future research should continue to explore the legal codification of these collaborative mechanisms and the development of adaptive policy frameworks that can accommodate the unpredictable and complex nature of transnational crises.

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