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How Can Military and Civilian Forces Effectively Jointly Respond to Major Disasters?—An Analysis Based on Lessons from Collaborative Warfare

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Abstract. With the background of always growing worldwide disaster risks, a difference is there between China's local emergency action ability and the needs of big disaster aid work. The armed forces, with its benefits in big-group movement and all-ground action, can well close this difference. In the war time, China built a strong history of people-army teamwork, which can give useful ideas for army-people shared emergency action. This work picks the Hundred Regiments Offensive, the Siege of Qinyuan, and the Huaihai Campaign as past examples of people-army team fighting, and picks the Southern Snow and Ice Disaster, the Wenchuan Earthquake, the Tianjin Port Fire and Explosion, and the COVID-19 Pandemic as examples of army-people shared emergency action. A three-part study plan of "Actor-Situation-Method" is made. The writing first looks at the traits of people-army team fighting and pulls out useful ideas. It then looks at the likenesses and unlikenesses between army-people shared emergency action and people-army team fighting, finding real-world problems in the first. Last, using past know-how, it puts forward better plans for army-people shared emergency action, giving guides for making better all-risk action abilities and making an emergency handling system with Chinese traits.

Keywords: military-civilian integration, emergency management, War of Resistance, actor-scenario-mechanism

1. Introduction

The 2025 Global Assessment Report on Disaster Risk shows that global direct economic losses from disasters have reached a yearly average of $202 billion [1]. In 2025, China had natural disasters affecting over 67 million people, with direct economic losses of 241.6 billion [2]. Under the "all-hazard, large-scale emergency" framework, making emergency rescue capabilities stronger is needed.

Current emergency rescue forces face problems like not enough numbers, uneven skills, and lack of special equipment, making a mismatch with major disaster response needs [3]. The military, with its fast deployment, large-scale movement, and all-terrain skills, acts as a key strike force. The 14th Five-Year Plan for the National Emergency Response System puts focus on making military-civilian cooperation stronger and moving military technologies to the emergency area [4]. But, real-world

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issues continue, including uncoordinated command, not enough legal systems, and information sharing walls.

China got useful experience in big civil-military working together during war time, winning against stronger enemies. This paper builds an "Actor-Scenario-Means" study frame to get lessons from war time cases, compare them with current practices, look at problems, and suggest better plans.

2. Literature review and analytical framework

2.1. Conceptual definition

Military-civilian joint emergency management combines resources, coordinates duties, and uses shared strengths between military and civilian systems. The military system has the People's Liberation Army (PLA), the People's Armed Police (PAP), and militia and reserve forces [5]. The civilian system includes Party, government, police, and public forces [6]. Good combination makes national emergency management better and helps governance modernization.

2.2. Research progress

Current research examines joint command systems [7-10], emergency rescue groups [11], joint logistics [12-14], and working together on new technology [15,16]. But there are three main issues: (1) split research areas missing overall study;(2) not enough study into past civil-military working together events;and (3) single-case focus that does not make models that work across different disasters and for the whole process.

2.3. Analytical framework

This paper constructs an "Actor-Scenario-Means" framework (see Figure 1) to connect historical experiences with contemporary practices.

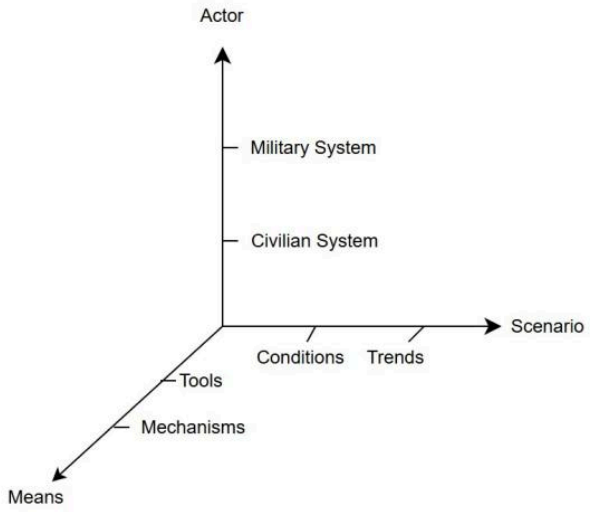

Figure 1. Analytical framework (source: author)

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The actor dimension analyzes the military and civilian systems, focusing on interaction patterns and authority-responsibility relationships. The scenario dimension examines both static conditions and dynamic trends in emergencies. The means dimension explores tools and mechanisms, emphasizing technological empowerment and legal frameworks.

3. Case analysis of civil-military collaborative warfare

3.1. Case introduction

This paper selects three classical wartime cases: the Hundred Regiments Offensive (1940), the Siege of Qinyuan (1942-1945), and the Huaihai Campaign (1948-1949). These large-scale events exhibit prominent civil-military collaboration features. Case summaries are presented in Table 1.

Table 1. Cases of civil-military collaborative warfare (source: author)

Cases Code	Case Content	Case Features	Data Source
A1	Hundred Regiments Offensive	1. Actors: Military-led, mass participation2. Scenario: Dense strongholds, traffic blockade, mountainous terrain3. Means: (1) Tools: Crowbars, saws, ropes, firearms, etc.; (2) Mechanisms: No written regulations, gradually formed operational order	Huang, 2015 [17]
A2	Siege of Qinyuan	1. Actors: Military-led, mass participation2. Scenario: Japanese mopping-up operations, protracted struggle3. Means: (1) Tools: Landmines, sniper rifles, etc.; (2) Mechanisms: No written regulations, gradually formed operational order	Wang, 2024 [18]
A3	Huaihai Campaign	1. Actors: Military-led, mass participation2. Scenario: Winter cold and snow, massive scale, long supply lines3. Means: (1) Tools: Wheelbarrows, stretchers, livestock, boats, firearms, etc.; (2) Mechanisms: No written regulations, gradually formed operational order	Li, 2021 [19]

3.2. Case analysis

3.2.1. Actor dimension

During civil-military collaborative warfare, the military led operations and mobilized the masses extensively. The masses actively joined or supported the war, providing logistical support such as casualty care and food supplies. This process often involved large-scale mobilization of hundreds of thousands or even millions. For example, during the Siege of Qinyuan, 80,000 people from Qinyuan participated fully. When attacking transportation lines and strongholds, soldiers commanded while military and civilians cooperated closely. Regular forces conducted fire attacks and assaults, guerrilla forces pinned down the enemy on secondary directions, militias monitored the enemy, and masses were responsible for evacuating the wounded. The bravest militiamen and guerrillas who knew the terrain best acted as guides, inflicting substantial blows on the Japanese forces [18].

3.2.2. Scenario dimension

Facing bad situations where the enemy was strong and we were weak, working together between soldiers and people made many clever plans and methods. In the Hundred Regiments Offensive, more than 200,000 soldiers and people took part, making guerrilla methods like "sparrow warfare,"

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"tunnel warfare," and "landmine warfare." In sparrow warfare, fighters formed small groups, hiding and showing up in many places, staying away from enemy strong points and hitting weak spots. In tunnel warfare, fighters built connected tunnel systems linking homes, roads, and villages. Landmine warfare meant putting down different kinds of mines, surprising the Japanese troops and in the end getting amazing wins with fewer people [17].

3.2.3. Means dimension

The tools used were mostly basic items like wheelbarrows and crowbars, along with simple weapons like landmines and guns. Moving materials counted a lot on human work. Somewhat stable working orders came from many battles. In the Huaihai Campaign, the freed areas got 5.43 million people to help, using wheelbarrows to carry 960 million "jin" of grain to the front lines, which helped a lot with war needs [19]. During the Siege of Qinyuan, the Military Affairs Committee of the Taihang Military Region gave orders about the push for old weapons and making militia fighting skills better. It said that all men, women, and kids should carry self-defense tools like hoes, sickles, and kitchen knives. Hunters were asked to teach how to use old weapons, and brave militiamen learned to use new weapons [18].

3.2.4. Summary of wartime lessons

Actor Dimension: Get unified leadership with clear jobs. The military led operations while getting and joining the masses into tiered forces — regular troops at the front, militias helping, and masses giving back support. This clear division of work made sure operational effectiveness.

Scenario Dimension: Show new ideas and ability to change. Facing better enemy forces, resistance fighters dared to break old ways, making tactics such as sparrow warfare (avoiding strengths, attacking weaknesses), tunnel warfare (changing terrain into defensive networks), and landmine warfare (using fixed defenses against moving forces).

Means Dimension: Use available tools well and set up stable operational orders. Everyday tools like sickles and hoes became weapons, with training programs making sure good use. Through many battles, operational orders were slowly made solid and unknowingly followed by all sides.

4. Case analysis of military-civilian joint emergency response

4.1. Case introduction

This paper selects four typical contemporary cases: the Southern Snow and Ice Disaster (2008), the Wenchuan Earthquake (2008), the Tianjin Port Fire and Explosion (2015), and the COVID-19 Pandemic (2020-2023). Case summaries are presented in Table 2.

Table 2. Cases of civil-military joint emergency response (source: author)

Cases Code	Case Content	Case Features	Data Source
B1	Southern Snow and Ice Disaster	1. Actors: Government-led, multi-actor participation 2. Scenario: Extreme weather, power outages, transportation disruptions, business shutdowns, stranded personnel 3. Means: (1) Tools: UAV remote sensing systems, military communication networks, etc.; (2)Mechanisms: Emergency Response Law of the People's Republic of China, Regulations on the PLA's Participation in Disaster Relief, relevant State Council policy documents	He, Niu, et al., 2025 [6]

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Table 1. (continued)

B2	Wenchuan Earthquake	1. Actors: Government-led, multi-actor participation2. Scenario: Collapsed buildings, buried people, traffic paralysis, communication outage, continuous secondary disasters3. Means: (1) Tools: Air-ground integrated transport, geographic information databases, satellite remote sensing, etc.; (2) Mechanisms: Emergency Response Law of the People's Republic of China, Regulations on the PLA's Participation in Disaster Relief, National Emergency Plan for Geological Disasters	He, Niu, et al., 2025 [6]
B3	Tianjin Port Fire and Explosion	1. Actors: Government-led, multi-actor participation2. Scenario: Warehouse fire, secondary explosions, heavy casualties3. Means: (1) Tools: Various equipment, vehicles, UAVs, etc.; (2) Mechanisms: Emergency Response Law of the People's Republic of China, Regulations on the PLA's Participation in Disaster Relief, Tianjin General Emergency Plan, Tianjin Emergency Plan for Hazardous Chemical Accidents	He, Niu, et al., 2025 [6]
B4	COVID-19 Pandemic	1. Actors: Government-led, multi-actor participation 2. Scenario: National lockdowns, global pandemic, economic downturn 3. Means: (1) Tools: Location-based service technologies, etc.; (2) Mechanisms: Emergency Response Law of the People's Republic of China, Regulations on the PLA's Participation in Disaster Relief, National Emergency Plan for Public Health Emergencies, Regulations on the Response to Public Health Emergencies	Li, Meng, et al., 2024 [20]; Guo, Wang, et al., 2021 [21]

4.2. Case analysis

4.2.1. Actor dimension

Common Characteristics: Regarding actors, both military-civilian joint emergency response and civil-military collaborative warfare involve large-scale participation. Both form hierarchical structures with task division among actors. Ultimately, both aim to integrate multiple actors through unified command, maximizing the effectiveness of the military and civilian systems. For example, during the Siege of Qinyuan, a tiered force structure of regular troops, militias, and the general populace was formed, united under military leadership to besiege the enemy for over two and a half years [18]. After the Wenchuan Earthquake, various levels of headquarters and working groups were rapidly established from central to local levels, operating under the unified command of the State Council and the Central Military Commission to coordinate efforts in rescuing affected people [6].

Differences: Compared to the wartime era, the actors in military-civilian joint emergency response have evolved in terms of scope and the system of authority and responsibility.

First, the scope of actors has expanded. The military system, reformed under the leadership command structure of "CMC oversees the military, theaters command operations, services build forces," primarily includes the PLA, PAP, and militia/reserve forces. The civilian system has extended from traditional masses and grassroots organizations to include enterprises, social organizations, and research institutions. Additionally, after the 2018 government restructuring, the Ministry of Emergency Management (MEM) was established, responsible for organizing the formulation of national emergency plans and frameworks, guiding various regions and departments in emergency response, and promoting the construction and drill of the emergency plan system [22]. For instance, during the COVID-19 response, the military dispatched air force units for emergency material transport, military medical personnel participated in patient treatment leveraging their experience and high resilience, and military-civilian research teams actively collaborated [23]. The

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construction of Huoshenshan Hospital involved government coordination of different strengths, with technical support from companies like China Telecom, Huawei, and Jiangsu Huada Water Supply and Drainage Technology Co., Ltd., volunteer support for hospital logistics, and donations from numerous business associations and individuals [20].

Second, the system of authority and responsibility has adjusted. Modern military-civilian joint emergency response operates under the leadership of the Chinese Communist Party (CCP), with the government taking the lead. Various forces, including the military, enterprises, social organizations, and volunteers, participate lawfully and orderly, forming a governance model led by the government and coordinated among multiple actors. According to laws and regulations, military commanders participate in local joint headquarters; local governments exercise command and leadership over various military organizations within their responsibility areas through military command structures; and the military internally commands based on affiliation [24]. For example, during the response to the Tianjin Port "8.12" fire and explosion, rescue forces from the PLA, PAP, public security, and departments such as safety supervision, health, environmental protection, and meteorology were integrated into the Tianjin Rescue General Headquarters, led by the city's Acting Party Secretary and Mayor as the overall commander [6].

Practical Problems: Military-civilian joint rescue has real issues like no joint command system, messy command relationships, and unclear jobs. After the Wenchuan Earthquake, the joint military-civilian command system was missing in the early rescue part, stopping the quick use of air force assets. Even after the joint command system was set up, there were cases where local Party committees gave jobs to the military that should have been done by public security or militias. Inside the military, even though power was given to the Chengdu Military Region command, some single units still kept working under their old command setup. Commanders were often unsure because of worries about their rank, making the command process hard [6].

4.2.2. Scenario dimension

Common Characteristics: Both military-civilian joint emergency response and civil-military collaborative warfare are high-risk scenarios threatening individual safety, characterized by significant time pressure, resource constraints, and high uncertainty. Battle scenarios involve unpredictable enemy movements, fleeting opportunities, limited troops and supplies, and heavy casualties. Emergency scenarios involve unpredictable disasters, limited golden rescue windows, the need for support from multiple sources for rescue forces and supplies, and the potential for large-scale casualties and property loss.

Differences: With ongoing economic and social development, military-civilian joint emergency response faces increasingly complex scenarios, thus raising the difficulty of monitoring and rescue efforts.

Regarding situation, the emergence of novel risks increases the difficulty of predicting and responding to emergencies. For example, when COVID-19 came up, there was a first mental blind spot about how it spreads, how it causes disease, and its mutation ways, and a lack of focused treatments. Combined with its strong ability to cause disease, fast spread, and many mutations, the number of infections went up quickly, causing serious harm.

About dynamics, with industrial growth and city growth, emergencies show high chain reactions and not being sure. A fire at a dangerous materials warehouse owned by Ruihai Company in Tianjin set off second chemical explosions. The 2008 Southern Snow and Ice Disaster started as very bad weather but led to a chain including transport network breakdown, stuck travelers during the Spring Festival travel rush, and broken power facilities. COVID-19 spread fast from Wuhan around the

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world, with the virus always changing, causing many second crises like economic fall and supply chain problems.

Practical Problems: The growing complexity of emergency situations brings challenges to military-civilian joint emergency response. Existing emergency plans are often made for known disaster types. When facing new risks, both military and civilian sides can only go forward through trial and error, lowering emergency response speed. When a disaster changes from a single event to a compound crisis, the existing response model based on single disaster types and departments has trouble keeping up with the disaster's change, finally falling into a passive response problem.

4.2.3. Means dimension

Common Characteristics: In the means area, military-civilian joint emergency response takes some features from civil-military working together in war. About tools, both use tools and need people to have some skills. About systems, both set up working orders through certain ways to get working together and good results. For example, wartime used basic tools and weapons like crowbars, wheelbarrows, and landmines, while modern emergency response uses new equipment like drones and satellites to help making choices and rescue. Both need training for people involved. During wartime, working plan understanding came from many battles;modern emergency response uses laws and rules to set working together standards ahead of time, which are made better through practice and real-world use.

Differences: With the growth of science and technology and the ongoing making better of the emergency management legal system, military-civilian joint emergency response can use technology ways to make rescue better and use legal ways to manage rescue operations.

First, the tools for military-civilian joint emergency response have been made better, with technology having a larger role in giving out resources, doing rescues, and other steps. For instance, during the fight against COVID-19, a pandemic prevention and control vehicle networking platform built on BeiDou high-precision location services let people put emergency supplies in the right spots, handle city emergency traffic, and have full control over epidemic prevention materials [21]. During the Wenchuan Earthquake, the National Bureau of Surveying and Mapping used national and provincial basic geographic information databases and new remote sensing data to make maps of affected areas, giving a strong base for making rescue plans [6]. During the 2008 Southern Snow and Ice Disaster, the National Disaster Reduction Center used "Qianliyan" micro-UAVs from Guilin Hualong Company to watch how strong the low temperatures were and where the snow and ice damage was, giving live data to help the government make rescue choices [6].

Next, the way for military-civilian joint emergency response has been improved, giving plan help and making rules for rescue work for emergencies. For military systems, the Rules on the PLA's Part in Disaster Relief were started on July 1, 2005, saying the main jobs for military part in disaster relief. On March 4, 2006, the PLA Command Rules added a part on "Setting up and Running Emergency Response." On November 14, 2006, the Full Emergency Response Plan for Military Action was put out, making clear emergency response moves as one of the PLA's jobs in the new time. For civilian systems, China has set up a "1+4+N" emergency plan system and made a number of emergency management laws and rules for different kinds of emergencies, giving more full system rules and supports for military-civilian joint emergency response.

Practical Problems: But, there are still issues with the real use of tech and law. In tech, some gear has trouble getting used to the complex settings of disaster zones, and rescue workers are not fully comfortable with running new gear. During the Wenchuan Earthquake, land limits in the disaster area made some command info systems break down, badly hurting contact. Some rescue workers

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did not use special gear at the right moment, missing the chance to use the good points of existing gear [6]. About the legal system, rules linked to military-civilian joining are spread out in separate rules for different disaster kinds and areas, missing organized control rules. The directions for military help in emergency rescue are often unclear and broad, missing exact steps and measures. Also, current emergency plans mainly aim at single disaster types, leading to not enough joining of cross-hazard plans, not meeting the needs of rescue work in complex disaster cases well.

5. Optimization strategies

5.1. Actor dimension

Make joint command systems better and make relationships clear. Set up military-civilian joint command platforms at provincial and local levels, led together by emergency management departments and local military bodies. Make clear authority limits under different emergency levels. Make standard internal military command steps and set up coordination systems for cross-regional support.

Make information sharing platforms. Build compatible platforms with common data interfaces, putting together weather, water, land, and military data. Set up regular information sharing systems, including daily report systems and immediate data sharing during emergencies.

5.2. Scenario dimension

Look for new risks and create new ways to deal with them. Put together teams of experts from different fields to find possible risk areas based on climate change, tech changes, and how society is moving. Make shared action plans ahead of time for high-risk situations. After events happen, do shared checks to change plans as needed.

Make full connected plans. The Ministry of Emergency Management should take the lead in making guidelines for shared action across different disasters. Areas should make their own specific steps based on local risk pictures. Do at least one shared real test each year to check and make plans better.

5.3. Means dimension

Make equipment and training better. Speed up military technology handover to the emergency field. Build special gear for hard places (mountain, flood, high-cold areas). Set up regular shared training ways to make sure people are good at their jobs.

Make legal structures better. Write clear rules for Military-Civilian Joint Emergency Management that spell out how to take part, the steps, and working together standards. Change local plans to make clear when to ask for military help and how to get it approved. Set up shared plan checking ways that need talking with military groups.

5.4. Conclusion

Making military and civilian joint emergency management better needs working together across people, situations, and tools (see Figure 2). Help for doing this includes: (1) adding it to policy-level performance reviews with shared responsibility systems;(2) setting up special money at the financial level with fast approval steps;and (3) building academic courses, shared training centers, and expert talent groups at the talent level.

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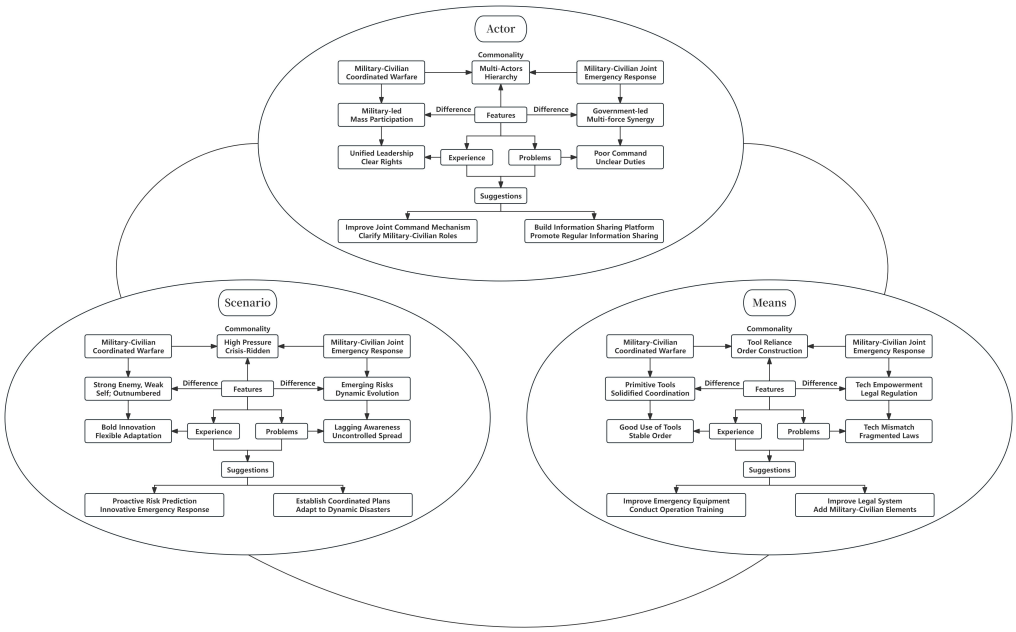

Figure 2. Optimization strategies (source: author)

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