



# Construction of Emergency Management Ecological Circle: Real Challenges and Path Selection

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**Abstract:** Under the background of high-quality development, various sectors of Chinese society are facing risks and challenges with many alienating characteristics. From the perspective of risk society, this is mainly manifested in the complexity, compounding, superposition, and convergence of risks, posing challenges to the fragmented, movement-oriented, and singular modes of traditional emergency management. It is imperative to construct a broad-spectrum, all-round, and diversified emergency management ecological circle model to effectively prevent and mitigate various risks and challenges in the new era. The construction of the emergency management ecological circle model is based on the highlighted alienation risk characteristics and the current status of emergency management, emphasizing the view of security issues from the perspective of development. Thus, placing the construction of emergency ecological circles within the framework of development-security, establishing a systematic and bottom-line thinking, and establishing sound mechanisms for risk warning, decision-making, coordination, and assessment ultimately promote the modernization of China's emergency management governance system and governance capacity through co-construction, co-governance, and sharing.

**Keywords:** emergency management, ecological circle construction, risk society, challenges and pathways

## 1. China's Emergency Ecological Circle from the Perspective of Risk

Contemporary Chinese social risk governance adheres to scientific development, reshapes the value concept of risk, and achieves self-conscious development through self-reflection, self-criticism, self-correction, and self-regulation of its own practice results. In the overall development transformation and upgrading of contemporary China, it always adheres to various principles such as the unity of progress and balance, the unity of innovation and self-discipline, the unity of consciousness and confidence, the unity of truth and value, and the unity of system governance and decentralized governance. The main governance mechanisms include behavioral normalization mechanisms, development constraint mechanisms, interest coordination mechanisms, and environmental "reinforcement" mechanisms. Throughout the entire process of risk governance, it is not purely driven by the logic of capital, but more by the governance concept of people-oriented. Currently, under the background of social transformation, the degree of social structural differentiation is deep and fast, while new structural integration mechanisms develop slowly. As a result, the asynchronous, uncoordinated, and inconsistent differentiation and integration catalyze the generation and proliferation of contemporary Chinese social risks. This whole framework system is a mutually restrictive, mutually promoting, and mutually beneficial community. Among them, the core issue to be addressed by this institutional mechanism is the risk governance problem in the overall transformation and development of contemporary China. To achieve this goal, emphasis is placed on problem-driven reform, making good use of dynamic mechanisms, balance mechanisms, and governance mechanisms in comprehensive deepening reform to solve various risks and difficulties in the development process, thereby achieving harmonious development that is both good and fast, and avoiding a series of social risks. Although China is not as Ulrich Beck, a renowned German sociologist, said about to enter a high-risk society, within the context of the global risk society, as a responsible major country, China's efforts to accelerate institutional construction, promote theoretical innovation, and actively address various modern risks of the era, enabling contemporary China to withstand the challenges of various modern risks, and also make positive efforts for the construction of a harmonious world, are worth our study and contemplation.

## 2. Emergency Management System from the Risk Perspective

China has entered the era of risk society. Contemporary China is facing a crucial period of overall development transformation and upgrading, with risks of transformation and development in various fields and aspects. The primary responsibility of emergency management is to prevent and mitigate various risks and challenges. At this critical stage of accelerated transformation, the comprehensive construction of a dynamic emergency management ecological circle that

conforms to the development path with Chinese characteristics is of great significance.

## 2.1 Emergency Management Systems and Practices in Major Countries

With the advent of the post-industrial era, both the natural and social environments have undergone profound changes in the process of human technological development. This has led to a sharp increase in the uncertainty of various catastrophic risks and exposed the vulnerability of human beings in dealing with impending risks. In the risk society, facing the intertwining and overlapping of various accident hazards and safety risks, countries around the world have established emergency management systems tailored to their own national conditions.

At the level of emergency management concepts, the United States, Canada, the United Kingdom, and Singapore mainly focus on building resilient cities. In terms of risk prevention and control and emergency management models, the United States, Canada, and Russia have divided their countries into several emergency regions based on the actual situation of emergency management, with each region responsible for disaster disposal and coordinated management within the region. In terms of management models, major countries in the world currently adopt comprehensive emergency management methods for all disaster types. After integrating various emergency resources and responsibilities, they can more effectively respond to various emergencies. In terms of emergency technology research and application, countries rely on modern information technology and Internet of Things technology to fully integrate into their emergency management practices in response to domestic risk challenges. Through technological empowerment, a new channel for comprehensive emergency management involving cross-regional linkage, cross-level mobilization, and cross-departmental coordination has been achieved. To achieve efficient emergency management, countries are actively building artificial intelligence platforms, aiming to achieve more efficient intelligent linkage of human proactive perception and risk prediction and warning under the background of risk society. In terms of institutional construction, most developed countries attach great importance to the construction of legal and regulatory systems in the field of emergency management.

In contrast, although China has currently formulated seven relevant laws and more than ten emergency management administrative regulations, there is still a problem of "strong specialization and weak comprehensiveness" overall. It cannot timely and effectively meet the needs of emergency management in preventing risks and challenges.

## 2.2 Development Context of China's Emergency Management System

Human history is a continuous struggle against various disasters and risks. With the deepening globalization and the profound impact of China's tremendous social changes, China has fully entered the risk society, even the "high-risk society" system. China's development is highly compressed in time and space, facing the significant challenges of a large population with aging issues, imbalanced regional economic and social development despite vast land area, coexistence of traditional and modern issues, unpredictable international environment, and compounded uncertainty of risk factors. Such national background inevitably determines the distinctive characteristics of China's emergency management system.

After the founding of the People's Republic of China, facing the complex and changing domestic and international environments, "we continuously improve the emergency management system, strengthen the construction of the emergency legal system, and enhance emergency response capabilities." However, the current construction of China's emergency management system still cannot effectively meet the requirements of coordinated development and security in the context of a risk society. For example, the emergency management system lacks systemic strength, making it difficult to effectively respond to complex risk challenges; the scientific nature of emergency management is weak, mainly relying on experiential emergency response, which is inadequate for coping with dynamic risk challenges; the targeting of emergency management is weak, unable to accurately identify the convergent characteristics of risk challenges. Overall, there are several deficiencies at various levels: First, there is a lack of systematic thinking in emergency management, resulting in the restriction of the effectiveness of China's emergency management system due to the separation of "prevention" and "rescue" in the emergency management mode. The main contradictions in China's society are undergoing profound changes, the reform has entered a crucial period and deep-water areas, and there are various types of security risks. Traditional security issues and non-traditional security issues are intertwined, and the division of functions among departments and the inherent rules of emergency management work are separated, neglecting the natural continuity of "prevention" and "rescue" operations. Second, there is insufficient risk awareness and the ability to grasp the laws of risk prevention and mitigation. Localities and departments have insufficient understanding of the evolution of multi-disaster accidents and risks in their regions; the laws and lessons learned from accidents cannot be effectively implemented in technical standards and management norms; long-term prevention of risk prevention and short-term emergency response are not well connected, lacking forward-thinking and strategic thinking; "movement-oriented emergencies lack scientific and effective evaluation criteria, attempting to use institutional advantages to eliminate losses and waste caused by risk challenges. Third, there is a lack of comprehensive

and systematic emergency rescue capabilities. Judging from the ratio of the total population to the emergency rescue teams in China, our emergency rescue capabilities are far below the average level of 1‰ in developed countries, and there is even a significant gap with developing countries' levels of 0.3‰-0.5‰; the long-term problem of personnel establishment cannot be effectively solved, and there is a lack of systematic planning for remote mobile emergency delivery capabilities. This directly leads to difficulties in responding quickly when faced with such a high-risk social situation. Fourth, there is a lack of comprehensive social mobilization and a fully chained emergency management system. Analyzing the emergency management models of developed countries such as Europe and the United States, they all emphasize the importance of social participation. In contrast, China's promotion of social participation in emergency rescue shows problems such as numerous institutional norms, high macro requirements, complicated principled regulations, and insufficient practical operability. In addition, there are no clear regulations on the participation mechanisms and institutionalized approaches for social forces to invest in emergency rescue. Fifth, the public lacks systematic emergency ecological thinking, and awareness of risk prevention and emergency self-rescue and mutual aid capabilities is still weak. Currently, China's emergency industry chain has low synergy, imperfect market mechanisms, and low vitality, which directly results in many of China's technical equipment being unable to play an effective role in emergency risk events.

### **3. The Necessity and Practical Path Analysis of Emergency Ecological Circle Construction**

Globalization prompts countries around the world to continuously update their emergency management systems to adapt to the series of challenges brought about by the risk society. Based on the characteristics of China's national conditions, China has been continuously improving its emergency management system with Chinese characteristics at different stages. Through the analysis and summarization of the construction of emergency systems in various countries and the analysis of the construction context of China's emergency management system, the problems and dilemmas existing in China's current emergency management system are identified. Due to the lack of a systemic and comprehensive dynamic management system to respond to risks, China is helpless in the face of a series of challenges under the backdrop of the risk society. This article proposes a theoretical framework for the construction of the emergency management ecological circle to address this dilemma, aiming to modernize China's emergency management system and comprehensively achieve the goal of constructing "great security and great emergency." It also seeks to promote the transformation and upgrading of the public security governance model towards proactive prevention, providing certain theoretical and practical guidance for China's emergency management system.

#### **3.1 The Connotation of Emergency Ecological Circle**

The ecological circle is originally a biological category, referring to an abstract description of a sustained interactive and fluid network system concept. It aims to explore the typical relationships among different elements (such as resources, information, and technology) within a system and their connections. In other words, the ecological circle emphasizes the typical relationships among individuals, network interactions, economic and social structures, and its essence lies in adhering to the principle of organic connection and coordinating operations in a sustainable manner. The "emergency ecological circle" refers to borrowing the concept from biology and applying it to the field of emergency management. It is constructed by numerous horizontally and vertically intertwined and interdependent elements under certain institutional norms, always adhering to the principle of sustainable development. The emergency ecological circle is a dynamically balanced emergency ecosystem composed of numerous interwoven and effectively interactive elements. It is part of the emergency ecological system, and its connotation includes characteristics such as dynamism, openness, diversity, self-organization, sustainability, and risk.

#### **3.2 Reflection on the Necessity of Emergency Ecological Circle Construction**

Emergency management bears the heavy responsibility of achieving the goal of building a safe China. Therefore, strengthening the construction of the emergency ecological circle is a beneficial exploration for promoting the construction of a framework for comprehensive security and emergency response. Now, let's analyze the significance and role of emergency ecological circle construction from both theoretical and practical perspectives.

Firstly, before analyzing the effectiveness of emergency ecological circle construction, we must differentiate between risk and hazard. Risk refers to the possibility of individuals and groups encountering harm or loss in the future, as well as the judgment and cognition of this possibility. Risk is often associated with uncertainty and loss. On the other hand, hazard is defined as "difficulties, obstacles, losses, or even harm caused by external entities or practices." Through the analysis and comparison of the definitions of risk and hazard, we clearly find that there is a close relationship between the two, but at the

same time, there are significant differences. According to Luhmann, N in his book "Risk Society", "the difference between risk and hazard lies in the fact that the former depends on human judgment, and the harm it causes is also determined by human judgment, while the hazard is determined before human judgment and is given. The harm it causes is also determined by external factors."

### 3.3 Analysis of the Practical Path of Emergency Ecological Circle Construction

Currently, China is at a critical period of social transformation and transition, coexisting with the risk society. Therefore, advancing the modernization of China's emergency management system and capabilities is a necessary measure to ensure the "sense of security" of the people and achieve the "overall national security outlook." From a practical perspective, emergency management and the construction of the emergency ecological circle complement each other. Emergency management is the primary work of relevant departments in dealing with sudden emergency events and ensuring comprehensive public safety and social security under emergency conditions. On the other hand, the construction of the emergency ecological circle focuses on the entire process of society, whether it is in normal, crisis, or future dynamic states, aiming to prevent risks, resolve comprehensive crises, stabilize the whole society, and ensure the orderly operation of social organizations. From the conceptual perspective, emergency management solely emphasizes the timeliness of handling emergency events, while the construction of the emergency ecological circle involves a systematic approach, including identifying and addressing risks and hazards, joint management of risks during emergency events, effective avoidance of risks and hazards, and significantly improving inherent safety. Therefore, starting from the current emergency management as the practical starting point and operational basis, and with the active construction of a complete emergency ecological circle as the theoretical guidance, is the inevitable path to achieve the modernization of the national governance system and governance capabilities.

(1) Premise — Reconstructing the Concept of Emergency Ecological Circle Education and the Construction of Emergency Ecological Circle Safety Culture. Reconstructing the concept of emergency ecological circle education is a prerequisite for establishing the front line of public safety governance to prevent and resolve major risk challenges. The construction of emergency ecological circle culture further strengthens long-term risk control strategies and is also a unified body for promoting emergency ecological concepts and dynamic risk governance behaviors. It embodies the comprehensive value of safety spirit and material value created by practicing sustainable development. (2) Core — Further Strengthening the Emergency Ecological Circle (Deciphering the Core Elements of Risk Complexity and Coupling; Construction of Legal System, Integration and Coordinated Allocation of Emergency Resources, Construction of Emergency Teams). (3) Goal — Cultivate a "Whole Process, Dynamic, Systematic" Emergency Ecological Circle. Although the current emergency management system "implements the principles of unified command, specialization, responsiveness, and top-down linkage," due to the behavior of shifting and evading responsibility for risk allocation among various departments, risks are not prevented and resolved in a timely manner, leading to systemic risk diffusion and the publicization and socialization of risks. Therefore, to avoid the high costs and significant consequences of this outcome, it is essential to strengthen inter-departmental coordination and cultivate a holistic, dynamic, and systematic emergency ecological circle.

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