

Research on the Identification of Significant Risks in Preventive Environmental Civil Public Interest Litigation

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Abstract

Preventive environmental civil public interest litigation serves as a pivotal mechanism for transitioning environmental justice from ex-post remedies to ex-ante prevention, with the identification of significant risks being the core element for realizing its function. Current judicial practice faces three major challenges: ambiguous connotations, misalignment of identifying entities, and lack of standardized criteria, leading to inconsistent adjudication and limited preventive efficacy. This paper clarifies that significant risks should be defined as hazards characterized by high probability, temporal urgency, and severe consequences. It emphasizes that courts should take the lead in identification, establishing a multi-dimensional mechanism involving administrative agencies and experts, including . Furthermore, it proposes substantive criteria centered on realism, urgency, and severity, supplemented by dynamic review processes, categorical distinctions, and tiered evidentiary procedures. These measures aim to enhance the scientific rigor, normative clarity, and operational feasibility of risk identification while balancing environmental protection and economic development.

Keywords

Preventive environmental civil public interest litigation, environmental risk, identification of significant risks.

1. Introduction

As the characteristics of a risk society become increasingly prominent, China's environmental governance model has gradually shifted from ex-post remedies to ex-ante prevention, giving rise to preventive environmental civil public interest litigation. This system incorporates behaviors posing significant risks of harm to public interests into the scope of judicial regulation, reflecting the precautionary principle of environmental law. However, the core element of significant risk lacks clear legislative definition and faces practical challenges such as conceptual ambiguity, inconsistent standards, and dysfunctional identification mechanisms in judicial practice, severely limiting the system's effectiveness. This paper systematically analyzes the theoretical foundations, practical dilemmas, and judicial status of significant risk identification, proposing comprehensive recommendations to provide theoretical guidance for the standardized operation of this system.

2. General Theory of Significant Risk Identification

2.1. Definition of Significant Risks in Preventive Environmental Civil Public Interest Litigation

2.1.1. The essence of significant risks lies in environmental risks

In preventive environmental civil public interest litigation, significant risks should be considered a subset of environmental risks. Most scholars define environmental risks as the

adverse consequences potentially arising from activities or their interactions with the natural environment, transmitted through environmental media.

2.1.2. Theoretical interpretation of significant risks as hazards

German scholars, through in-depth research on environmental risks, proposed a three-tier theory based on the likelihood of harm. This theory categorizes environmental risks into three levels: risk, hazard, and residual risk. Specifically, risk corresponds to scenarios where the likelihood of harm remains uncertain; hazard refers to situations where harm is scientifically confirmed as inevitable under current knowledge; and residual risk denotes harm that remains unavoidable despite preventive measures. The stipulates that courts may accept cases seeking to eliminate hazards, providing critical guidance for defining the scope of significant risks. According to this interpretation, significant risks should be confined to the category of hazards rather than general risks. Scholar Wu Kaijie argues that significant risks should constitute identifiable, concrete environmental hazards based on available evidence and technology, excluding factors obscured by insufficient information or technical limitations^[1].

In the case of involving a water pollution dispute, the scope of hazard elimination was clarified. Specifically, hazard elimination encompasses not only actual damages but also potential pollution risks that have yet to materialize. In this case, the plaintiff requested pollutant treatment to mitigate latent hazards, a claim upheld by the court. This ruling legally affirmed that significant risks should be interpreted as hazards.

2.2. Judicial Status of Significant Risk Identification in Preventive Environmental Civil Public Interest Litigation

Currently, Chinas preventive environmental civil public interest litigation exhibits concentrated case types, specific litigant profiles, and cautious adjudication in judicial practice, while simultaneously grappling with inconsistent identification standards and insufficient judicial activism regarding significant risks.

In terms of case types, litigation primarily revolves around ecological damage and environmental pollution. Ecological damage cases often involve biodiversity conservation, such as harm to rare species and their habitats, while pollution cases focus on traditional torts like water and air pollution. Regarding litigants, plaintiffs are predominantly environmental NGOs 94.1%, with minimal prosecutorial involvement. Defendants are mainly enterprises 91.2%, with very few cases targeting individual . Notably, groundbreaking attempts have emerged to include environmental impact assessment agencies as co-defendants, signaling a moderate expansion of defendant categories.

Judicially, courts generally adopt a conservative stance. Most rulings favor dismissal through formal reviews, reflecting judicial restraint in preemptive environmental risk intervention and the inherent tension between the precautionary principle and traditional tort remedies. Functionally, the majority of cases 82.4% aim to halt ongoing harmful behaviors, constituting damage mitigation, while purely preventive lawsuits targeting high-risk but unimplemented actions account for only 17.6%.

The deeper issue lies in the absence of a unified judicial paradigm for determining significant risks. Apart from isolated cases like the case, which systematically analyzed dimensions such as the likelihood of harm, severity of consequences, and irreversibility, most judicial documents lack clear reasoning. For instance, the case relied solely on the endangered status of the species as the basis for determination, failing to establish a comprehensive analytical framework. Meanwhile, judicial activism remains notably insufficient. On one hand, courts excessively rely on administrative approvals, even treating them as the sole criterion for determining risk existence, thereby reducing litigation to a mere endorsement of administrative actions. On the other hand, there is a mechanical adoption of scientific opinions without fulfilling the judicial

review responsibility to assess risks—a process that combines factual judgment and legal evaluation—reducing it to purely technical determinations.

2.3. The Necessity of Determining Significant Risks in Preventive Environmental Civil Public Interest Litigation

2.3.1. Addressing the Governance Needs of a Risk Society

The establishment of preventive environmental civil public interest litigation represents a critical institutional response to the governance demands of a risk society. This system innovatively brings behaviors posing significant risks to public interests under judicial review, achieving three key shifts in environmental governance: from end-of-pipe treatment to source prevention, from passive response to proactive intervention, and from individual redress to public interest protection. This transformation not only aligns with the fundamental characteristics of a risk society but also reflects the evolving trends of modern environmental governance.

2.3.2. Facilitating the Preventive Function of Environmental Law

Empirical studies show that over 80% of current environmental civil public interest cases still focus primarily on damage compensation, while those truly embodying preventive functions account for less than 20%. This remedy-over-prevention practice significantly deviates from the legislative intent of environmental protection laws. The full realization of preventive functions hinges on the accurate determination of significant risks. Take the habitat protection case as an example: the core dispute revolved around assessing the potential impact of hydropower station construction on endangered species habitats. Due to the lack of clear determination standards, the parties engaged in endless debates over risk assessment methodologies and damage probability calculations, leading to a deadlock in adjudication. Similar issues are prevalent in cases involving major chemical projects and cross-regional development^[2].

Establishing scientific criteria for determining significant risks and balancing risk prevention with economic development, constructing systematic and well-defined rules, is essential to truly achieve the legislative goal of environmental law—preventing harm before it occurs.

2.3.3. Optimizing Litigation Procedures to Ensure Judicial Fairness

Procedural rules serve as the foundation for safeguarding substantive rights. The allocation of the burden of proof in preventive environmental civil public interest litigation directly affects the substantive equality of the parties. Although current judicial interpretations adopt the principle of reversed burden of proof, three practical challenges persist: 1 unclear standards for the plaintiff's preliminary proof obligations; 2 prohibitively high costs of expert evaluations, creating litigation barriers; and 3 scientific uncertainties in risk prediction. These issues often cause litigation practices to deviate from the system's original design.

Empirical analysis of representative cases reveals a pronounced structural imbalance in litigation procedures. Environmental organizations, as plaintiffs, typically spend 6–8 months preparing a case, whereas corporate defendants can assemble professional defense teams within 1–2 months. The average cost of expert evaluations in environmental public interest litigation exceeds 100,000 yuan, imposing a heavy burden on most environmental groups. When risk assessments diverge, courts tend to favor the expert opinions of certified defendants. This imbalance not only undermines procedural fairness but also weakens the effectiveness of preventive litigation.

It is particularly crucial to establish corresponding checks and balances while lowering evidentiary thresholds to prevent the abuse of preventive litigation. Such institutional design ensures both the effective implementation of preventive litigation and the maintenance of

normal market order, ultimately harmonizing environmental protection with economic development.

3. Analysis of Dilemmas in Major Risk Identification

3.1. Ambiguity in the Connotation of Major Risks

The conceptual connotation of major risks directly influences their identification outcomes, thereby affecting the adjudication results of preventive environmental civil public interest litigation cases. However, current legal provisions fail to clearly define the legal connotation of the term major risk. The dictionary interprets major risk as possible large and significant dangers, but such a literal semantic explanation is insufficient to address the complex legal relationships in individual cases. In practice, the definition of major risks sometimes leads to extreme interpretations—either overly narrow understandings that neglect risks requiring regulation or overly broad interpretations that render the regulatory system meaningless. For instance, in cases like the case in Yunnan, which involved the protection of endangered wildlife, courts equated critically endangered or endangered status with major risks, reflecting a one-sided interpretation of the concept. This phenomenon is not isolated. Given the abstract and uncertain nature of major risks, judicial applications often face challenges such as difficulties in proof by plaintiffs and defendants, as well as courts struggles in identification. Thus, a clear interpretation is urgently needed to clarify the connotation of major risks.

Additionally, the foundational object of major risks—social public interest—also suffers from inconsistent interpretations, as seen in cases like . Although the does not explicitly define major risks, it imposes a limiting condition: harm to social public interest. Yet, the concept of social public interest itself remains uncertain. Judicial cases have primarily formed two views on its scope: one holds that the foundational object only includes the environment itself. For example, in the case, the court ruled that the construction of the Yagen Hydropower Station might destroy the habitat of , thereby harming social public interest. The other view argues that the foundational object encompasses both the environment and health and property interests. For instance, in the Dezhou Air Pollution case, the court concluded that excessive emissions would affect atmospheric visibility, cause pollution, and simultaneously damage health and property^[3].

3.2. Misalignment in the Subject of Major Risk Identification

In judicial practice, courts have adopted three primary methods for identifying major risks: 1. Reliance on Administrative Results Without Substantive Review: Courts often base their judgments solely on administrative outcomes from regulatory agencies. In ecological destruction cases, this manifests as heavy reliance on environmental impact assessment reports and approvals. In pollution cases, courts may use whether the defendant's pollutant emissions exceeded standards and were penalized by authorities as the basis for identification. 2. Expert Opinion Evaluation: Courts assess the likelihood and severity of major risks based on expert opinions. For example, in the Zhang Yongming case, an expert panel concluded that the defendants' actions could destabilize the rock pillars of the Giant Python Peak, accelerating their collapse and causing irreparable damage. The court thus ruled that driving 26 rock nails into the peak, while not directly causing collapse, posed a major risk to its structural integrity. 3. Comprehensive Judicial Discretion: Judges independently evaluate major risks by integrating administrative results, expert opinions, and everyday experience. The frequency of these methods decreases in the order listed, with reliance on administrative results being the most common.

Once major risk cases enter trial, courts should independently form judicial determinations. However, current practices show excessive reliance on administrative outcomes from

ecological and environmental departments, leading to a misalignment in the identification subject. Worse still, courts often adopt administrative conclusions as definitive without thorough review, undermining judicial independence and fairness. This approach renders the judiciary—the last line of defense—ineffective, wasting judicial resources and failing to safeguard environmental rights.

3.3. Lack of Clear Standards for Major Risk Identification

The identification standards for major risks refer to the specific methods and tools courts use to recognize and assess such risks during case adjudication. While the connotation of major risks provides a relatively stable reference for preliminary identification, the complexity and variability of real-world scenarios make static definitions inadequate.

On one hand, the absence of clear standards complicates plaintiffs' burden of proof, forcing them to employ various means to demonstrate the defendant's actions pose major environmental risks. On the other hand, courts struggle with dynamic and unified measurement criteria, hindering accurate judgments. Therefore, courts must dynamically analyze and evaluate major risks by considering contextual and environmental factors, as illustrated in cases like , and establish specific identification pathways. Unified standards would enable courts to dynamically determine and define behaviors constituting major risks, thereby standardizing the identification process.

Currently, China has relatively few cases involving major risks, so judicial practice lacks uniform and explicit identification standards. Existing legal provisions also fail to provide specific guidance for identifying major risks.

4. Recommendations for Improving the Identification of Significant Risks

4.1. Clarifying the Connotation of Significant Risks

In preventive environmental civil public interest litigation, scientifically defining the connotation of significant risks is the core prerequisite for judicial determination. From the perspective of semantic interpretation *Broussonetia papyrifera*, significant risks can be deconstructed into two dimensions: risk and significance.

Risk refers to a potential state where harm has not yet occurred but may adversely affect environmental public interests in the future. It differs from actual damage and is characterized by uncertainty, diverse sources, and complex mechanisms. In terms of typology, risks can be further categorized into danger, risk, and residual risk based on their probability of occurrence. Danger refers to situations where ecological damage is highly likely to occur, as inferred from existing scientific knowledge and empirical rules. Residual risk, on the other hand, denotes risks with extremely low probability that are difficult to eliminate under current technological and economic conditions and are socially tolerable due to broader benefits.

From the perspective of regulatory purpose and litigation threshold control, significant risks should be confined to the scope of danger, excluding general risks with only abstract possibilities and residual risks within socially acceptable limits. This avoids judicial resource abuse while balancing economic development and technological progress.

Regarding significance, the core lies in the quantitative requirement for the consequences of risk realization, specifically manifested as immediacy, severity, and irreversibility. Immediacy emphasizes that harm is highly likely to occur based on scientific evidence; urgency requires that harm will manifest in a relatively short time without intervention; and severity is reflected in widespread impact, fundamental damage to ecological functions, or irreversible consequences such as species extinction, ecosystem collapse, or long-term harm to *Homo sapiens* health. Judicial practice in China and relevant international principles e.g., Principle 15

of the Rio Declaration also clarify that only risks capable of causing serious or irreversible harm meet the significance standard^[4].

In summary, significant risks in preventive environmental civil public interest litigation should be defined as: a concrete state of danger where environmental public interests have not yet suffered actual harm, but there is a high probability of occurrence, urgency, and potential for severe or irreversible consequences. This definition aligns with the normative basis of the elimination of danger as a form of liability, reflects the principles of precaution and proportionality, and provides a clear and operable standard for judicial practice, facilitating a reasonable balance between ecological protection and socioeconomic development.

4.2. Clarifying the Subject Responsible for Identifying Significant Risks

In preventive environmental civil public interest litigation, scientifically establishing the subject responsible for identifying significant risks is key to ensuring judicial consistency and professionalism. Based on the nature of authority and functional division, courts should serve as the primary subject for identifying significant risks.

First, the concept of significant risks originates from the Supreme Peoples Courts, making it a matter of judicial determination. The constitutional right to independent adjudication grants courts the legal authority to make such determinations. Second, environmental administrative authority focuses on regulating and penalizing actual harm, requiring tangible damage as a prerequisite for action. In contrast, significant risks address potential environmental threats that fall below administrative regulatory thresholds. Over-reliance on administrative conclusions would severely constrain the scope of preventive litigation and undermine its ex-ante remedial function.

Third, given the dynamic and context-dependent nature of environmental risks, the same behavior may present vastly different risk profiles *Parazacco spilurus* subsp. *spilurus* under varying conditions. Judicial adjudication must remain flexible to avoid delays or inaccuracies caused by lagging administrative determinations. In practice, cases like the Yunnan Oil Refinery Case, where rulings overly relied on administrative compliance reviews, highlight the lack of independent judicial judgment, necessitating institutional corrections.

While maintaining the courts leading role, a collaborative mechanism involving multiple stakeholders should be actively established *Broussonetia papyrifera* to enhance the scientific rigor and credibility of determinations. Administrative agencies, with their professional personnel, monitoring equipment, environmental data, and administrative outputs e.g., environmental impact assessment approvals, permits, and monitoring results, can provide critical factual references and technical support, playing an auxiliary role.

Expert participation is equally indispensable. Identifying environmental risks involves highly specialized and complex scientific judgments. Experts may be commissioned or appointed by courts to provide opinions on risk thresholds, probability of harm, irreversibility, and other technical issues. To mitigate bias and variability from unilateral commissioning, an expert testimony system serving courts could be established, ensuring objectivity and scientific rigor through qualification reviews, recusal rules, cross-examination, and judicial scrutiny.

Additionally, stakeholders *Homo sapiens* rights to information and participation must be safeguarded. As parties directly affected by risk behaviors and mitigation obligations, their involvement helps balance livelihood concerns with ecological protection, enhancing societal acceptance of rulings.

Thus, China should establish *Broussonetia papyrifera* an integrated determination mechanism where courts lead, administrative agencies provide auxiliary support, experts contribute scientific judgments, and stakeholders participate appropriately. This structure aligns with the principle of judicial finality while leveraging administrative and professional resources to ensure the legality, scientific validity, and social relevance of risk determinations,

systematically improving the efficacy of preventive environmental civil public interest litigation.

4.3. Clarifying the Identification Criteria for Significant Risks

In preventive environmental public interest litigation, establishing judicial identification criteria for significant risks is key to balancing environmental protection with economic development and ensuring the consistency and operability of rulings. It is recommended to adopt reality, urgency, and severity as the core criteria system for identifying significant risks, supplemented by dynamic, categorized, and tiered evidentiary standards.

The identification of significant risks should first be grounded in the reality, urgency, and severity of the risk. Reality requires that the risk is not speculative but must have a scientific basis and objective foundation, with a demonstrable causal link between the conduct and potential harm. Urgency emphasizes the temporal dimension of risk realization, meaning that without timely intervention, harm is likely to occur within a foreseeable timeframe. Severity refers to the irreversible or difficult-to-repair major damage to the ecological environment once the risk materializes, with broad and profound impacts that may endanger ecosystem functions or the survival of endangered species. This framework aligns with the internal logic of the , ensuring both legal compliance and ecological rationality.

At the operational level, the identification criteria must incorporate dynamic and categorized adjustments. Given the high uncertainty and temporal variability of environmental risks, judicial authorities should avoid mechanically applying administrative standards or static thresholds. Instead, they should conduct a secondary evaluation of risks based on case-specific contexts and expert opinions, particularly when administrative actions exhibit procedural flaws or substantive inaccuracies. Courts should independently assess the reasonableness and legality of risk evaluations.

Furthermore, distinctions should be made between environmental pollution risks and ecological damage risks. For pollution risks, strict reference should be made to environmental quality standards and regional environmental carrying capacity, with enhanced research on environmental benchmarks to improve scientific identification. For ecological damage risks, assessments should focus on threats to ecosystem stability and species survival, guided by normative documents such as the ecological protection redline system and the .

Additionally, a tiered evidentiary standard system should be established to align with different litigation stages. At the filing stage, plaintiffs need only provide preliminary evidence demonstrating a high probability of risk to meet procedural requirements. However, during the trial stage, the proof of significant risk as a material fact for judgment must meet the highly probable standard, approaching the full proof level stipulated in Article 1081 of the . This tiered mechanism helps prevent frivolous lawsuits while ensuring the seriousness and accuracy of substantive rulings, thereby fulfilling the preventive litigation systems function of addressing risks before they materialize.

In summary, by constructing an identification system centered on reality, urgency, and severity as substantive criteria, supported by dynamic review and categorized identification methodologies, and safeguarded by tiered evidentiary standards, the scientific, normative, and acceptable nature of judicial identification of significant risks can be systematically enhanced.

5. Conclusion

This article first clarifies the legal connotation of significant risk at the theoretical level, arguing that it should be narrowly interpreted as a concrete danger with a high probability of occurrence, immediate urgency, and potential for severe or irreversible consequences, rather than a general risk. Addressing current judicial challenges such as conceptual confusion,

excessive reliance on administrative determinations, and the lack of uniform operational standards, the study proposes three improvements: 1 affirming the courts leading role in identification and establishing a collaborative multi-actor assistance mechanism; 2 developing a substantive identification criteria system centered on reality, urgency, and severity, with tailored approaches for pollution and ecological damage risks; and 3 implementing tiered evidentiary standards suited to different litigation stages, balancing procedural initiation and substantive judgment requirements. Through this systematic construction, the aim is to standardize, scientize, and refine the identification of significant risks, ultimately advancing preventive environmental public interest litigation from theory to practice and effectively fulfilling its judicial role in risk prevention and public interest protection.

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