

Facts, Fears, and Resilience: Climate Misinformation and Community Adaptation in Koh Kret, Thailand

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Abstract

Climate change has become not only an environmental challenge but also a communication challenge. Alongside increasing climate-related hazards, communities are exposed to an expanding volume of misinformation, fragmented communication, and conflicting interpretations of environmental risks. These conditions influence how people perceive climate threats, trust public institutions, and participate in adaptation initiatives. Although considerable research has examined climate vulnerability and adaptation, relatively little attention has been given to how climate misinformation shapes community resilience in culturally significant tourism destinations in Southeast Asia. This study investigates the relationship between climate misinformation, environmental risk perception, and community resilience in Koh Kret, a river island in Nonthaburi Province, Thailand. A qualitative case study approach was employed. Data were collected through semi-structured interviews with eleven key informants, including community members, local government officers, and environmental experts. Field observations and document analysis were used to complement the interview data, while qualitative content analysis was applied to identify recurring themes. The findings indicate that climate misinformation functions as a social amplifier of environmental risk. Participants reported receiving conflicting information regarding riverbank erosion, flooding, environmental degradation, and climate change from government agencies, social media, and informal community networks. Rather than enhancing public understanding, these competing narratives often generated uncertainty, weakened institutional trust, and discouraged collective adaptation. Nevertheless, Koh Kret demonstrates considerable social resilience through strong community networks, cultural identity, local ecological knowledge, and collaborative partnerships with governmental and academic institutions. The study argues that effective climate adaptation requires more than scientific knowledge and technical interventions. Strengthening resilience also depends on transparent communication, institutional credibility, and meaningful community participation. Based on the findings, the paper proposes that integrating scientific evidence with local knowledge through participatory governance can reduce uncertainty and improve adaptive capacity. The study contributes to the growing literature on climate misinformation by demonstrating how communication influences resilience at the community level and offers practical implications for environmental governance in vulnerable tourism communities.

Keywords: Climate misinformation; Community resilience; Climate adaptation; Risk perception; Participatory governance; Koh Kret; Thailand

1. Introduction

Climate change is increasingly recognised as one of the most complex challenges facing contemporary society. While its physical consequences—including rising temperatures, extreme weather events, biodiversity loss, and ecosystem degradation—are well documented, the social dimensions of climate change have become equally significant. Communities are now required to respond not only to environmental hazards but also to uncertainty surrounding scientific information, public communication, and governance. As climate risks become more complex, the quality of information available to citizens plays an increasingly important role in shaping public understanding, trust, and adaptive behaviour. In recent years, climate misinformation has emerged as a major obstacle to effective climate action. The rapid growth of digital media has enabled environmental information to circulate more widely than ever before. However, it has also facilitated the spread of inaccurate, incomplete, or conflicting information regarding the causes, impacts, and appropriate responses to climate change. Unlike scientific uncertainty, which reflects the evolving nature of scientific knowledge, climate misinformation creates avoidable confusion by presenting contradictory explanations of environmental phenomena. Such information may originate from social media, informal communication networks, political discourse, or fragmented institutional messaging, making it increasingly difficult for communities to distinguish reliable evidence from unsupported claims. The consequences of climate misinformation extend beyond misunderstanding scientific concepts. Previous studies have shown that misinformation can reduce trust in scientific institutions, weaken support for climate policies, increase public anxiety, and delay collective responses to environmental risks (Kasperson et al., 1988; Wardle & Derakhshan, 2017). Risk perception is therefore influenced not only by objective environmental conditions but also by the ways in which information is communicated and interpreted. This issue is particularly important in communities that depend directly on natural resources, where environmental decisions affect livelihoods, cultural heritage, and local economies.

Thailand provides an important context for examining these issues. The country is highly vulnerable to climate-related hazards, including flooding, drought, coastal erosion, and changing rainfall patterns. At the same time, climate communication often involves multiple actors, including national agencies, local governments, researchers, civil society organisations, and online media. Although this diversity creates opportunities for public engagement, it may also produce inconsistent messages that complicate local decision-making. Understanding how communities interpret climate information has therefore become an important aspect of environmental governance. Koh Kret, located in the Chao Phraya River in Nonthaburi Province, offers an appropriate setting for investigating these challenges. The island is one of Thailand's best-known cultural tourism destinations, renowned for its Mon heritage, traditional pottery, historic temples, and community-based tourism. Tourism provides significant economic benefits for local residents while simultaneously increasing pressure on environmental resources and public infrastructure. In recent years, Koh Kret has experienced growing environmental challenges, including riverbank erosion, seasonal flooding, fluctuating water levels, biodiversity decline, and waste management problems. These changes affect not only the island's ecological condition but also its cultural landscape and tourism-based economy. Although residents recognise these environmental changes, they often encounter competing explanations regarding their causes and possible solutions. Flooding, for example, may be attributed to climate change, upstream water management, urban development, tourism

expansion, or natural seasonal variation. Such competing narratives create uncertainty regarding responsibility and adaptation. Consequently, environmental risks are experienced not only as physical phenomena but also as socially constructed realities shaped by communication, trust, and governance. While previous research has extensively examined climate vulnerability, disaster resilience, and community-based adaptation, relatively few studies have explored how climate misinformation influences environmental risk perception in local communities, particularly in Southeast Asia. Existing research has largely focused on climate scepticism, political communication, or misinformation on digital platforms in Western societies. Comparatively less attention has been given to communities where misinformation emerges through fragmented institutional communication and informal social networks rather than organised climate denial. This represents an important research gap because the social consequences of misinformation may differ across political, cultural, and governance contexts.

To address this gap, this study examines how climate misinformation shapes environmental risk perception and community resilience in Koh Kret. Specifically, the study addresses three research questions:

1. How do residents perceive climate-related environmental risks in Koh Kret?
2. How does climate misinformation influence institutional trust and adaptive behaviour?
3. What factors strengthen community resilience despite communication uncertainty?

Drawing upon qualitative evidence from community members, local government officers, and environmental experts, this paper argues that climate misinformation acts as a social amplifier of environmental risk by influencing public understanding, institutional trust, and collective adaptation. At the same time, the findings demonstrate that resilience is strengthened through cultural identity, local ecological knowledge, social capital, and participatory governance. Rather than viewing climate adaptation solely as a technical process, the study emphasises the importance of transparent communication and collaborative learning in reducing uncertainty and supporting long-term resilience. The paper contributes to the literature in three ways. First, it extends discussions of climate misinformation beyond political communication by examining its influence on environmental governance at the community level. Second, it integrates perspectives from risk society, community resilience, and participatory governance to explain how communication shapes adaptive capacity. Finally, it proposes a practical framework for strengthening resilience through the integration of scientific knowledge, local experience, and inclusive governance. These findings offer useful insights for policymakers, researchers, and practitioners working to improve climate adaptation in culturally significant tourism communities facing increasing environmental uncertainty.

2. Literature Review

2.1 Climate Change, Risk Society, and Climate Misinformation

Climate change is increasingly understood as both an environmental and a social challenge. Although scientific evidence regarding global warming and its impacts has become more robust, public understanding of climate change remains uneven because environmental information is often interpreted through political, cultural, and social contexts. As a result, communities frequently experience uncertainty not only because climate systems are inherently complex but also because environmental information is communicated inconsistently.

Beck's (1992) **Risk Society** theory provides an important perspective for understanding this phenomenon. Beck argues that contemporary societies are increasingly exposed to "manufactured risks" generated by modernization, technological development, and global interconnectedness. Climate change exemplifies such risks because its causes, consequences, and appropriate responses are often uncertain and require scientific interpretation. Consequently, environmental risks are not perceived solely through direct physical experience but are mediated through communication, institutional credibility, and public trust.

Climate misinformation further complicates this process. Wardle and Derakhshan (2017) define misinformation as inaccurate or misleading information that is shared without necessarily intending to cause harm, while disinformation refers to deliberately false information designed to mislead audiences. In everyday community settings, however, residents rarely distinguish between these categories. Instead, they encounter multiple and sometimes contradictory explanations through social media, interpersonal communication, government announcements, and local observations. These overlapping information sources often create confusion regarding environmental change and appropriate adaptation strategies.

The **Social Amplification of Risk Framework (SARF)** (Kasperson et al., 1988) helps explain how communication influences environmental risk perception. According to SARF, information does not move directly from scientific experts to the public. Rather, it passes through various "amplification stations," including governments, media organisations, community leaders, and social networks. During this process, information may be amplified, attenuated, or reinterpreted, resulting in different perceptions of the same environmental event. Consequently, public responses are often shaped by perceived rather than objectively measured risks.

Recent studies suggest that climate misinformation is particularly challenging in developing countries where institutional communication is fragmented and environmental governance involves multiple actors (IPCC, 2023). Unlike the organised climate denial observed in some Western countries, misinformation in many parts of Southeast Asia often emerges through inconsistent governmental communication, informal community networks, and competing local interpretations of environmental change. Understanding climate misinformation therefore requires attention to local social and governance contexts rather than assuming that misinformation operates uniformly across different regions.

2.2 Community Resilience and Participatory Governance

Community resilience refers to the capacity of individuals and communities to anticipate, respond to, and adapt to environmental disturbances while maintaining essential social functions (Adger, 2000; 2006). Although resilience is often associated with physical infrastructure and disaster preparedness, contemporary research emphasises that adaptive capacity is equally dependent on social capital, institutional trust, knowledge sharing, and effective communication.

Norris et al. (2008) identify information and communication as fundamental components of resilient communities because they facilitate collective learning, coordination, and problem-solving during periods of uncertainty. Access to reliable information enables communities to make informed decisions, whereas inconsistent or conflicting communication may reduce confidence in adaptation measures and discourage collective action. Accordingly,

resilience depends not only on the availability of scientific knowledge but also on the credibility of institutions responsible for communicating that knowledge.

For culturally significant communities, local knowledge also represents an important source of resilience. Traditional ecological knowledge, accumulated through long-term interaction with local environments, enables residents to interpret environmental change based on lived experience. Rather than replacing scientific evidence, local knowledge complements technical expertise by providing context-specific understanding of environmental conditions and practical adaptation strategies.

Participatory governance further strengthens resilience by encouraging collaboration among government agencies, researchers, and community members. Inclusive decision-making processes improve policy legitimacy, enhance institutional trust, and increase public participation in environmental management. Previous research has shown that adaptation initiatives are more effective when scientific knowledge is integrated with local experience through continuous dialogue and collaborative learning.

Building upon these perspectives, this study conceptualises climate resilience as a dynamic process emerging from the interaction between environmental knowledge, communication, institutional trust, and community participation. The framework assumes that climate misinformation influences environmental risk perception, which subsequently shapes adaptive behaviour. At the same time, local knowledge, social capital, and participatory governance can reduce the negative effects of misinformation by strengthening trust and supporting collective learning. This conceptual perspective provides the analytical foundation for examining how Koh Kret responds to increasing climate uncertainty while sustaining its environmental, cultural, and tourism resources.

3. Research Methodology

3.1 Research Design

This study employed a qualitative case study design to explore how climate misinformation influences environmental risk perception and community resilience in Koh Kret, Nonthaburi Province, Thailand. A qualitative approach was considered appropriate because the study aimed to understand participants' experiences, perceptions, and interpretations of climate-related environmental change within their social and cultural context. Rather than measuring the prevalence of misinformation, the research focused on how different sources of environmental information shape adaptive behaviour, institutional trust, and community responses. Koh Kret was selected as a single instrumental case because it represents a culturally significant riverine community that is increasingly exposed to climate-related environmental challenges while maintaining a strong community-based tourism economy. The island provides a valuable setting for examining the interaction between environmental vulnerability, communication, governance, and local resilience.

3.2 Participants and Data Collection

Purposive sampling was used to recruit participants who possessed direct knowledge and experience of environmental management, tourism, and community development. Eleven key informants participated in the study, comprising six community members involved in tourism-related businesses and community enterprises, three local government officers

responsible for tourism and environmental management, and two environmental academics with expertise in climate adaptation and sustainable development. Data were collected through semi-structured, in-depth interviews, supported by field observations and document analysis. Interview questions focused on four themes: (1) perceptions of environmental change, (2) sources of climate information, (3) trust in environmental communication, and (4) adaptation strategies. Interviews lasted between 45 and 90 minutes, were conducted in Thai, audio-recorded with participants' consent, and subsequently transcribed for analysis. Field observations were undertaken to document environmental conditions, tourism activities, riverbank erosion, waste management, and community infrastructure. Relevant policy documents, tourism reports, and local environmental information were also reviewed to provide contextual understanding and support data triangulation.

3.3 Data Analysis

The interview transcripts, observation notes, and documentary evidence were analysed using qualitative content analysis. The analysis followed an iterative process consisting of three stages. First, open coding was conducted to identify meaningful concepts emerging from participants' narratives. Second, related codes were grouped into broader categories describing environmental vulnerability, climate misinformation, institutional trust, and community adaptation. Finally, these categories were synthesised into overarching themes that addressed the research questions. Throughout the analytical process, comparisons were made across participant groups to identify similarities and differences in perspectives. Community members, local government officers, and environmental experts frequently emphasised different aspects of environmental change, enabling a more comprehensive interpretation of climate risk and adaptive capacity.

4. Findings

The analysis identified four interrelated themes illustrating how climate misinformation influences environmental risk perception and community resilience in Koh Kret. Although participants recognised ongoing environmental change, their responses were strongly shaped by differences in communication, institutional trust, and social relationships.

4.1 Environmental Change as an Everyday Experience

Participants consistently described riverbank erosion, seasonal flooding, fluctuating water levels, declining biodiversity, and increasing waste as the most significant environmental challenges facing the community. Rather than discussing climate change as an abstract global phenomenon, residents interpreted environmental change through its direct impacts on daily life, including damage to riverside houses, disruption of transportation, declining tourism activities, and changes in local ecosystems. Many participants observed that environmental conditions had gradually changed over time, making traditional experiences less reliable for predicting seasonal events. These observations reinforced the perception that environmental uncertainty had become part of everyday life rather than an occasional disturbance.

4.2 Climate Misinformation and Uncertainty

Despite broad agreement that environmental conditions had deteriorated, participants frequently reported receiving conflicting explanations regarding the causes of flooding, riverbank erosion, and ecological degradation. Information originated from government

agencies, television, online media, local leaders, neighbours, and social media platforms, often presenting inconsistent narratives. Several participants explained that uncertainty arose not because information was unavailable but because different sources offered competing interpretations of the same environmental event. While some respondents considered climate change the primary driver of flooding, others attributed environmental problems to upstream water management, infrastructure development, tourism expansion, or natural seasonal variation. These inconsistencies often reduced confidence in long-term environmental planning and created uncertainty regarding appropriate adaptation strategies.

4.3 Institutional Trust Influences Adaptive Behaviour

Trust emerged as a central factor influencing how residents responded to environmental risks. Participants expressed greater confidence in local authorities when communication was regular, transparent, and responsive to community concerns. In contrast, inconsistent messaging or limited public engagement encouraged residents to rely more heavily on informal communication networks and personal experience. Interestingly, local leaders and academic institutions were frequently viewed as more trusted sources of environmental information than national agencies because they were perceived as more familiar with local conditions and better able to explain scientific knowledge in practical terms. These findings suggest that institutional credibility plays an important role in determining whether climate information is translated into collective action.

4.4 Community Resilience Through Social Capital and Collaboration

Despite increasing environmental pressures, participants demonstrated considerable adaptive capacity. Strong neighbourhood relationships, shared cultural identity, and community organisations enabled residents to exchange information, coordinate responses during flooding, and support one another during environmental disturbances. Participants also emphasised the value of collaboration with universities and external organisations. Scientific expertise was regarded as most useful when combined with local knowledge and practical experience. Rather than viewing adaptation as a one-time response, residents described it as a continuous learning process involving experimentation, shared experience, and cooperation among multiple stakeholders. Overall, the findings indicate that resilience in Koh Kret extends beyond physical infrastructure. Adaptive capacity is strengthened by social capital, trusted communication, institutional collaboration, and the integration of scientific and local knowledge. These findings provide the basis for discussing how climate misinformation functions as a social amplifier of environmental risk and how participatory governance can strengthen resilience in vulnerable tourism communities.

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