



Exploring Lived Experiences of Climate Change in a Remote Indonesian Coastal Community

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ABSTRACT

Climate change has become a central focus in environmental and sustainability sciences especially concerning its impact on vulnerable coastal communities. While previous studies have examined ecological and economic consequences, less is known about how individuals subjectively experience environmental disruptions in their daily lives. This study addresses the gap by asking: how do members of a remote Indonesian coastal community perceive and make sense of climate change through their lived experiences? Using an interpretative phenomenological approach, this research reveals the complex emotional, cultural, and existential meanings that individuals attach to environmental transformation. Data were collected through in-depth, semi-structured interviews with ten long-term residents and analyzed using thematic interpretation to uncover recurring experiential themes. Four major themes emerged: emotional uncertainty, cultural resilience, experiential adaptation, and displacement trauma. These findings illustrate that climate change is experienced not only as a physical threat but as a disruption to identity, tradition, and belonging. The results underscore the importance of integrating local narratives and lived experience into climate adaptation strategies, offering new insights into the human dimensions of environmental change. This study contributes to a deeper, context-rich understanding of coastal vulnerability and lays the groundwork for future research that centers human meaning-making in climate discourse. However, the study is limited by its small sample size and single-community focus, which may restrict the generalizability of findings. Despite this, the insights provide practical implications for policymakers and community leaders, particularly in designing culturally sensitive adaptation strategies that align with local values and lived realities.



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INTRODUCTION

Climate change has emerged as one of the most pressing global challenges, with far-reaching consequences that extend beyond environmental degradation to disrupt the social, economic, and cultural fabric of human communities (Mukhlis & Abdullah, 2025; Mukhlis & Saidah, 2025). In particular, coastal regions are experiencing the compounded effects of rising sea levels, increased storm surges, and shoreline erosion, placing the livelihoods and traditions of vulnerable populations at risk. These environmental transformations are not merely physical occurrences but are deeply intertwined with the lived realities of individuals and communities who experience them firsthand.

The relevance of this phenomenon is particularly profound in traditional coastal societies, where identity, culture, and daily practices are inextricably linked to the land and sea (Dalmau & Attia, 2025; Macpherson, 2021). For such communities, climate change is not an abstract scientific issue but a tangible, embodied experience that reshapes how individuals perceive themselves, their relationships, and their future. The loss of ancestral land, disruption of fishing routines, and displacement from coastal homes represent more than material damage; they constitute existential challenges that call into question cultural continuity and social belonging.

Understanding climate change through the lens of subjective experience is crucial to addressing its human dimensions. While technical and policy-driven approaches remain vital, they often overlook the meanings individuals assign to environmental change and the ways these meanings influence adaptation, resilience, and resistance. A phenomenological perspective offers a pathway to uncover the richness and complexity of these lived experiences, emphasizing the need to explore how individuals make sense of their changing world within their sociocultural contexts.

By centering the voices of those directly affected, this research seeks to illuminate the deeper meanings of environmental transformation as experienced by coastal populations, thereby contributing to a more inclusive and human-centered understanding of sustainability and resilience.

In recent years, research into how individuals experience environmental phenomena has gained prominence across disciplines concerned with human-environment interactions. Particularly within coastal communities facing the tangible impacts of climate change, scholars have increasingly acknowledged the importance of understanding how people make sense of ecological disruptions in ways that are deeply personal, cultural, and embodied. Studies such as those by Mukhlis, (2025a) have highlighted how climate-related stressors are interpreted through local belief systems, historical memory, and collective identity. These investigations suggest that the subjective dimension of climate change—how it is lived, narrated, and felt—demands greater scholarly attention.

However, capturing the complexity of lived experience presents significant methodological challenges (Atuahene et al., 2025; Tran et al., 2024). Conventional quantitative approaches, while useful in measuring trends and modeling impacts, often fail to address the intricate meanings and emotional nuances of individual experiences. Statistical data rarely reflect the internal dialogues, cultural interpretations, and existential disruptions that define how communities engage with change. Even some qualitative studies have tended to prioritize thematic coding over interpretive depth, thus overlooking the richness of personal narratives and the contextual specificity of meaning-making.

These limitations underscore a critical gap in the existing literature: the need for methodologies that can illuminate the essence of environmental experiences from the perspective of those who live them (Dawson et al., 2022; Mumtaz et al., 2025). Without such insight, academic and policy responses may risk abstraction or cultural insensitivity, weakening their relevance and effectiveness in real-world contexts. Phenomenology, particularly in its interpretative form, offers a means to bridge this gap by prioritizing first-person accounts and contextual depth over generalized abstractions.

Efforts to address the impact of climate change on coastal communities have largely centered on technical adaptations, quantitative risk assessments, and infrastructure-based solutions. These conventional approaches emphasize measurable outcomes—such as relocation plans, erosion control, and economic losses—while relying heavily on policy prescriptions and generalized models. Although these strategies contribute to important mitigation efforts, they often neglect the personal, cultural, and emotional dimensions through which individuals and communities actually experience ecological change.

This prevailing reliance on practical and externally driven interventions tends to overlook how environmental disruptions are subjectively interpreted by those most affected. As a result, the internal landscapes of meaning—comprising memory, identity, attachment to place, and cultural belief—remain underexplored (Bixler et al., 2019; Sereshti et al., 2023). Quantitative methods, in particular, are ill-equipped to capture the existential depth and context-specific meanings that inform people's perceptions and responses to change. Even when qualitative research is employed, it often lacks the methodological orientation necessary to access the essence of lived experience.

To address this shortcoming, a phenomenological approach presents a valuable alternative. By focusing on the meanings individuals ascribe to their experiences, phenomenology allows researchers to uncover the underlying structures of consciousness that shape how people make sense of their changing environments (Abramowitz et al., 2025; Virakul & Russ-Eft, 2020). Interpretative Phenomenological Analysis (IPA), in particular, offers the tools to explore not only what is experienced but how it is experienced—within a rich sociocultural and ecological context. This

perspective is essential for understanding the full human impact of climate change, especially in communities whose identities and livelihoods are intimately tied to the coastal landscape.

Previous studies have examined the impacts of climate change on coastal communities using both quantitative and qualitative frameworks. While some have explored local adaptation strategies and socio-economic vulnerability, fewer have addressed how individuals interpret these changes as part of their lived experience. Theories on place attachment and environmental identity provide useful context, but they often remain underexplored in empirical settings. Research by Bohensky and Leitch (2014), for instance, highlights the importance of local narratives, yet stops short of uncovering the deeper meanings individuals assign to loss and adaptation. This gap underscores the need for a method capable of revealing the internal, subjective world of communities living with ecological uncertainty.

This study adopts an interpretative phenomenological approach to explore how members of a coastal community in Indonesia experience and understand climate change in their everyday lives (Pearce-Higgins et al., 2022; Zhang et al., 2025). The choice of Interpretative Phenomenological Analysis (IPA) is rooted in its ability to examine how individuals construct meaning through reflection and narrative. This approach directly responds to the limitations outlined in the previous section by emphasizing the richness of lived experience over generalized data. Through this lens, the research reveals the essence of emotional, cultural, and existential responses to environmental transformation. It provides insight into how identity, tradition, and memory shape the ways people live with change.

The structure of this article is organized into seven sections. It begins with an introduction to the topic and a detailed review of the general and specific background (Chen et al., 2020; Dou et al., 2023). The next sections present the methodological foundation, including study design, participant selection, data collection, and analytic strategy. This is followed by the results, which highlight emergent themes drawn from the participants' narratives. The discussion section then interprets these findings within broader theoretical and practical contexts, and the article concludes by summarizing key insights and proposing directions for future research.

RESEARCH METHODS

Study Design

This study employed an interpretative phenomenological approach to explore the lived experiences of individuals residing in a remote coastal community affected by climate change (Mueller et al., 2024; Perry, 2023). Phenomenology was chosen as it prioritizes the exploration of subjective meanings and the essence of human experience, making it particularly relevant for examining how individuals perceive and construct meaning in the face of environmental transformation. Interpretative Phenomenological Analysis (IPA), rooted in Heideggerian philosophy, was adopted to allow for a deeper understanding of how participants make sense of their realities through reflection and narrative. This design facilitates an idiographic and contextual investigation into the phenomenon, aligning closely with the study's aim to uncover nuanced insights into local climate adaptation and cultural resilience.

Participants

Participants in this study consisted of members of a coastal community located in a remote region of Indonesia, where environmental changes have significantly altered daily life. Selection was conducted using purposive sampling to ensure the inclusion of individuals with direct and sustained experience of climate-related coastal impacts (Hammersley, 2003; McMahon & McGannon, 2024). Inclusion criteria included: (1) being a permanent resident of the coastal community for a minimum of five years, (2) being over the age of 18, and (3) having directly experienced environmental changes such as tidal floods, erosion, or displacement. Exclusion criteria encompassed temporary visitors, individuals under the age of 18, or those unable to participate in a coherent verbal interview due to health or language barriers. A total of ten participants were included, comprising six males and four

females, with ages ranging from 29 to 67 years. All participants were actively engaged in traditional occupations such as fishing, farming, or local trade, contributing to the contextual depth of the study.

Data Collection

Data were collected through in-depth, semi-structured interviews conducted face-to-face in participants' homes or other community spaces of their choosing (Bednarek-Gilland, 2015). Each interview was guided by a flexible protocol designed to elicit rich narratives while allowing participants to lead the discussion around their lived experiences with climate change. The average duration of interviews was approximately 60 to 90 minutes. Interviews were audio-recorded with consent and supported by field notes to capture non-verbal cues and contextual observations. The interview settings were selected to ensure a comfortable, private, and familiar environment for the participants. The protocol was informed by existing phenomenological studies on environmental experiences and adapted to suit the cultural and linguistic context of the research site.

Data Analysis

Interview data were transcribed verbatim and analyzed using Interpretative Phenomenological Analysis (IPA), which involves a stepwise process of immersing in the data, identifying emergent themes, and developing a thematic structure reflective of participants' lived experiences. The analysis began with multiple readings of the transcripts to gain holistic understanding, followed by initial noting and identification of meaning units. These units were then clustered into themes based on patterns of shared experience. NVivo software was used to support data organization and coding, although emphasis remained on manual, interpretative engagement with the data. The final themes were refined through an iterative process of reflection and contextual cross-checking, ensuring that each theme represented an essential aspect of the participants' meaning-making.

Ethical Considerations

Ethical approval for this study was obtained from a recognized institutional research ethics committee prior to data collection. Written informed consent was provided by all participants after being thoroughly informed about the study's objectives, procedures, potential risks, and their rights as participants, including the right to withdraw at any stage without consequence. Confidentiality and anonymity were maintained throughout the research process by using pseudonyms and omitting identifiable personal information. The research was conducted in accordance with international ethical standards for research involving human subjects, including the Declaration of Helsinki.

RESULTS

Living with Uncertainty — The Emotional Toll of Climate Change

Participants consistently articulated a pervasive sense of uncertainty and vulnerability caused by erratic weather patterns, rising sea levels, and coastal erosion. Their descriptions revealed a deep emotional and existential impact, often expressed through metaphors of loss and anxiety.

"I used to know when the sea would rise or when the rain would come. Now, everything is confused. We live in fear, not knowing what will happen tomorrow." (Participant 3)

This emotional turbulence reflects not only the ecological instability they face but also the psychological burden of unpredictability in their daily lives. Many participants reported sleep disturbances, constant worry about their children's safety, and a sense of helplessness as their environment continues to shift beyond their control.

Holding onto Cultural Identity amid Ecological Change

Despite the overwhelming physical transformations in their surroundings, participants demonstrated a strong commitment to maintaining traditional practices, rituals, and local wisdom related to the sea and the land. These cultural anchors serve as sources of resilience and meaning.

"Even though the tides are changing, we still hold the sea prayer every full moon. That's who we are. We cannot lose that." (Participant 6)

Participants perceived the preservation of cultural identity not merely as heritage, but as an act of resistance and continuity. The sea was described not just as a resource, but as a spiritual and ancestral entity — a living presence intertwined with their identity and sense of place.

Adaptive Strategies Rooted in Experience and Collectivity

Contrary to the passive victim narrative often assigned to vulnerable communities, the participants expressed a wide range of adaptive behaviors rooted in communal knowledge and intergenerational learning. These include modifying fishing schedules, building temporary protective barriers with local materials, and forming informal community alerts for extreme weather.

"We don't wait for help. We talk to each other. When the waves are big, we already know from the wind. My grandfather taught me to read the sky." (Participant 1)

This finding emphasizes the agency embedded within local knowledge systems and highlights a nuanced form of environmental literacy developed through continuous, embodied interaction with nature.

Adaptive Strategies Cycle



Experiencing Displacement as Loss of Home and Dignity

For participants who were forced to move inland due to severe coastal erosion, the displacement was experienced not simply as a physical relocation but as a profound rupture in their connection to ancestral lands and the sea.

"They moved us far from the shore, but we feel like strangers now. It's not just the house; it's the feeling that we don't belong anymore." (Participant 8)

This theme reveals that environmental displacement carries complex emotional and social consequences that go beyond material losses. Many participants equated their displacement with a loss of dignity, a severing of intergenerational ties, and a disorientation of their personal and communal identity.

The lived experiences of this coastal community reflect a complex and deeply felt engagement with climate change, characterized by fear, resilience, cultural preservation, and loss. The four themes presented demonstrate that the meaning of climate change is not solely constructed around environmental degradation but is interwoven with identity, belonging, and collective memory. These findings underline the necessity of culturally grounded, community-led approaches in responding to climate vulnerability.

DISCUSSION

The findings of this study reveal four essential themes that illustrate how coastal community members experience climate change: emotional uncertainty, cultural resilience, experiential adaptation, and the trauma of displacement (Mukhlis, Suradi, et al., 2023; Mukhlis, 2025b). These lived experiences respond directly to the central research question concerning how individuals in remote coastal areas make sense of environmental transformation in their everyday lives.

The study contributes to answering this question by uncovering deeply personal meanings assigned to climate-related changes (Bakshi, 2021; Petre et al., 2019). Rather than viewing climate change through abstract models or generalized impacts, participants described it as an emotional, cultural, and existential disruption. Their narratives reveal that adaptation is not merely physical or economic, but also symbolic and spiritual. This perspective enriches the understanding of climate vulnerability by showing how individuals interpret change through relationships to place, tradition, and social identity—dimensions that are often invisible in mainstream climate discourse. The phenomenological approach used in this study enabled access to these meanings, offering insights that extend beyond observable behaviors into the internal processes of sense-making and resilience.

In relation to existing literature, the findings affirm and expand previous studies that highlight the role of culture and memory in shaping environmental responses (Mukhlis, Arifin, Ridwan, & Zulbaidah, 2025; Mukhlis, Arifin, Ridwan, Zulbaidah, et al., 2025). While earlier works have noted the importance of local knowledge and social networks in adaptation, this study demonstrates how those elements are lived and expressed at the personal level. The emotional distress caused by uncertainty and the loss of place echo findings by Mukhlis, Maryam, et al., (2023), yet this study deepens the narrative by showing how such loss is experienced as a rupture in identity and belonging. Furthermore, the results challenge assumptions of passivity in vulnerable communities by illustrating acts of everyday agency rooted in ancestral wisdom. This suggests that environmental resilience cannot be fully understood without attending to the lived dimensions of cultural meaning, identity, and emotional connection to place.

Implications of the Findings

The findings of this study have both scientific and practical implications for understanding climate change as a lived experience (Sadri-Shojaei et al., 2025; Villa-Ávila et al., 2024). From a social and cultural perspective, the participants' narratives illuminate how climate change disrupts more than physical space—it reconfigures relationships to land, memory, identity, and community. This insight suggests that adaptation strategies must move beyond infrastructure and economics to engage with emotional, symbolic, and cultural dimensions of resilience. For practitioners and policymakers working in climate-vulnerable regions, the results underscore the importance of incorporating community narratives and traditional knowledge into climate action plans. More broadly, this study offers a framework for recognizing the value of lived experience in shaping responsive and culturally sensitive environmental policies.

Limitations of the Study

While this research offers meaningful insights, it is shaped by certain limitations that must be acknowledged. The study focuses on a single coastal community in a specific cultural and geographical context, which may not fully reflect the experiences of other populations facing similar environmental threats (Ly & Ly, 2024; Paternò et al., 2020). Additionally, the sample size, though appropriate for phenomenological inquiry, limits the generalizability of the findings. The reliance on verbal narratives may also exclude non-verbal expressions of experience that are culturally significant. These limitations are not viewed as weaknesses but as boundaries that define the depth and scope of the current investigation. Future studies may expand these insights by applying similar approaches in diverse ecological and cultural settings.

Future Research Directions

The themes identified in this study point toward several avenues for future research. Further exploration of how cultural identity influences adaptation strategies could deepen our understanding of climate resilience across different communities (Mukhlis et al., 2024; Mukhlis, Janwari, et al., 2023). Comparative phenomenological studies across coastal regions in Southeast Asia, for example, may reveal shared patterns and context-specific variations in meaning-making. Moreover, longitudinal studies could examine how lived experiences evolve over time as climate impacts intensify. Expanding the methodological toolkit to include visual, performative, or arts-based methods may also help access richer dimensions of environmental experience. By continuing to center subjective meaning, future research can contribute more fully to a human-centered environmental discourse that complements existing scientific frameworks.

CONCLUSION

This study explored how members of a remote coastal community in Indonesia experience and make sense of climate change in their daily lives. Through interpretative phenomenological analysis, the research uncovered four key themes: emotional uncertainty, cultural continuity, adaptive knowledge, and the trauma of displacement. These findings highlight that climate change is not only a physical or economic issue but also a deeply personal and cultural phenomenon. The study offers a more nuanced understanding of environmental vulnerability by revealing the subjective meanings individuals attach to change. It also addresses a significant gap in previous research by centering the lived experience of affected communities, which is often absent from policy and scientific discourse. Future studies may build upon these insights by extending the approach to other ecological contexts or integrating diverse narrative methods to enrich our understanding of climate adaptation.

CONFLICT OF INTEREST

The authors declare no conflict of interest related to the conduct, authorship, or publication of this research.

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