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Remembering Scarcity: The Culture of Food Anticipation as a Conceptual Lens for Understanding Community Climate Resilience in Banyumas, Indonesia

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ABSTRACT

Communities living in environmentally vulnerable regions have long developed local strategies to cope with recurring food scarcity. Existing studies have examined food storage, crop diversification, social-ecological memory, and community resilience as important dimensions of climate adaptation. However, these adaptive practices are often analysed separately, providing limited understanding of how they collectively evolve into enduring cultural systems of preparedness. This study introduces the concept of the Culture of Food Anticipation as a conceptual lens for interpreting how repeated experiences of scarcity are transformed into culturally organised preparedness. Using Banyumas, Indonesia, as a theoretical case, the study employed qualitative documentary research based on historical records, government reports, and scholarly literature. Data were analysed through thematic analysis and interpretive synthesis to identify recurring patterns linking environmental uncertainty, collective memory, adaptive food practices, and community institutions. The findings show that recurrent paceklik (seasonal food scarcity) fostered interconnected practices of food storage, cassava-based diversification, reciprocal cooperation, and community food sharing. Rather than functioning as isolated adaptive responses, these practices became embedded within a broader cultural orientation that anticipates future environmental uncertainty. Building on these findings, this study conceptualises the Culture of Food Anticipation as a culturally embedded system through which historical experiences of scarcity are translated into enduring capacities for collective preparedness. The study contributes to ethnic and cultural studies by reconceptualising community adaptation as a cultural process that integrates social-ecological memory, everyday adaptive practices, and collective institutions. It further offers a conceptual perspective for understanding how culture can strengthen climate resilience while informing locally grounded adaptation policies in environmentally vulnerable communities.

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1. Introduction

Climate change is increasingly disrupting global food systems through prolonged droughts, erratic rainfall, declining agricultural productivity, and more frequent extreme weather events, placing growing pressure on rural livelihoods and food security (IPCC, 2023; FAO, 2023). These impacts are unevenly distributed. Smallholder farming communities, particularly in developing countries, often experience disproportionate exposure to food insecurity despite contributing minimally to global greenhouse gas emissions (IPCC, 2023). Consequently, climate adaptation has become closely associated with climate justice, emphasising the need to understand not only how communities respond to environmental change but also how locally grounded adaptive capacities reduce unequal vulnerability (Schlosberg & Collins, 2014).

Contemporary adaptation strategies largely emphasise technological innovation, climate-smart agriculture, infrastructure development, and institutional governance (FAO, 2023; IPCC, 2023). Although these approaches have strengthened climate risk management, they pay comparatively less attention to the cultural processes through which communities have historically prepared for environmental uncertainty. Across agrarian societies, adaptation has evolved not only through technological change but also through everyday practices, reciprocal cooperation, local ecological knowledge, and community institutions that enable households to anticipate future scarcity before environmental disturbances develop into crises (Berkes, 2018; Folke, 2006). This suggests that adaptation is fundamentally a cultural process as well as a technological and institutional one.

Several theoretical perspectives have examined this cultural dimension, yet each explains only part of the adaptive process. Food security research focuses primarily on food availability, access, utilisation, and stability (FAO, 2023, 2024). Community resilience studies emphasise the capacity of social systems to absorb disturbances, adapt, and recover from environmental change (Adger, 2000; Folke, 2006). Meanwhile, social-ecological memory explains how ecological knowledge is accumulated and transmitted across generations through institutions, livelihood practices, and everyday interactions with local environments (Berkes et al., 2003; Barthel et al., 2010). Although these perspectives are complementary, they generally examine adaptive practices from different analytical viewpoints. Consequently, limited attention has been given to the cultural integration through which food storage, dietary diversification, reciprocal cooperation, community institutions, and food sharing become mutually reinforcing components of long-term preparedness.

This conceptual limitation is also evident in empirical studies. Research on the Bonokeling Indigenous community has documented the role of *lumbung paceklik* as a communal food reserve (Irkhatin et al., 2020; Violin et al., 2025). Other studies have interpreted cassava-based foods such as *gaplek*, *oyek*, and *tiwul* as strategies for food diversification under seasonal scarcity, while more recent research has examined mosque-based food assistance, community philanthropy, and volunteer food-sharing initiatives as contemporary responses to food insecurity (Faradila, 2023; Gamasta, 2023). Although these studies provide valuable insights, they remain fragmented because each focuses on a particular adaptive practice. As a result, the broader cultural processes through which these practices become integrated into an enduring system of collective preparedness remain insufficiently explained.

This study addresses that conceptual gap by introducing the Culture of Food Anticipation, defined as a culturally embedded system through which recurring experiences of food scarcity are transformed into enduring practices of collective preparedness before environmental crises emerge. Unlike existing perspectives that examine adaptive practices individually, the Culture of Food Anticipation conceptualises preparedness as an integrated cultural system in which historical memory, food preservation, dietary diversification, reciprocal cooperation, community institutions, and food-sharing practices interact to reduce future vulnerability. Rather than replacing existing concepts, it complements theories of food security, social-ecological memory, and community resilience by explaining how these adaptive practices become culturally organised and continuously reproduced across generations.

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Banyumas Regency, Central Java, provides an appropriate empirical context for examining this process. Historically, the region has experienced recurring *paceklik* (seasonal food scarcity) associated with colonial agricultural restructuring, wartime disruption, climatic variability, and seasonal drought (Dwikurniarini, 2019; Van der Eng, 2020; Dinas Arsip dan Perpustakaan Kabupaten Banyumas, 2021). Although agricultural production has changed considerably, drought continues to affect rural livelihoods, with the Banyumas Regional Disaster Management Agency reporting substantial impacts on farming communities during the 2024 dry season (BPBD Kabupaten Banyumas, 2024). These recurring experiences offer an opportunity to examine how long-term environmental uncertainty has shaped culturally embedded adaptive practices.

The Banyumas experience suggests that repeated encounters with scarcity generate more than isolated adaptive responses. Over time, they cultivate shared expectations regarding environmental uncertainty and influence how households organise food production, preservation, exchange, and mutual assistance. Adaptive practices therefore persist not merely because they are effective in responding to crises but because they become embedded within cultural values, social norms, and collective responsibilities reproduced across generations. This perspective shifts attention from individual adaptation measures towards the cultural organisation of preparedness as an enduring social process.

Accordingly, this study addresses three questions: (1) How have recurring experiences of *paceklik* shaped culturally embedded adaptive practices in Banyumas? (2) How can these practices be conceptualised as a Culture of Food Anticipation? (3) What are the implications of this concept for community climate resilience and climate justice?

Drawing on qualitative documentary research, this study synthesises historical records, government reports, and scholarly literature to examine the relationships between environmental uncertainty, collective memory, adaptive food practices, and community institutions. The article makes three contributions. First, it introduces the Culture of Food Anticipation as a conceptual lens for understanding culturally organised preparedness under recurring environmental uncertainty. Second, it extends discussions of social-ecological memory by demonstrating how remembered experiences of scarcity become institutionalised through everyday adaptive practices rather than remaining solely as repositories of ecological knowledge. Third, it contributes to climate adaptation scholarship by arguing that resilience is strengthened not only through technological innovation and formal institutions but also through culturally embedded systems that enable communities to anticipate environmental uncertainty before crises occur.

2. Research Method

This study employed a qualitative documentary research design to examine how recurring experiences of food scarcity have shaped culturally embedded adaptive practices in Banyumas, Central Java, Indonesia, and to develop the concept of the Culture of Food Anticipation. Documentary research was selected because it enables the systematic interpretation of historical records, scholarly literature, policy documents, and institutional reports to reconstruct long-term socio-cultural adaptation that cannot be directly observed through contemporary fieldwork.

Documentary sources were collected between January and June 2026 from Google Scholar, Garuda, institutional repositories, government databases, and local archival collections. The corpus comprised five categories of documents: (1) historical records on environmental change and food scarcity in Banyumas; (2) peer-reviewed studies on food security, social-ecological memory, community resilience, climate adaptation, and climate justice; (3) research on local adaptive practices, including *lumbung paceklik*, cassava-based food systems, and reciprocal community institutions; (4) official reports published by national and local government agencies, including BPBD and BPS; and (5) documentary evidence of contemporary community food-sharing initiatives. Documents were selected based on their relevance, credibility, and contribution to

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understanding anticipatory food practices, while duplicate records, opinion articles, and publications lacking sufficient scholarly rigour were excluded.

The documentary evidence was analysed using the six-phase thematic analysis proposed by Braun and Clarke (2006): familiarisation with the data, initial coding, theme generation, theme review, theme definition, and interpretive synthesis. The analysis identified five recurrent themes: historical scarcity (*paceklik*), food storage, food diversification, community solidarity, and food sharing. Rather than treating these themes as independent categories, the study examined their relationships across historical periods to identify recurring patterns of collective preparedness. Through this iterative process, the Culture of Food Anticipation emerged as a conceptual synthesis that integrates these adaptive practices into a coherent cultural system.

To strengthen conceptual interpretation, the findings were examined through the complementary perspectives of social-ecological memory (Berkes et al., 2003; Barthel et al., 2010), collective memory (Halbwachs, 1992), community resilience (Adger, 2000; Folke, 2006), and climate justice (Schlosberg & Collins, 2014). These frameworks were used as interpretive lenses rather than predetermined analytical categories, allowing themes to emerge inductively from the documentary evidence before being situated within broader theoretical discussions.

To situate the Banyumas experience within a wider context, documentary evidence from community-based adaptation initiatives in India, Nepal, and several African countries was also reviewed through an interpretive comparative approach. These international cases were not analysed as formal comparative case studies but served to assess the broader conceptual relevance of the proposed framework.

The credibility of the findings was enhanced through source triangulation across historical archives, peer-reviewed publications, official government reports, and institutional documents. Interpretations were developed only when similar patterns were consistently identified across multiple independent sources. Consequently, the Culture of Food Anticipation should be understood as a conceptual framework derived from thematic synthesis of documentary evidence rather than as a universally generalisable empirical model.

3. Results and Discussion

3.1. Banyumas in a Landscape of Environmental Uncertainty

Despite its fertile volcanic soils, abundant water resources, and long history of rice cultivation, Banyumas has experienced recurring episodes of food insecurity throughout its history. This apparent paradox demonstrates that agricultural abundance alone does not guarantee food security. Rather, vulnerability has been shaped by the interaction of environmental variability, political-economic transformation, and unequal access to resources, making *paceklik* a recurring feature of rural life rather than an exceptional event (Gandasubrata, 1931/2007; Van der Eng, 2020).

Historical evidence shows that the drivers of food insecurity have changed over time while producing remarkably similar adaptive responses. During the Dutch colonial period, the Cultivation System (*Cultuurstelsel*) redirected agricultural production towards export commodities, reducing the capacity of farming households to prioritise subsistence needs and increasing their exposure to seasonal shortages (Dwikurniarini, 2019; Van der Eng, 2020). Food insecurity intensified during the Japanese occupation (1942–1945), when compulsory procurement policies and wartime mobilisation disrupted local food distribution and forced communities to rely more heavily on locally available crops and food-preservation practices (Dinas Arsip dan Perpustakaan Kabupaten Banyumas, 2021; Van der Eng, 2020). Although political conditions changed after independence, recurring droughts, economic instability, and uneven rural development continued to reinforce *paceklik* as a familiar component of agrarian life.

Contemporary evidence indicates that environmental uncertainty remains a persistent challenge. Climate change has intensified seasonal droughts and disrupted agricultural production

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across Banyumas. In 2024, drought affected 1,114 households (approximately 3,622 people), while the district continued to record relatively high rural poverty and designated 60 villages as priorities for extreme poverty alleviation (BPBD Kabupaten Banyumas, 2024; BPS Kabupaten Banyumas, 2024). These conditions suggest that present-day climate vulnerability is shaped not only by environmental hazards but also by socio-economic inequalities, reflecting patterns that have characterised the region for decades.

Rather than responding passively to these recurring pressures, communities gradually developed adaptive practices that reduced future vulnerability. Cassava became an important reserve crop because of its tolerance to drought and poor soils, while processed foods such as *gaplek*, *oyek*, *tiwul*, and *krekel* extended food availability beyond harvest seasons. At the same time, households strengthened food storage, reciprocal cooperation, and resource sharing as complementary strategies for coping with uncertainty. These practices should therefore be understood not merely as responses to individual crises but as adaptive mechanisms that evolved through repeated interaction with changing environmental conditions.

An important pattern emerges from this historical trajectory. Although the causes of food insecurity shifted—from colonial extraction and wartime requisition to contemporary climate change—the underlying adaptive logic remained remarkably consistent. Communities repeatedly responded by combining food preservation, diversification, and collective cooperation to reduce future risks. This continuity suggests that repeated experiences of *paceklik* generated more than practical survival strategies; they fostered a culturally embedded orientation towards preparedness.

This historical continuity provides the empirical foundation for the concept proposed in this study. Rather than viewing adaptive practices as isolated responses to environmental stress, the following section argues that they became integrated into a broader cultural system—the Culture of Food Anticipation—through which historical experiences of scarcity were transformed into enduring capacities for collective preparedness.

3.2. From Scarcity to the Culture of Food Anticipation

Recurring experiences of *paceklik* transformed food scarcity from an episodic hardship into a culturally remembered condition that shaped everyday decisions concerning food production, preservation, exchange, and mutual assistance. Rather than remaining memories of deprivation, repeated encounters with scarcity established a shared expectation that environmental uncertainty was cyclical and therefore required continuous preparation. Preparedness gradually became embedded in ordinary social life long before environmental disturbances developed into food crises, creating adaptive routines that extended across generations.

This process can be understood through the concept of social-ecological memory, which explains how ecological knowledge is accumulated, retained, and transmitted through continuous interactions between communities and their environments (Berkes et al., 2003). Barthel et al. (2010) further argue that such knowledge is reproduced through livelihood practices, local institutions, and everyday routines that enable successive generations to interpret recurring environmental change. In Banyumas, memories of *paceklik* were preserved not through written records but through practical knowledge concerning food storage, crop selection, reciprocal labour, and household food management. Historical experiences of scarcity therefore became adaptive knowledge that informed everyday responses to environmental uncertainty.

One important manifestation of this adaptive knowledge was the continued cultivation and processing of cassava as a reserve crop. Because cassava remained productive under drought and irregular rainfall, it provided a dependable source of food when rice harvests declined (Dwikurniarini, 2019). Communities further enhanced its adaptive value by processing it into durable foods such as *gaplek*, *oyek*, *tiwul*, and *krekel*, thereby extending food availability beyond harvest seasons (Gandasubrata, 1931/2007). These foods functioned not merely as substitutes for

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rice but as culturally embedded technologies that reduced dependence on a single staple while strengthening household preparedness for future scarcity.

Preparedness was reinforced through collective institutions and reciprocal social relations. Among the Bonokeling Indigenous community, the *lumbung paceklik* operated as a communal institution that regulated food storage and distribution during periods of shortage (Irkhatin et al., 2020). Violin et al. (2025) further demonstrate that the institution strengthened collective responsibility by ensuring that food reserves were managed according to community needs rather than individual ownership. Similar principles were reflected in *gotong royong*, *sambatan*, and reciprocal labour exchange, through which environmental risks were shared across social networks rather than borne by individual households. In this context, food security depended not only on agricultural production but equally on trust, cooperation, and collective responsibility embedded within community life.

Although rural livelihoods have changed considerably, these adaptive principles continue to evolve in new institutional forms. Community food-sharing initiatives organised through mosques, neighbourhood associations, charitable organisations, and digitally coordinated volunteer networks demonstrate that reciprocal responsibility remains central to local responses to food insecurity (Gamasta, 2023). Likewise, Rahman and Romadlon (2025) show that digital platforms increasingly facilitate community-based food redistribution while preserving long-established norms of mutual assistance. However, documentary evidence also reveals important differences between historical and contemporary adaptive practices. Earlier studies primarily describe household food reserves, communal granaries, and subsistence agriculture, whereas recent studies increasingly emphasise philanthropy, religious organisations, and digitally mediated food-sharing initiatives. These changes indicate that while the institutional forms of adaptation continue to evolve, the underlying cultural orientation towards collective preparedness remains remarkably consistent.

The Banyumas experience also exposes an important conceptual limitation within existing scholarship. Social-ecological memory explains how ecological knowledge is preserved and transmitted across generations (Berkes et al., 2003; Barthel et al., 2010). Food security research focuses primarily on food availability, access, utilisation, and stability (FAO, 2023, 2024), while community resilience emphasises the capacity to absorb, adapt to, and recover from environmental disturbances (Adger, 2000; Folke, 2006). These perspectives are complementary, yet each approaches adaptation from a different analytical standpoint. Consequently, they tend to explain ecological knowledge, food systems, or resilience separately, providing limited understanding of how these dimensions become culturally integrated into enduring systems of collective preparedness.

Although these theoretical perspectives are complementary, they also differ in their underlying assumptions. Social-ecological memory primarily explains the persistence of ecological knowledge, whereas food security frameworks evaluate the performance of food systems and resilience studies focus on system responses to disturbance. Consequently, each perspective captures only part of the adaptive process. The Banyumas evidence suggests that preparedness emerges not from any single dimension but from the continuous cultural integration of knowledge, institutions, food practices, and reciprocal social relations. This integrative process remains comparatively under-theorised within existing scholarship.

The documentary evidence synthesised in this study suggests that adaptation is sustained not by any single practice but by the interaction among multiple adaptive mechanisms. Food preservation secures future availability, diversification broadens ecological flexibility, reciprocal cooperation mobilises collective resources, and food sharing protects vulnerable households. Their adaptive significance therefore lies less in their individual effectiveness than in their continuous integration within everyday community life. This integrative dimension has received comparatively limited theoretical attention and cannot be fully explained by existing concepts when applied independently.

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Building upon this conceptual gap, this study proposes the Culture of Food Anticipation as a conceptual lens for understanding how recurring experiences of scarcity are transformed into enduring systems of collective preparedness. Rather than replacing the concepts of social-ecological memory, food security, or community resilience, the Culture of Food Anticipation explains the cultural mechanism through which ecological memory is translated into everyday adaptive practices and ultimately into anticipatory resilience. It refers to a culturally embedded system in which food preservation, dietary diversification, community institutions, reciprocal social relations, and food sharing interact to reduce future vulnerability before environmental crises emerge. The concept therefore shifts analytical attention from individual adaptive practices towards the cultural integration of preparedness itself.

In Banyumas, the enduring legacy of *paceklik* lies not simply in the persistence of communal granaries, cassava-based foods, or reciprocal traditions. Rather, its most significant legacy is the emergence of a shared cultural orientation that normalises anticipation as an ordinary principle of everyday life. Repeated experiences of scarcity transformed preparedness from a temporary response into a durable cultural system that continues to shape community adaptation under changing environmental conditions.

Table 1. Historical Development of the Culture of Food Anticipation in Banyumas

Historical Context	Dominant Adaptive Practice	Adaptive Principle	Contribution to the Culture of Food Anticipation
Dutch Colonial Period	Household food storage	Preparedness	Initial recognition that scarcity requires anticipation
Japanese Occupation	Cassava cultivation and preservation	Flexibility	Development of diversified reserve foods
Post-Independence Paceklik	*Lumbung paceklik*, *gotong royong*, *sambatan*	Collective responsibility	Institutionalisation of community preparedness
Contemporary Climate Change	Community food sharing, religious philanthropy, digital volunteer networks	Reciprocity	Adaptation of anticipatory practices to contemporary social conditions
Conceptual Synthesis (This Study)	Integration of all adaptive practices	Culture of Food Anticipation	Culturally embedded system of collective preparedness that strengthens anticipatory adaptive capacity

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Source: Synthesised by the author from Gandasubrata (1931/2007), Dwikurniarini (2019), Irkhatin et al. (2020), Violin et al. (2025), Gamasta (2023), Rahman and Romadlon (2025), BPBD Kabupaten Banyumas (2024), BPS Kabupaten Banyumas (2024), Berkes et al. (2003), Barthel et al. (2010), Folke et al. (2010), and FAO (2023, 2024).

The documentary evidence nevertheless presents several limitations. Historical records primarily describe periods of scarcity retrospectively, whereas contemporary studies focus on current community initiatives using different analytical frameworks. Consequently, continuity across historical periods should be interpreted as continuity of adaptive principles rather than direct continuity of identical practices.

3.3. Anticipatory Resilience: From the Culture of Food Anticipation to Climate Resilience

The preceding discussion demonstrates that recurring experiences of *paceklik* generated a culturally embedded system of preparedness rather than a collection of isolated adaptive practices. The remaining question is how this cultural system contributes to climate resilience. Existing resilience scholarship generally defines resilience as the capacity of individuals and communities to absorb disturbances, adapt to changing conditions, and recover from environmental or social shocks (Adger, 2000; Folke, 2006). Although this perspective has substantially advanced climate adaptation research, resilience is commonly evaluated through responses that become visible during or after environmental disturbances. Consequently, comparatively less attention has been devoted to the cultural mechanisms that reduce vulnerability before crises occur.

The Banyumas experience suggests that resilience begins considerably earlier than the moment of disruption. Recurrent *paceklik* encouraged communities to incorporate anticipation into everyday decisions concerning food production, preservation, cooperation, and resource distribution. Preparedness therefore became embedded within routine social practices rather than functioning as an emergency response activated only during periods of scarcity. In this sense, resilience emerged as a continuous cultural process rather than a temporary reaction to environmental shocks.

The four adaptive mechanisms identified in the previous section should therefore be understood as interacting components of a single cultural system rather than as independent adaptive practices. Their resilience value emerges from their integration, through which preparedness becomes continuously reproduced across generations.

This finding extends prevailing understandings of resilience. Conventional resilience frameworks frequently identify adaptive capacity as an outcome of institutional strength, technological innovation, or access to material resources (Adger, 2000; Folke, 2006). The Banyumas case demonstrates an additional pathway in which adaptive capacity is generated through culturally organised everyday practices. Rather than replacing technological or institutional adaptation, the Culture of Food Anticipation complements them by providing the social and cultural infrastructure through which preparedness is continuously reproduced across generations.

Importantly, documentary evidence also suggests that the expression of anticipatory resilience has changed over time. Historical adaptations centred on household food reserves, communal granaries, and cassava preservation, whereas contemporary responses increasingly involve neighbourhood associations, religious organisations, charitable initiatives, and digitally coordinated food-sharing networks. These changing institutional forms indicate that adaptive practices are dynamic rather than static. What persists across historical periods is not identical practices but a shared cultural commitment to anticipating future scarcity through collective responsibility.

From this perspective, anticipatory resilience should be understood as the capacity of communities to reduce future vulnerability before environmental disturbances develop into crises. It emerges through the interaction of historical experience, social-ecological memory, adaptive

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food practices, and community institutions, all of which are integrated within the Culture of Food Anticipation. Consequently, resilience is not simply the ability to recover from disruption but also the ability to organise everyday life around the expectation that environmental uncertainty is a recurring condition.

The conceptual pathway proposed in this study is summarised in Figure 1. Repeated experiences of environmental uncertainty generate social-ecological memory, which is transformed into the Culture of Food Anticipation through food storage, food diversification, community solidarity, and food sharing. These interconnected cultural mechanisms strengthen anticipatory adaptive capacity and ultimately contribute to long-term climate resilience.

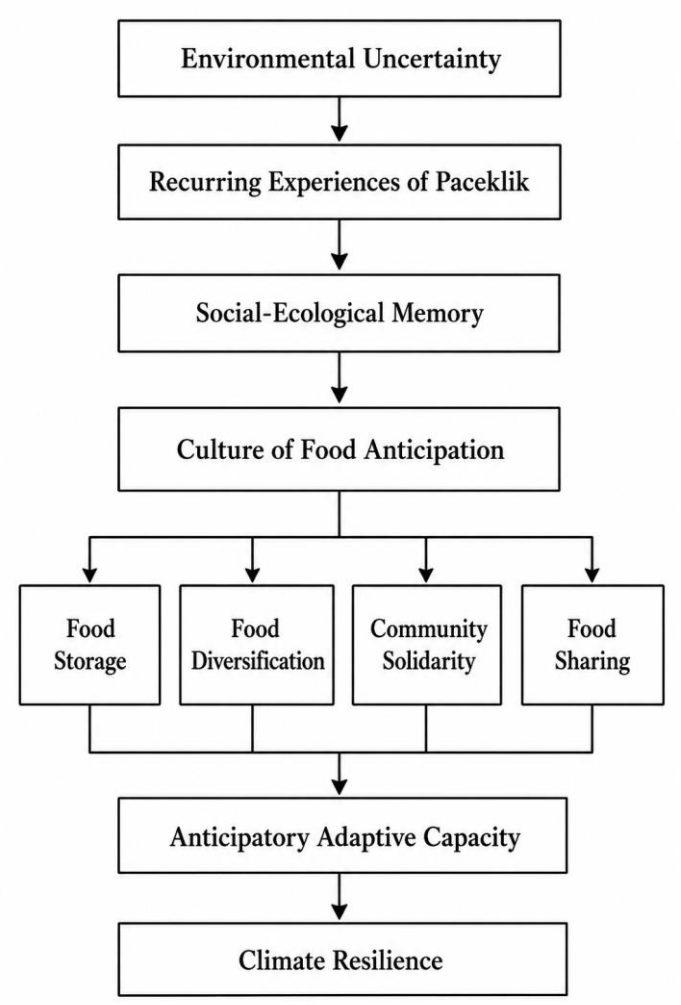

Figure 1. Conceptual Pathway from Environmental Uncertainty to Climate Resilience

Note. The Culture of Food Anticipation integrates food storage, diversification, community solidarity, and food sharing into a culturally embedded system of preparedness. Through their continuous interaction, these adaptive practices strengthen anticipatory adaptive capacity before environmental disturbances develop into food crises, thereby contributing to long-term climate resilience.

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Table 2. Dimensions of the Culture of Food Anticipation

Dimension	Cultural Practice	Adaptive Mechanism	Contribution to Anticipatory Adaptive Capacity
Food storage	Household reserves and *lumbung paceklik*	Maintains food availability during production decline	Reduces immediate exposure to food shortages
Food diversification	Cassava cultivation and processed foods (*gaplek, oyek, tiwul*, *krekel*)	Broadens ecological flexibility and reduces dependence on rice	Expands adaptive options under climate variability
Community solidarity	*Gotong royong*, *sambatan*, reciprocal labour exchange	Mobilises labour, knowledge, and mutual support	Strengthens collective adaptive capacity
Food sharing	Religious charities, neighbourhood associations, community initiatives, digital volunteer networks	Redistributes food through reciprocal social relations	Protects vulnerable households before crises emerge
Integrated outcome	Interaction among all four dimensions	Preparedness becomes culturally embedded in everyday life	Generates anticipatory adaptive capacity and reinforces long-term climate resilience

Source: Developed by the author based on the thematic synthesis of documentary evidence.

3.4. Climate Justice and Global Implications

Although developed from the historical experience of Banyumas, the Culture of Food Anticipation offers analytical insights that extend beyond its immediate geographical context. The concept is not proposed as a universally applicable model of climate adaptation because adaptive cultures are inherently shaped by specific historical, ecological, and institutional conditions. Rather, it provides a conceptual framework for understanding how repeated experiences of environmental uncertainty can be transformed into culturally organised systems of collective preparedness. Its broader contribution therefore lies in identifying adaptive principles that may be transferable across contexts, even when their institutional expressions differ.

Comparable forms of anticipatory adaptation have been documented in diverse socio-ecological settings. Community grain banks in India, community seed banks in Nepal, and reciprocal food-sharing systems across African dryland regions all demonstrate that local institutions often reduce vulnerability before environmental crises occur (Berkes et al., 2003; Ostrom, 1990; Pretty, 2018). Nevertheless, these initiatives differ substantially in their ecological settings, governance arrangements, and cultural traditions. Rather than suggesting institutional uniformity, this diversity indicates that anticipatory preparedness can emerge through multiple cultural pathways. The Banyumas case therefore contributes not another example of local adaptation but an explanation of the cultural processes through which diverse adaptive practices become integrated into coherent systems of preparedness.

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This distinction represents the principal theoretical contribution of the proposed concept. Existing studies have generally analysed grain banks, seed banks, reciprocal labour, and community food-sharing as discrete adaptation strategies. The documentary evidence synthesised in this study suggests that their adaptive effectiveness depends not only on the presence of individual practices but also on the cultural relationships that connect them. The Culture of Food Anticipation consequently shifts analytical attention from evaluating isolated interventions towards understanding how adaptive practices are continuously reproduced through shared historical memory, reciprocal institutions, and everyday social norms.

The concept also contributes to contemporary discussions of climate justice. Climate change disproportionately affects communities that have contributed least to global greenhouse gas emissions while often possessing the fewest financial and technological resources for adaptation (Schlosberg & Collins, 2014; IPCC, 2023). Adaptation policies therefore risk reinforcing existing inequalities when they prioritise externally designed technological solutions while overlooking locally developed adaptive capacities. The Banyumas experience demonstrates that communities should be recognised not only as beneficiaries of climate adaptation but also as producers of knowledge derived from long-term interaction with environmental uncertainty (UNESCO, 2021). Recognising this epistemic contribution represents an important dimension of climate justice alongside distributive and procedural justice.

Viewed from this perspective, global–local learning should be understood as reciprocal rather than unidirectional. Scientific innovation remains indispensable for improving climate forecasting, agricultural productivity, and disaster risk reduction (UNDRR, 2023). At the same time, culturally embedded adaptive systems provide practical knowledge concerning how preparedness can be sustained through everyday social organisation. Climate resilience is therefore likely to be strengthened when scientific expertise and local adaptive cultures are treated as complementary rather than competing forms of knowledge.

Nevertheless, the transferability of the Culture of Food Anticipation should be interpreted cautiously. The concept was developed through documentary evidence from Banyumas and may be expressed differently in societies with contrasting ecological conditions, food systems, or social institutions. Future comparative research is therefore needed to examine how similar principles of anticipatory preparedness emerge across different cultural settings and to identify the contextual factors that shape their institutional forms.

From a policy perspective, these findings suggest that strengthening climate resilience requires investment not only in infrastructure, technological innovation, and formal governance but also in community institutions, diversified local food systems, and culturally embedded forms of cooperation. Policies that recognise culture as an adaptive asset are more likely to enhance local legitimacy, encourage community participation, and sustain long-term resilience under increasing environmental uncertainty.

3.5. Limitations, Theoretical Contributions, and Future Research

This study introduces the Culture of Food Anticipation as a conceptual framework for understanding how recurring experiences of food scarcity are transformed into culturally embedded systems of collective preparedness. Rather than replacing established perspectives on social-ecological memory, food security, community resilience, or climate justice, the proposed concept complements these approaches by explaining the cultural mechanism through which ecological knowledge, adaptive food practices, community institutions, and reciprocal social relations become integrated into anticipatory adaptive capacity. Its principal theoretical contribution therefore lies not in identifying new forms of adaptation but in explaining how existing adaptive practices are culturally organised into enduring systems of preparedness.

Beyond climate adaptation scholarship, the study also contributes to ethnic and cultural studies by positioning culture as a dynamic adaptive resource rather than solely as an expression of

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heritage or identity. The Banyumas case demonstrates that practices such as communal food reserves, food diversification, reciprocal cooperation, and food sharing persist because they continue to provide adaptive value under changing environmental conditions. Culture, in this perspective, is continuously reproduced through interaction with environmental uncertainty rather than simply preserved as historical tradition.

Nevertheless, several limitations should be acknowledged. First, the study relies exclusively on documentary evidence, which provides valuable historical and conceptual insights but cannot fully capture how adaptive practices are currently negotiated, contested, or transformed in everyday community life. Documentary sources also vary in temporal coverage, analytical focus, and methodological approach, requiring interpretive synthesis rather than direct empirical comparison. Consequently, continuity across historical periods should be understood as continuity of adaptive principles rather than identical cultural practices.

Second, the Culture of Food Anticipation was developed primarily from the historical experience of Banyumas. Although similar anticipatory practices have been documented elsewhere, the concept has not yet been empirically validated across different ecological, cultural, and institutional contexts. Its transferability therefore remains a theoretical proposition that requires further empirical investigation rather than an established generalisable model.

Future research should integrate documentary analysis with ethnographic fieldwork, participatory research, and longitudinal community studies to examine how culturally embedded preparedness is maintained, negotiated, and transformed in contemporary settings. Comparative research across regions with different ecological conditions, food systems, and cultural traditions would also help identify which dimensions of the Culture of Food Anticipation are context-specific and which represent broader adaptive principles. Such studies would refine the conceptual boundaries of the proposed framework while strengthening its contribution to climate adaptation, resilience studies, and cultural sustainability research.

4. Conclusion

This study examined how recurring experiences of *paceklik* (seasonal food scarcity) shaped community responses to environmental uncertainty in Banyumas and explored their implications for contemporary climate resilience. The findings demonstrate that repeated experiences of scarcity fostered a Culture of Food Anticipation, expressed through the integration of food storage, food diversification, community solidarity, and food sharing. Rather than functioning as isolated adaptive responses, these practices became culturally embedded mechanisms that enabled communities to anticipate environmental crises before they emerged.

The principal contribution of this study lies in introducing the Culture of Food Anticipation as a conceptual framework that links social-ecological memory with anticipatory resilience. The concept explains how historical experiences of scarcity are translated into culturally organised systems of preparedness through the interaction of ecological knowledge, everyday adaptive practices, and community institutions. In doing so, it complements existing perspectives on food security, social-ecological memory, and community resilience by shifting analytical attention from individual adaptive practices towards the cultural integration of preparedness.

The findings also contribute to broader discussions of climate justice by demonstrating that locally generated adaptive knowledge constitutes an important resource for reducing climate vulnerability. Strengthening community institutions, diversified local food systems, and reciprocal social networks should therefore be recognised as complementary to technological innovation and formal adaptation policies rather than as separate or secondary approaches.

Although developed from the historical experience of Banyumas, the proposed framework highlights broader adaptive principles that may inform community-based climate adaptation in other environmentally vulnerable regions. Future research is needed to examine how similar

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cultures of anticipation emerge in different socio-ecological contexts and how they interact with changing institutional and technological conditions.

Ultimately, the most enduring legacy of *paceklik* is not the granary, the cassava, or any single adaptive practice. It is the emergence of a Culture of Food Anticipation—a culturally embedded capacity through which communities transform remembered scarcity into collective preparedness for an increasingly uncertain climate future.

5. Acknowledgment

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