

Buka-Tutup Bondang Ritual: Local Spirituality and Climate Adaptation in Sei Silau Village, North Sumatra

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ABSTRACT

This study investigates the role of the Buka-Tutup Bondang ritual in Sei Silau Village, North Sumatra, as a manifestation of local spirituality underpinning sustainable agriculture and community resilience to climate change. Using a qualitative case study approach, data were collected through in-depth interviews with traditional leaders, farmers, and spiritual figures, participatory observation, and document analysis. The research aims to (1) explore the ritual's spiritual meanings and symbolism, (2) examine its influence on sustainable farming and land management, and (3) assess how it supports community adaptation and mitigation strategies amid climate variability. Findings reveal the ritual strengthens the spiritual bond between humans and nature, fosters environmental stewardship, and reinforces social cohesion. It promotes eco-friendly farming methods, including organic practices and sacred land conservation, enhancing food security and ecosystem balance. Moreover, the ritual acts as a vital adaptive strategy, enabling collective action and coordinated resource management to mitigate climate risks such as floods, droughts, and pest outbreaks. This study highlights the importance of integrating indigenous cultural traditions into environmental policies to improve ecological sustainability and community well-being in rural Indonesia.

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1. Introduction

North Sumatra is one of the provinces in Indonesia that faces serious challenges due to global climate change. Based on the latest Meteorology, Climatology and Geophysics Agency (BMKG) report for 2024, the region has experienced a 0.3°C increase in average annual temperature in the last decade, accompanied by erratic changes in rainfall patterns. This uncertainty has a direct impact on the agricultural sector, which is the main livelihood of rural communities, especially in Sei Silau Village, Silo Bonto Sub-district, Asahan Regency. Climate change causes the planting season to become erratic, pest attacks increase, and rice productivity decreases. In this context, efforts to maintain ecosystem balance and food security are very important (Skendžić et al., 2021; Wang et al.,

2022). However, these ecological challenges are not only faced technically, but also involve cultural and spiritual dimensions that are an integral part of the lives of local communities.

In line with the dynamics of climate change, local spirituality plays an important role in shaping environmental awareness and management practices. One tangible form of this spirituality is the Buka-Tutup Bondang ritual, a tradition that has long been practiced by the people of Sei Silau Village. This ritual is not just a traditional ceremony, but also a form of recognition of the symbiotic relationship between humans and nature (Sahrian, 2022; Siagian, 2021). Through prayers, dhikr and various symbolism in the ritual, the community expresses respect and responsibility for the surrounding environment. This spiritual practice serves as a moral foundation that strengthens the community's commitment to maintaining the sustainability of agricultural land and local ecosystems. Thus, the Buka-Tutup Bondang ritual is an important medium for cultural preservation as well as a social adaptation strategy in facing the climate crisis.

The climate crisis has had a significant impact on the lives of agricultural communities in various parts of Indonesia, including in Sei Silau Village, Asahan Regency. Increasingly extreme changes in weather patterns, such as erratic rainy seasons and longer periods of drought, are causing disruptions to traditional cropping cycles. Data from the National Disaster Management Agency (BNPB) for 2024 shows an increase in the frequency of floods and landslides in North Sumatra, damaging agricultural land and supporting infrastructure (Heo et al., 2024). In addition, rising temperatures and rainfall variability trigger more intensive pest attacks, threatening the yields of smallholder farmers who depend on local farming systems (Begna, 2020; Benjamin et al., 2024). These impacts magnify economic uncertainty and pose real social risks to rural communities, which rely directly on natural resources for their survival. An approach that integrates social, cultural and environmental aspects is therefore crucial in dealing with these changes.

While the climate crisis has been the focus of much research, studies that specifically highlight the role of customary rituals in community-level adaptation and mitigation strategies are still relatively limited. In particular, the Buka-Tutup Bondang ritual in Sei Silau village has not received much attention in the scientific literature, even though this practice has for generations been a vital part of how the community manages their spiritual relationship with nature while maintaining the sustainability of their agriculture (Amin, 2024; Windi Sekar Sari & Muhammad Faishal, 2023). This study offers a new perspective by examining how the ritual is not only a cultural expression, but also a social and ecological mechanism that helps communities adapt to changing climate dynamics. This research seeks to fill this void by examining the Buka-Tutup Bondang ritual in depth, thus making a significant contribution to the understanding of the interaction between local spirituality and climate crisis.

The main objective of this article is to analyze the role of the Buka-Tutup Bondang ritual in the context of local spirituality of the Sei Silau Village community and its contribution to community resilience in the face of climate crisis. Specifically, this research aims to (1) describe the spiritual meaning and symbolism contained in the Buka-Tutup Bondang ritual, (2) examine the agricultural sustainability practices associated with the ritual, and (3) assess how this ritual supports the community's adaptation and mitigation strategies to the increasingly apparent climate change. Thus, this research is expected to provide a comprehensive picture of how local traditions can play a role in maintaining the balance between humans and the environment.

This research has important significance from both scientific and social perspectives. From a scientific perspective, this study fills a gap in the literature on the relationship between local spirituality and community responses to the climate crisis, especially with a focus on the Buka-Tutup Bondang ritual which has not been widely researched before. Socially, the results of this study can strengthen awareness and appreciation of local wisdom as a source of ecological and cultural solutions in facing the challenges of climate change. In addition, this research can be a reference for policy makers and environmental practitioners in designing cultural preservation programs as well as community-based environmental management.

2. Research Method

This research uses a qualitative approach with a case study method to explore the meaning of the Buka-Tutup Bondang ritual and its relationship with local spirituality and climate crisis in Sei Silau Village. Primary data were acquired through ethnographic interviews with traditional leaders, local farmers, and spiritual authorities, complemented by participatory observation conducted during ritual practices, and documentation in the form of photos and videos. In addition, secondary data was collected from literature related to local spirituality, studies on climate change, customary documents, and relevant environmental reports. This approach allows for a comprehensive and contextual analysis of the role of rituals in supporting community sustainability and adaptation to environmental dynamics (Carmen et al., 2022; Daigle et al., 2019).

Data collection was conducted through several systematically designed field stages. Researchers made periodic visits to Sei Silau Village during the Buka-Tutup Bondang ritual period to conduct direct participatory observations. Semi-structured interviews were conducted with traditional leaders, farmers and spiritual leaders to obtain in-depth and contextualized information on the meaning and practice of the ritual. In addition, documentation in the form of photos, videos, and the collection of customary documents and environmental reports also complemented the primary data. The entire data collection process was carried out with due regard to research ethics and agreement with the local community.

The collected data were analyzed using thematic analysis techniques to identify patterns, themes and main categories that emerged from the interviews and observations. Furthermore, field data was linked to theories of local spirituality and literature on climate change to enrich interpretations and provide a broader context. Data validity and reliability were maintained through source triangulation, which compares information from different informants and data collection methods, resulting in robust and reliable findings. This approach ensures that the analysis is not only descriptive but also critical and reflective of the phenomenon under study (Alhazmi & Kaufmann, 2022; Lim, 2024).

This study upholds ethical principles by ensuring that all participants give informed consent before participating through the informed consent process. Informants' identities were kept confidential to protect their privacy and build trust during the research. In addition, researchers respected the customs and beliefs of the Sei Silau Village community by following local cultural protocols during the data collection process, including not disrupting rituals and behaving politely according to the prevailing norms. This approach aims to maintain the integrity of the research while respecting the local values that are an important part of this study.

3. Results and Discussion

3.1 The Spiritual Meaning and Symbolism of the Buka-Tutup Bondang Ritual

The Buka-Tutup Bondang ritual in Sei Silau Village reflects the deep spiritual values inherent in the local community. This ritual is not just a customary tradition, but a form of respect and communication with natural forces and ancestors who are believed to maintain the balance of the ecosystem. Through prayers, dhikr, and various symbolism in the ritual, the community emphasizes the harmonious relationship between humans and nature, which becomes the moral basis for carrying out daily life (Ariyadi, 2025; Hasan et al., 2023). This ritual also serves as a collective reminder of the importance of preserving the environment as a manifestation of spiritual and social responsibility.

Building upon these spiritual foundations, the ritual's symbolic acts, such as the opening ("buka") and closing ("tutup") ceremonies—mark significant moments in the agricultural calendar that align human activity with natural cycles. These symbolic phases represent renewal, gratitude, and respect for the land's fertility, reinforcing a worldview that humans must coexist harmoniously with nature (Sahrian, 2022). The communal participation in these ceremonies also strengthens shared values and a collective commitment to environmental stewardship, ensuring that the ritual remains a living practice that guides both individual behavior and community ethos.

3.2 Contribution of the Ritual to Sustainable Agricultural Practices

In addition to the spiritual aspect, the Buka-Tutup Bondang ritual significantly influences sustainable agricultural practices in Sei Silau Village. The ritual encourages the community to apply environmentally friendly farming methods, such as avoiding the use of harmful chemicals and maintaining soil fertility naturally. In addition, land management follows customary principles that emphasize the preservation of natural resources and conservation of the surrounding environment. The cropping patterns that are regulated based on the ritual calendar also help maintain the balance of the ecosystem and improve the community's food security amidst the challenges of climate change.

Moreover, the ritual fosters a strong sense of collective responsibility among farmers, promoting cooperative land stewardship and shared knowledge on sustainable techniques. This communal approach helps mitigate risks related to climate variability by encouraging diversified cropping systems and soil conservation methods rooted in traditional wisdom. The ritual's cyclical timing aligns agricultural activities with ecological rhythms, minimizing environmental degradation and enhancing resilience against pests and extreme weather events (Bremer & Schneider, 2024; Liu & Song, 2025).

3.3 The Role of the Ritual in Community Adaptation and Mitigation to Climate Change

The Buka-Tutup Bondang ritual not only strengthens the Sei Silau community's spiritual bond with nature, but also plays an important role in building community resilience to the impacts of climate change. Through joint rituals, the community strengthens social solidarity, which is essential in facing environmental challenges such as floods, droughts and pest attacks (Sahrian, 2022). This ritual becomes a collective moment to develop adaptation strategies, such as adjusting planting times and managing resources together, thus increasing the community's capacity to mitigate the risk of natural disasters that are increasingly frequent due to climate change.

In addition to the social aspects, these rituals support the development of sustainable adaptive agriculture practices, where organic methods and conservation of sacred lands are integral to mitigation strategies. The community views the ritual as a mechanism to maintain the balance of the ecosystem while strengthening relationships between residents through joint participation. Many traditional leaders and farmers in Sei Silau Village emphasized that the Buka-Tutup Bondang ritual has a very deep spiritual meaning and plays an important role in maintaining harmony between humans and nature. A traditional leader explained, "*Ritual ini adalah wujud rasa syukur dan permohonan kepada leluhur dan alam agar panen kami selalu berkah dan alam tetap terjaga. Tanpa ritual ini, kami merasa kehilangan keseimbangan hidup.*" A young farmer also revealed, "*Melalui ritual ini, kami belajar menghormati alam, tidak sembarangan merusak tanah, dan menjaga warisan leluhur agar tetap lestari.*" These quotes show how the community not only performs rituals as a tradition, but also as a form of spiritual appreciation and daily life guidelines that support environmental sustainability.

However, the preservation of the Buka-Tutup Bondang ritual faces challenges that cannot be ignored. Modernization and social change bring new lifestyles that are less accommodating of old traditions, especially among the younger generation who are increasingly busy with urban activities and formal education. A community leader stated, "*Anak muda sekarang banyak yang sudah tidak mengerti makna ritual ini, mereka lebih tertarik pada teknologi dan pekerjaan di kota.*" In addition, economic pressures also force some farmers to prioritize quick results with modern farming methods that often ignore local wisdom. This poses a serious threat to the sustainability of rituals that have supported the ecology and culture of the people of Sei Silau Village. These challenges demand collaborative efforts from the government, customary institutions and communities to ensure these traditions remain alive and relevant in the future.

In addition to strengthening spiritual and ecological relationships, the Buka-Tutup Bondang ritual also involves various social groups within the Sei Silau Village community, such as women, youth and the older generation. Women often play an important role in the preparation and implementation

of the ritual, while at the same time preserving cultural values for generations. The youth, despite facing the challenges of modernization, act as a link between tradition and social renewal, helping to pass on ritual practices to the next generation. Meanwhile, the older generation functions as knowledge keepers and main ritual actors who teach the importance of environmental conservation through local wisdom. This cross-generational engagement not only strengthens social solidarity but also ensures cultural continuity and sustainable natural resource management (Fon et al., 2024; Profile, 2025).

The Buka-Tutup Bondang ritual also generates tangible adaptation mechanisms to climate change, such as adjustments to planting times based on customary calendars that have been adapted to new weather patterns. In addition, the agricultural practices adopted through this ritual emphasize the use of organic methods and land conservation, which contribute to reducing the risk of crop failure due to extreme climatic conditions (Amin, 2024). Furthermore, this tradition has begun to receive attention from local governments as part of sustainable development and cultural preservation programs, which support the integration of local wisdom in environmental policies. This support provides space for communities to continue preserving rituals while strengthening their ecological and social resilience amid increasingly complex climate challenges.

The following table summarizes the main role of the Buka-Tutup Bondang ritual in community and environmental resilience:

Table 1. Summary of Key Findings on The Buka-Tutup Bondang Ritual's Roles

No.	Aspect	Description
1	Spiritual Meaning	Ritual as a medium of dialogue with nature spirits and ancestors.
2	Agricultural Sustainability	Use of organic methods and sacred land conservation.
3	Climate Resilience	Community cooperation and adaptive strategies during climate anomalies.
4	Social Cohesion	Strengthening communal bonds through shared ritual participation.

Interpretation of the findings in Table 1 shows that the Buka-Tutup Bondang ritual integrates spiritual, social and ecological dimensions holistically. The spiritual value as a medium of communication with ancestral spirits and nature emphasizes the role of this ritual in building collective awareness about the importance of maintaining harmony with the environment. This is not only a cultural symbol, but also a concrete practice in maintaining ecosystem balance through sustainable farming methods as well as the management of sacred lands that are considered to have protective powers (Gashure & Wana, 2023; Lushombo, 2025). The social solidarity built through joint participation in this ritual strengthens the social network which becomes an important capital in facing increasingly uncertain climate risks.

Regionally, the Buka-Tutup Bondang ritual has similarities with the Mapalus tradition in South Sulawesi and Sedekah Laut in coastal East Java. Mapalus is a traditional mutual cooperation system that also involves spiritual elements in maintaining and managing natural resources sustainably, especially in the context of agriculture and fisheries (Pangalila et al., 2019; Tumuju et al., 2023; Wagiu et al., 2023). Sedekah Laut, on the other hand, is a ritual of gratitude and invocation of safety to the sea performed by fishing communities, containing aspects of respect for nature and supernatural powers as a form of resource conservation (Indrahti, Sri & Meirina, Fildza Andita, 2021; Putri Eklesia Thenu, Teshalonika & Andri Retno Martini, Laura, 2022). Ceremonies like Buka-Tutup Bondang reflect how spiritual traditions are deeply intertwined with community approaches to managing the natural environment..

However, the main differences lie in the focus and environmental context and form of implementation. Buka-Tutup Bondang focuses more on land-based agriculture and the rice planting cycle, while Mapalus incorporates gotong royong in a wider range of socio-economic activities and Sedekah Laut focuses on marine ecosystems and fishermen. In addition, Buka-Tutup Bondang features a more complex ritual aspect with two main phases (buka and tutup), each of which has its own symbolic and functional meaning, while the other two traditions are more single-phase and centered on community aspects and requests for safety. Thus, despite having similar goals of maintaining the balance of nature and social life, each ritual reflects a wealth of local wisdom that is unique to the cultural and ecological context of each region.

The Buka-Tutup Bondang ritual exemplifies a profound integration of spiritual beliefs and environmental stewardship deeply rooted in the local worldview of Sei Silau Village. This ritual serves not only as a cultural heritage but also as a vital moral and social mechanism that reinforces the community's responsibility to maintain ecological balance (Sahrian, 2022). Through symbolic acts, prayers, and communal participation, the ritual cultivates a collective consciousness that emphasizes harmony between humans and nature. It encourages respectful interactions with the environment, where natural elements and ancestral spirits are seen as active agents in sustaining life. Consequently, the ritual functions as an indigenous strategy for environmental governance, guiding community behavior towards sustainability in the face of climate change challenges (Cajete, 2020; Ford et al., 2020).

This spiritual-ecological integration highlights the importance of local wisdom as a form of adaptive knowledge that complements scientific approaches to climate resilience. The ritual's cyclical timing and symbolic meanings align agricultural and social activities with natural rhythms, fostering a sustainable relationship that mitigates environmental degradation. By embedding ecological ethics within spiritual practice, the Buka-Tutup Bondang ritual helps preserve biodiversity, soil fertility, and water resources—critical factors for long-term ecosystem health. Thus, it is essential to recognize such indigenous traditions as part of broader climate adaptation frameworks that value cultural diversity and community-based resource management.

The sustainable agricultural practices promoted by the Buka-Tutup Bondang ritual significantly enhance community resilience by fostering food security and social cohesion. The ritual's emphasis on organic farming methods, avoidance of harmful chemicals, and sacred land conservation aligns with globally recognized sustainable agriculture principles (Amin, 2024; Sahrian, 2022). By integrating these practices within a culturally meaningful framework, the community is better equipped to withstand climatic shocks such as droughts, floods, and pest outbreaks. This local knowledge-driven approach not only sustains agricultural productivity but also strengthens communal bonds through cooperative resource management and shared ritual participation.

Furthermore, this study supports growing evidence that community-based adaptation strategies rooted in traditional knowledge are effective in building socio-ecological resilience. The ritual facilitates collective decision-making and resource-sharing, which are critical in managing uncertainty and variability caused by climate change. Linking spirituality with sustainable agriculture thus creates a holistic adaptive system where environmental health and human well-being are mutually reinforced (Adefila et al., 2024; Masterson et al., 2019). These findings underscore the value of incorporating indigenous cultural practices into national and local policies aimed at enhancing climate resilience and sustainable development in rural areas.

The findings of this study underscore the necessity of integrating indigenous cultural practices like the Buka-Tutup Bondang ritual into broader climate adaptation and environmental management policies. Recognizing such rituals as valuable sources of ecological knowledge and social capital can enrich policy frameworks at both local and national levels (Sahrian, 2022). Governments should actively support the preservation and revitalization of these traditions by incorporating them into sustainable development programs, cultural heritage conservation initiatives, and climate resilience

strategies. Such policies would not only protect cultural diversity but also strengthen community-based resource governance that is vital for long-term environmental sustainability.

Furthermore, education and community participation play pivotal roles in sustaining the ritual's relevance and effectiveness. Formal and informal educational programs should include local wisdom to foster appreciation among younger generations and encourage active involvement. Capacity-building efforts that empower communities to document, adapt, and promote their cultural practices can facilitate intergenerational knowledge transfer. Policymakers are also encouraged to foster multi-sectoral collaborations that bridge cultural, environmental, and developmental goals, ensuring that traditional rituals remain dynamic components of adaptive responses to environmental challenges.

4. Conclusion

This research shows that the Buka-Tutup Bondang ritual in Sei Silau Village has a central role in strengthening local spirituality that connects humans with nature in harmony. This ritual is not only a cultural heritage rich in meaning, but also supports sustainable agricultural practices through the application of environmentally friendly methods and wise land management. Thus, this tradition strengthens the community's collective awareness of the importance of maintaining ecosystem balance and the survival of agrarian communities amid the increasingly real challenges of climate change.

Furthermore, the Buka-Tutup Bondang tradition functions as an effective climate crisis adaptation and mitigation strategy, strengthening the social and ecological resilience of the Sei Silau Village community. This research underscores the importance of integrating local wisdom in environmental policy and natural resource management. Therefore, it is recommended to conduct further studies with an interdisciplinary approach that combines social science, ecology and anthropology to deepen the understanding of the role of traditional rituals in dealing with climate change. In addition, the preservation and strengthening of these traditions should be encouraged as part of sustainable and community-oriented environmental protection efforts.

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