



Human–Nature Relations in Nusantara Cosmology and Ecological Solutions

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ABSTRACT

Nusantara cosmology proposes a radical reversal of the human–nature relationship, positioning humans not as the centre of power but as an ethical part of a cosmic web of life that demands existential responsibility for the sustainability of the universe. This study aims to systematically analyse the human–nature relationship within Nusantara cosmology, identify its underlying foundational principles, and explore its potential to contribute to sustainable ecological solutions, using a qualitative approach grounded in critical ethnography. The findings reveal that the modern ecological crisis is fundamentally a crisis of perspective. Thus, the reconstruction of Nusantara cosmology is not merely a cultural endeavour, but an epistemological intervention with the potential to reshape the foundations of the human–nature relationship by positioning nature as a meaningful subject demanding ethical, legal, and political recognition. Through the integration of the concept of nature's subjectivity, the revitalisation of rituals as social technologies, and the reinterpretation of cosmic values within the framework of public policy, this study implicitly challenges the dominance of the exploitative development paradigm whilst offering a new horizon for an ecological ethics that is more relational, contextual, and transformative, albeit still facing the tension between modern rationality and cultural legitimacy, as well as limitations in the institutionalisation of spiritual values within formal systems.

A. Introduction

Nusantara cosmology generally views humanity not as a dominant entity ruling over nature, but rather as part of an interconnected, interdependent cosmic order. Concepts such as balance, harmony, and equilibrium form the core principles governing these relationships. In various local traditions, such as *Tri Hita Karana* in Bali, *Sasi* in Maluku, or the local wisdom of indigenous communities in Kalimantan and Papua, there is a strong ecological awareness that governs the wise use of natural resources (Rosyid et al., 2025). However, these values are often marginalised in the tide of modern development, which tends to be exploitative and focused on short-term economic growth. The dominant development paradigm often overlooks the cultural and spiritual dimensions of environmental management, leading to a disconnect between humanity and nature that ultimately culminates in an ecological crisis.

As global awareness of the importance of sustainability grows, various alternative approaches are being developed to integrate social, cultural, and ecological aspects into environmental management. In the academic sphere, research on human-nature relations developed rapidly across political ecology, environmental anthropology, and sustainability studies (Karimullah, 2023). Recent studies indicate that approaches grounded in local wisdom hold great potential for supporting environmental conservation and the sustainable management of natural resources. For instance, a study by Winter et al. (2018) emphasises the importance of traditional ecological knowledge as an adaptive, context-specific knowledge system for addressing environmental change. Meanwhile, research by Loc et al. (2020) in the Southeast Asian context demonstrates that local practices are often more effective in maintaining ecological balance than top-down external interventions.

In Indonesia, several studies have examined the role of local cosmology in maintaining environmental sustainability. A study by Zen et al. (2024) on the subak system in Bali demonstrates how cosmological principles can be translated into a complex and efficient water management system. Another study by Purwanto (2022) reveals that indigenous communities in Kalimantan possess a forest management system rooted in spiritual and social values that can ensure long-term forest conservation. Furthermore, a study by Blanco-Wells (2021) highlights how interactions between humans and non-humans within local contexts can yield forms of sustainability not always apparent within the framework of modern development.

Most previous studies still tend to view the cosmology of the Nusantara in a partial and fragmented manner, often limited to specific case studies without developing a more integrative conceptual framework. Many studies focus on describing local practices without elaborating on their broader theoretical implications, thereby limiting their contribution to advancing knowledge. Furthermore, there is a tendency to position local wisdom as a static entity separate from modern social and economic dynamics. In contrast, in reality, this cosmology is constantly undergoing transformation and adaptation.

Another notable limitation is the lack of systematic efforts to link the cosmology of the Nusantara with global ecological issues, meaning its potential contribution on a broader scale has not yet been fully explored. On the other hand, modern scientific approaches in the environmental field are often dominated by a positivist paradigm that emphasises quantitative and technical aspects, thereby limiting their capacity to capture the cultural and symbolic dimensions of the human-nature relationship (Karimullah, 2025). This creates a gap between scientific knowledge and local practices, ultimately hindering the implementation of effective and sustainable environmental policies. In many cases, conservation programmes that fail to consider the local context actually lead to conflicts with local communities and ultimately fail.

It is within this context that it is important to re-examine the cosmology of the Nusantara as a source of knowledge that is not only culturally relevant but also has the potential to contribute to the development of more holistic ecological solutions. This approach seeks not only to document local practices but also to elaborate on the underlying principles

and link them to a broader theoretical framework. The integration of local cosmology with modern scientific approaches opens up opportunities to develop more inclusive and adaptive models of environmental management. In this regard, the human-nature relationship is no longer understood within a dualistic framework that separates the two, but rather as an interconnected, mutually influencing unity.

Based on the above, a significant knowledge gap exists in studies of the human-nature relationship within Nusantara cosmology, particularly in developing an integrative, applicable conceptual framework that links local values to contemporary ecological solutions. Previous research has not yet optimally examined these cosmological principles in the context of the global ecological crisis, nor has it examined how their integration with modern scientific approaches can yield more effective environmental management models. Furthermore, there remains a lack of exploration of the dynamics of local cosmological transformation in the face of rapid social and economic change, leading to an understanding that tends to be static and lacking in contextual depth.

Taking these gaps into account, this study aims to examine in depth the human-nature relationship within Nusantara cosmology through a more integrative approach that not only highlights cultural and symbolic aspects but also elaborates on their implications for ecological solutions relevant to current conditions. This study seeks to develop a more comprehensive understanding of how these cosmological values can serve as a foundation for sustainable environmental management models and how their integration with modern scientific approaches can generate innovation in environmental management practices.

The objective of this study is to systematically analyse the human-nature relationship within Nusantara cosmology, identify the underlying fundamental principles, and explore its potential to contribute to sustainable ecological solutions. Furthermore, this study aims to develop a conceptual framework that integrates local and scientific knowledge and to examine its implications for environmental management policies and practices. The significance of this study lies in its effort to revive Nusantara cosmology as a relevant source of knowledge in addressing the global ecological crisis and to integrate it with modern scientific approaches within a more holistic framework.

B. Method

This study employs a qualitative approach with a critical ethnographic design, chosen for its ability to capture in depth the human-nature relationship within the framework of Nusantara cosmology as a living, dynamic, and contextual system of meaning, with the study focusing on cosmological constructions, ecological practices based on local wisdom, and their transformation within the context of the contemporary ecological crisis operationally defined as patterns of symbolic, normative, and practical relations between humans and the environment within specific indigenous communities. The study population comprises indigenous communities in regions representing variations of Nusantara cosmology, with subjects selected through purposive and snowball sampling based on criteria of engagement in ecological practices and cosmological knowledge, whilst the research instruments consist of in-depth interview guidelines, participatory observation, and document analysis developed iteratively through literature review and readability testing, with data validity ensured through triangulation of sources, techniques, and time, as well as member checking and audit trails.

Data collection procedures were carried out in stages through context exploration, meaning deepening, and verification of findings, whilst data analysis utilised thematic-critical analysis techniques based on open, axial, and selective coding, combined with hermeneutic interpretation to uncover the structure of meaning and its ecological implications. These were selected for their relevance in elaborating the complex relationship between cultural and

ecological dimensions and enabling the formulation of an integrative conceptual framework in line with the research objectives.

C. Results and Discussion

1. A Reconstruction of Nusantara Cosmology as the Basis for a New Ecological Ethic

The relationship between humanity and nature is founded on the principle of interconnectedness, which is not merely material in nature but also spiritual and moral across various local traditions throughout the Indonesian archipelago (Rahardjanto et al., 2025). The concept of *Tri Hita Karana* in Bali, for example, emphasises the importance of harmony among humanity, God, and fellow human beings, and with nature as an inseparable whole. This principle implies that actions towards the environment are not merely economic or technical, but also ethical and spiritual acts with cosmic consequences. Similarly, in the concept of *Sangkan Paraning Dumadi* in Java, humans are understood as entities that originate from and will return to their cosmic source, so that their existence in the world is situated within a broader cycle that demands an awareness of limitations and moral responsibility towards nature. Meanwhile, in the beliefs of Kalimantan's indigenous communities, the forest is not merely a resource but a living space inhabited by guardian spirits with a certain moral authority. Consequently, every interaction with the forest must be conducted with the utmost respect and caution.

Such a cosmological understanding carries significant ethical implications, as it positions nature as a subject possessing intrinsic value, rather than merely an object of instrumental value (Adloff, 2025). Within this framework, ecological ethics is no longer centred solely on human interests, but expands the scope of morality to include non-human entities as part of the moral community. This aligns with developments in contemporary environmental philosophy that critique anthropocentrism and propose biocentric or ecocentric approaches; however, Nusantara cosmology offers an additional dimension by integrating spiritual and social aspects, which is not always found in Western theories.

This process of reconstruction cannot be carried out simply by re-adopting traditional practices. Rather, it requires a critical reinterpretation of these cosmological principles in a modern context characterised by distinct social, economic, and political complexities. In this regard, it is important to identify the essential elements of Nusantara cosmology that can be rearticulated within an ecological ethics framework relevant to current conditions. For instance, the principles of balance and harmony can be translated into the concept of sustainability, which emphasises not only resource efficiency but also ecological justice and social sustainability (Hariram et al., 2023).

The reconstruction of Nusantara cosmology has the potential to yield an ecological ethical framework that is not only normative but also operational, capable of being integrated into public policy and environmental management practices (Rifa'i et al., 2025). One rather radical implication of this approach is the possibility of recognising natural entities, such as forests or rivers, as legal subjects possessing certain rights. Although still controversial, this idea has begun to be adopted in some countries as part of efforts to protect the environment from excessive exploitation. In the Nusantara context, such recognition could be reinforced by local cosmologies that have long viewed nature as a living entity possessing spiritual and moral dimensions.

The reconstruction of Nusantara's cosmology also opens the way for recognising the spiritual authority of indigenous communities in ecosystem management (Yakub et al., 2023). In many cases, indigenous communities possess knowledge and practices that have proven effective in maintaining ecological balance, yet they are often marginalised within policy systems dominated by technocratic approaches (Mawere & Mukonza, 2025). By integrating local cosmology into an ecological ethics framework, it becomes possible to redistribute authority toward a more inclusive, participatory approach to environmental management.

This not only has the potential to enhance the effectiveness of environmental management but also strengthens social justice by acknowledging the rights and roles of indigenous communities.

The proposal to establish Nusantara cosmology as the foundation for a new ecological ethics is not without its challenges and potential for controversy. One of the main challenges is ensuring that such a reconstruction does not descend into cultural romanticism or essentialism that overlooks the internal dynamics and diversity within Nusantara societies. Furthermore, there is a risk that integrating local cosmologies into public policy could be selectively or symbolically exploited without genuinely altering the underlying power structures that underpin environmental exploitation. Therefore, a critical and reflective approach is required in developing an ecological ethics framework based on Nusantara cosmology, one that considers not only normative aspects but also broader political and economic dimensions (Abdurrahim et al., 2023).

This reconstruction must also engage with the modern scientific knowledge system that has underpinned many environmental policies. Rather than positioning the two as mutually exclusive entities, efforts are needed to build a constructive dialogue between local cosmology and modern science, so that they may complement one another in understanding and addressing ecological issues. In this regard, Nusantara cosmology can provide ethical and cultural perspectives that enrich scientific approaches, whilst modern science can provide analytical tools and technologies that support the implementation of sustainable practices.

2. The Subjectivity of Nature in the Perspective of Nusantara Cosmology as a Challenge to Anthropocentrism

The subjectivity of nature cannot be reduced to a mere symbolic metaphor, but must be understood as an ontological construct with real ethical and normative implications. Nature as a subject entails the recognition that non-human entities possess intrinsic value and interests that must be taken into account in decision-making (Amaral, 2025). This implies expanding the moral community beyond humans to encompass all entities within the web of life. This perspective directly challenges the foundational assumptions of anthropocentrism, which places humans at the centre and views nature merely as a means to fulfil human needs. In the context of the global ecological crisis marked by massive environmental degradation, the anthropocentric approach has proven inadequate to ensure sustainability. Consequently, an alternative framework is required that can accommodate a more equitable relationship between humans and nature (A et al., 2025).

The Nusantara cosmology offers a conceptual foundation for developing such a framework by recognising nature's subjectivity as part of a sacred cosmic order. In many local practices, this recognition manifests in rituals of reverence, prohibitions against excessive exploitation, and resource management guided by prudence and balance (Wirata, 2025). For instance, the practice of prohibiting the clearing of certain forests deemed sacred serves not only as an expression of spiritual belief but also as an effective conservation mechanism for safeguarding biodiversity. Similarly, rituals performed before utilising natural resources can be understood as a form of symbolic negotiation between humans and natural entities recognised as possessing a certain agency.

Reinterpreting the concept of nature's subjectivity within the discourse of modern ecological law is a crucial step toward transforming the environmental management paradigm, which has long been dominated by instrumental approaches. In recent decades, the emergence of the concept of rights of nature within international legal discourse has marked a paradigm shift recognising nature as a legal subject with the right to protection from harm (Alves et al., 2023). The recognition of the Whanganui River in New Zealand or the Amazon rainforest in certain jurisdictions as legal entities constitutes a concrete example of such efforts (Talbot-Jones & Bennett, 2022). In this context, the cosmology of the Nusantara can make a

significant contribution by providing a strong ontological and cultural foundation to support such recognition.

Whilst in Western legal systems the recognition of the rights of nature often requires complex philosophical justification, within Nusantara cosmology, such recognition has long been an integral part of society's perspective on nature (Arifin & Idris, 2023). Nevertheless, integrating the concept of nature's subjectivity into modern legal systems is by no means straightforward, as it involves a fundamental transformation of legal structures that have hitherto been centred on humans. Modern legal systems are generally based on the concept of a rational legal subject capable of holding rights and obligations, which implicitly refers to humans or artificial entities such as corporations (Novelli et al., 2025; Sutisna et al., 2025). Within this framework, granting legal subject status to natural entities such as rivers or mountains raises various conceptual and practical questions, including those concerning legal representation, mechanisms for enforcing rights, and the limitations of such rights. Furthermore, there are challenges in integrating local and contextual cosmological values into a universal, formal state legal system.

In the Indonesian context, the possibility of recognising the subjectivity of nature by granting legal subject status to ecological entities such as forests, rivers, and mountains opens up space for more progressive environmental regulation (A et al., 2025). This approach could strengthen ecosystem protection by providing a stronger legal basis for holding those responsible for environmental damage to account. Furthermore, recognizing the subjectivity of nature could acknowledge and strengthen the role of indigenous communities as guardians of ecosystems who possess relevant knowledge and practices (Malik et al., 2025). In this regard, indigenous communities could act as representatives of natural entities in legal proceedings, thereby creating a closer link between formal law and local practices (Karimullah, 2024). However, this proposal also has the potential to spark controversy that cannot be ignored, particularly in the context of economic development that remains heavily reliant on the exploitation of natural resources.

Recognition of the rights of nature may restrict economic activities, such as mining, large-scale plantations, and infrastructure development, that have the potential to damage the environment. This may lead to conflicts between economic interests and environmental protection, and requires complex negotiation mechanisms to achieve a fair balance (Murthi et al., 2025; Nurizka et al., 2025). Furthermore, there are questions about who has the authority to interpret the cosmological values that will form the basis for legal decision-making. In a pluralistic society such as Indonesia, there is a diversity of cosmologies and value systems that do not always align, necessitating an inclusive and dialogical approach to integrating these perspectives into public policy.

There is a risk that recognition of the subjectivity of nature may be reduced to mere symbolism without substantive implementation if it is not accompanied by structural changes within the legal system and environmental governance. It is therefore crucial to ensure that the integration of this concept does not remain at the normative level alone, but is followed by effective institutional mechanisms to guarantee the protection of nature's rights. This includes developing a clear legal framework, enhancing law enforcement agencies' capacity, and promoting active public participation in decision-making processes. (Insani & Karimullah, 2023; Purba et al., 2025)

Recognition of the subjectivity of nature within the Nusantara cosmology can be understood as part of an effort to decolonise knowledge and law, which have long been dominated by Western paradigms. By re-elevating local knowledge systems as a source of legitimacy in the development of law and policy, there is an opportunity to create a more contextual and sustainable model of environmental management. However, this process must be undertaken with care to avoid simplifying or instrumentalising local cosmology, and to ensure that the voices of indigenous communities are genuinely accommodated within it.

3. The Revitalisation of Traditional Ecological Rituals as a Strategy for Transforming Public Behaviour

Ecological rituals can be understood as a form of social technology that regulates human behaviour through symbolic and normative mechanisms that run deeper than formal regulations. Unlike modern environmental policies, which often rely on legal and economic instruments such as incentives and administrative sanctions, traditional rituals operate through affective and spiritual dimensions, fostering an emotional bond between humans and nature. This bond creates what is known in the theory of social practice as an ecological habitus, namely, behavioural tendencies formed through repeated collective experience and passed down across generations.

Compared with approaches in other countries, efforts to integrate cultural values into environmental management are not unique to the Indonesian archipelago, though they possess distinctive characteristics. In Japan, for example, *Shinto* practices, which view nature as the dwelling place of *kami* or sacred spirits, have long influenced how society interacts with the environment, including in the protection of sacred forests known as *Chinju-no-Mori* (Hiroi & Caspary, 2024). In New Zealand, the recognition of the Whanganui River as a legal entity cannot be separated from Maori cosmology, which views the river as a living ancestor. Meanwhile, in some African communities, traditional rituals related to land and water also function as mechanisms of social control over the use of natural resources (Lawal et al., 2022). This comparison demonstrates that integrating spiritual and ecological dimensions into social practices holds universal potential, though its manifestations vary across cultural contexts.

In the context of the Nusantara, the revitalisation of ecological rituals faces quite complex challenges, particularly as social changes triggered by modernisation, urbanisation, and globalisation have displaced many traditional practices from people's daily lives (Danugroho et al., 2025). Rituals that once had a strong regulatory function are now often reduced to mere cultural attractions or ceremonial activities devoid of substantial ecological meaning (Saha Ghafur, 2024). This process reflects what is termed 'folklorisation' in anthropological studies: the transformation of cultural practices into objects of representation, detached from their original social functions. Consequently, the revitalisation of ecological rituals cannot be achieved through a conservationist approach that merely seeks to preserve their outward forms. Rather, it must encompass efforts to revive their ecological meanings and functions within a contemporary context.

The integration of ecological rituals into public environmental policy strategies is both strategic and problematic. On the one hand, policies that accommodate local practices can enhance the effectiveness of environmental management by utilising historically proven social mechanisms (Zada et al., 2025). For instance, recognizing customary prohibition systems, such as *sasi* in Maluku, within fisheries regulations can help ensure the sustainability of marine resources by actively involving the community. Similarly, integrating traditional planting calendars into agricultural policy can enhance food security by utilising local knowledge that is adaptive to ecological conditions. On the other hand, such integration raises questions about the boundary between the cultural and public policy domains, particularly in modern societies that uphold scientific rationality and the principle of secularism.

This controversy becomes increasingly complex when ecological rituals are linked to spiritual dimensions that cannot always be translated into the language of rational and universal policy. In modern legal systems, the legitimacy of a policy is usually based on scientific arguments and rational considerations that can be empirically tested, whilst traditional rituals are often grounded in local beliefs that may not always be scientifically verifiable. This raises an epistemological dilemma regarding how to integrate two systems of knowledge with differing bases of legitimacy.

If not managed carefully, this integration effort risks provoking resistance from both those who view rituals as irrational and from indigenous communities concerned about the distortion of their cultural practices. Nevertheless, from a pragmatic perspective, the effectiveness of an environmental policy is determined not only by its scientific validity but also by the level of social acceptance and its ability to change public behaviour. In many cases, policies designed in a technocratic manner often fail because they do not take into account the social and cultural context in which they are implemented. In this regard, ecological rituals can serve as a bridge between formal policies and social practices by providing a normative framework that is more readily accepted by the community (Danugroho et al., 2025).

The revitalisation of ecological rituals can also foster a collective ecological identity, strengthening the community's commitment to environmental protection. In social identity theory, an individual's attachment to a particular group can influence their behaviour in broader contexts, including environmental concern (Pong & Tam, 2023). Rituals, as collective practices involving active community participation, have the potential to strengthen a sense of togetherness and shared responsibility towards nature (Fischer et al., 2025). Nevertheless, it is important to recognise that the revitalisation of ecological rituals cannot be imposed top-down through government policy without considering the community's internal dynamics.

Rituals form part of a complex cultural system and possess meanings that can only be fully understood within their own context. Therefore, a participatory and dialogic approach is key to developing effective revitalisation strategies. The government and other stakeholders need to collaborate with local communities to identify practices that remain relevant and adaptable, whilst ensuring that the revitalisation process does not erode the original values that underpin these practices.

In a global context marked by growing awareness of the importance of sustainability, the revitalisation of Nusantara cosmology rituals can make a significant contribution to developing more holistic, context-specific models of environmental management. This approach emphasises not only technical and economic aspects, but also the cultural and spiritual dimensions that are often overlooked in modern policy. By integrating ecological rituals into strategies for transforming public behaviour, there is an opportunity to create greater, more sustainable change, as they alter not only actions but also underlying perspectives and values.

D. Conclusion

Nusantara cosmology presents an ontological and ethical framework that positions humanity within a sacred web of life, thereby opening the possibility of a paradigm shift from anthropocentrism towards a more inclusive ecological relationality through the reconstruction of the concept of nature's subjectivity. The strengthening of ecological ethics grounded in cosmic values, and the revitalisation of rituals as social technologies shaping collective behaviour, which implicitly enriches while correcting the limitations of modern ecological approaches that tend to be reductionist and technocratic.

The conceptual integration of local cosmology with contemporary discourses such as the rights of nature, environmental ethics, and public policy not only broadens theoretical horizons but also offers an applied framework for transforming environmental regulation. However, it is acknowledged that there are limitations regarding cross-community generalisation, potential interpretative bias regarding cosmological values, and operational challenges in translating spiritual dimensions into formal legal systems. Therefore, further research needs to deepen cross-regional comparative studies and develop more context-specific institutional models, whilst, in practical and policy terms, a participatory approach is required that accommodates the authority of indigenous communities without disregarding principles of justice and public rationality, so that these findings serve not only as a reflective

synthesis but also as an epistemological foundation for redefining human–nature relations within a more holistic and grounded framework of sustainability.

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