

Forests, Lived Relations, and Dance Creation in Papua

Ida Bagus Gede Surya Peradantha^{1✉}, Andy McNeilly², Jimmi Rerei³, Yosinta Kawagop⁴, Dominggas Sobi⁵,
Kadek Indra Wijaya⁶, and Ellaboge Mulyani Uaga⁷

^{1,3,4,5,6} Institut Seni Budaya Indonesia Tanah Papua, Jayapura, Indonesia

² Trillium Lakelands District School Board, Ontario, Canada

⁷ Universitas Cenderawasih, Papua

✉ Kompleks FIK UNCEN, Jl. Kamp Wolker, Waena, Kota Jayapura, Papua

✉ Peradantha@outlook.com

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ABSTRACT

This study examines how forests are understood as living spaces within Papuan worldviews and how disruptions to human–forest relations affect sources of artistic creation, particularly dance. The study employs a conceptual qualitative design based on literature concerning Indigenous human–nature relations, cultural ecology, environmental change, performing arts, and dance creation, complemented by contextual reflection on selected cultural and artistic practices in Papua. Relevant sources were identified, grouped according to recurring themes, and interpreted through conceptual synthesis focusing on forest relations, sociocultural continuity, embodied experience, and artistic creation. The analysis shows that forests shape sociocultural relations, cosmological orientations, and embodied knowledge among Papuan communities while sustaining cultural practices that inform dance creation. Pollution, deforestation, and forest conversion disrupt these relations by fragmenting everyday practices, bodily experience, and cultural meanings that support creative processes. The forest is therefore not presented as the sole origin of Papuan dance, but as a significant relational space within the wider network of lived experience from which artistic creation emerges. The study contributes to performing arts scholarship by conceptualizing the forest as a relational and epistemic foundation of dance creation. It also provides a reflective basis for culturally grounded artistic practice, cultural policy, and contextual choreographic education.

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INTRODUCTION

For Papuan communities, the forest is understood as a living space. It sustains social, cultural, and spiritual relations, not merely as an ecological space. In many local cosmologies, the forest is conceptualised as *mama*, a life-giving presence that nurtures and sustains human existence (Candraningrum & Janice, 2025; Wambrau et al., 2022). This relational understanding is embodied in everyday practices such as sago processing, which has been practised since prehistoric times (Putri & Suroto, 2023; Suroto et al., 2023), social rituals (Sarang & Jiaripits, 2025; Zesa Azis & Ali Muddin, 2025), and diverse cultural expressions grounded in lived engagement with nature (Kayame, 2023; Marwati & Wijaya, 2023). Within this context, the forest does not function as a cultural backdrop but actively shapes how the body, space, and movement are understood as part of collective life.

Anthropological and cultural ecology studies consistently show that Indigenous cultural practices depend on the continuity of human–environment relations (Bleskadit et al., 2026; Hutabarat, 2022; Lubis, 2022; Manoby et al., 2023; Pekey, 2025; Rahmawati A. Damiti et al., 2025; Warwer et al., 2024; Wicaksana, 2024; Zahra et al., 2025). These relations operate as reciprocal systems that generate meaning, identity, and social practice. When such relations are sustained, cultural practices remain continuous; when disrupted, they tend to weaken or fragment. This perspective underscores that environmental continuity is inseparable from cultural sustainability and symbolic expression.

Over recent decades, increasing pressures on Papuan forests, commonly framed within the discourse of deforestation, have significantly altered forest conditions and functions (Irmayani et al., 2025; Kesaulija et al., 2020; Nahriyah, 2024; Pramudya et al., 2023). These shifts change the physical landscape while simultaneously altering how people live and interact within the forest (Jasmine et al., 2025; Kadir et al., 2022). As the forest as *mama* loses its life-sustaining role, sociocultural practices rooted in this relationship begin to erode. Sago processing exemplifies this relational logic, extending far beyond simple food production to serve as a social and symbolic practice that breathes life into performing arts like *Tari Pangkur Sagu* (Butarbutar et al., 2025; Yono et al., 2025). When such practices weaken, cultural messages that once circulated through daily life become fragmented, reducing embodied experiences that serve as key sources of dance creation.

Within performing arts studies, dance is widely understood as an embodied practice shaped by specific social, cultural, and spatial relations (Borowski, 2023; Zhou et al., 2023). Research on art and environment has also shown that changes in lived landscapes influence how artists imagine the body, movement, and space (Bentz et al., 2022; Bojner Horwitz et al., 2022; Foster & Turkki, 2023; Kaufman, 2025; Sovia & Indrayuda, 2024; Tian & Wise, 2025). Existing studies, however, tend to develop along separate lines. Research on Indigenous communities and forests focuses mainly on ecological knowledge, livelihoods, identity, and cultural continuity, while arts scholarship commonly approaches deforestation as a theme, visual subject, or environmental message represented in artistic works (Nataprawira et al., 2024; Rahayaan, 2025). These studies have not sufficiently explained how the disruption of human–forest relations alters the embodied experiences, sociocultural practices, and systems of meaning from which dance creation itself emerges.

This gap is particularly significant in the Papuan context, where forests are embedded in everyday practice, cosmological understanding, and embodied cultural knowledge. Previous studies have documented forest loss, cultural change, and environmentally themed artistic production, but the forest has rarely been conceptualised as an epistemic foundation of dance creation. Consequently, limited attention has been given to how pollution, deforestation, and forest conversion may weaken the experiential and relational sources that sustain artistic imagination. Addressing this gap is also important for higher arts education, where choreographic practice depends on more than technical competence and aesthetic form; it requires sustained engagement with the cultural experiences and lived relations that shape artistic identity (Dozan & Cholis, 2020; Saputra et al., 2024; Suartini & Supir, 2024; Tandapai & Mappiasse, 2025). When sociocultural practices erode, artistic production risks losing relational depth and becoming confined to surface-level symbolism (Direktori Keberlanjutan, 2025; Wiratno & Sudibyo, 2025; Yuli Anggraini et al., 2025). Understanding deforestation as a crisis of relational meaning, rather than solely an environmental issue, is therefore essential for sustaining dance creation in Papua.

Based on this context, the article addresses how deforestation, as a weakening of human–forest relations conceptualised through the notion of *mama*, affects the continuity of sociocultural practices and sources of dance creation in Papua. It poses two research questions: (1) how pressures framed as deforestation weaken human relationships with the forest as a living space; and (2) how a conceptual understanding of these relations can inform reflective approaches to dance creation and pedagogy in higher arts education.

Through a conceptual approach grounded in literature review and theoretical reflection, this article addresses this gap by examining deforestation as a crisis of relational meaning with direct consequences for dance creation. It advances the argument that the forest should be understood not only as an ecological setting or thematic source but also as an epistemic and relational foundation that shapes embodied experience, sociocultural continuity, and artistic imagination. The article therefore contributes to performing arts scholarship by connecting ecological disruption with the sustainability of creative sources and by providing a conceptual basis for context-based choreographic education in Papua.

METHODS

The study employs a literature review and theoretical reflection as its primary methodological approach. This research design was chosen because the study does not aim to collect empirical field data but to develop a conceptual understanding of the relationship between deforestation, sociocultural practices, and sources of dance creation in the Papuan context (Kozlenkova et al., 2025; Naeem et al., 2023). In this article, the term Papua refers to Papua as a cultural region inhabited by diverse Indigenous communities whose lived relations, cosmological views, and sociocultural practices are deeply rooted in the forest as a living space. The literature review draws primarily on peer-reviewed journal articles and scholarly publications addressing Indigenous human–nature relations, cultural ecology, environmental disruption, performing arts, and dance creation. Sources were selected according to their conceptual relevance to human–forest relations, Papuan sociocultural contexts, embodied experience, and artistic practice. Non-academic materials and visual documentation were included selectively to provide contextual illustrations, but they were not used as the primary basis for conceptual claims.

In addition to the literature review, the study incorporates conceptual reflection on artistic practice as part of the analytical process. This reflection is not intended as documentation of artistic practice or as an empirical case study, but as a way of reading cultural and artistic practices, such as sago processing and related performance expressions, as illustrations of lived relations between humans and the forest. Such reflection helps clarify how the weakening of ecological relations due to deforestation leads to fragmentation of cultural messages and a reduction in sources of inspiration for dance creation.

The analysis is conducted qualitatively by interpreting key concepts that emerge from the literature and theoretical reflection, and by relating them to the contexts of dance creation and choreographic education. The analytical stages include: (1) mapping concepts of human–forest relations within Papuan cultural contexts; (2) interpreting the impacts of deforestation on sociocultural practices and cultural meaning; and (3) formulating conceptual implications for sources of dance creation and choreographic learning in higher arts education.

To strengthen the validity and trustworthiness of the conceptual analysis, the study applied source triangulation, thematic consistency, and contextual verification. Interpretations were compared across peer-reviewed studies from cultural ecology, Indigenous studies, environmental scholarship, and performing arts research rather than being derived from a single disciplinary perspective. Recurring concepts and relational patterns were retained only when they were supported by multiple sources or were consistent with documented Papuan cultural and artistic contexts. Contextual and visual materials were used as supporting illustrations and were not treated as substitutes for scholarly evidence. The analytical interpretations were also reviewed for coherence across the research questions, conceptual categories, and conclusions to reduce selective reading and unsupported generalisation.

Through this approach, the study seeks to produce a coherent conceptual understanding of deforestation as a crisis of relational meaning and to explain how this crisis affects the sustainability of sources of dance creation. The methodology therefore aligns with the article’s objective of contributing conceptually to performing arts scholarship and providing a reflective foundation for dance creation and education.

RESULTS AND DISCUSSION

Forests as Living Spaces and Sources of Dance Creation in Papua

The synthesis of literature indicates that, within Indigenous societies including those in Papua, forests cannot be understood solely as ecological spaces or natural resources. They function as living spaces that shape comprehensive human–environment relations. Studies on Indigenous knowledge and cultural ecology emphasise that these relations are reciprocal, developed through intergenerational experience, and embedded in value systems, social practices, and worldviews. Within this framework, the forest is positioned as a relational entity that sustains life, meaning, and cultural continuity rather than as a passive object separated from human existence.

Scholarship on Indigenous Knowledge Systems and Practices shows that Indigenous knowledge emerges from long-term interaction with specific ecosystems (Daniel et al., 2022; Hastuti et al., 2022; Nagal, 2025; Suwarno et al., 2022). This knowledge extends beyond environmental management to shape relational ethics between humans and nature, where the natural world is recognised as a living partner with moral and symbolic standing rather than as an object of exploitation. Relational value perspectives and human–nature ontologies in contemporary sustainability studies further affirm that human–environment relations involve moral, affective, and symbolic dimensions that cannot be reduced to instrumental value alone. In this sense, the forest as a living space is not always represented through the visible presence of human bodies, but through relational meanings attached to it as a source of life, food, and healing (Arinta, 2022). Consequently, representations of forests without human figures continue to reflect the lived relations that underpin everyday practices in Papuan communities (Figure 1).



Picture 1: Forest landscape in the Baliem Valley, Papua, understood by local communities as a living space that functions as a source of food and traditional medicine in everyday practice.
(Priyadi, 2025) [source]

Several studies focusing specifically on Papua explicitly note that forests and land are understood as *mama* or mother. Within Indigenous Papuan worldviews, the forest is treated as a life-giving presence that provides, nurtures, and sustains existence without demanding return, mirroring the relationship between a mother and her child (Laike, 2025; Naru, 2024; Pamungkas et al., 2022; Wahid, 2023). This understanding extends beyond symbolic interpretation and is enacted in everyday practices, value systems, and cosmological orientations. The concept of the forest as *mama* thus represents a living cultural construct articulated clearly in academic scholarship and affirms the forest's role as a relational foundation for cultural continuity in Papua.

In the Papuan context, this human–forest relationship is reflected in a range of sociocultural practices grounded in forest ecosystem continuity. Practices such as sago processing, collective labour, customary rituals, and resource management based on local knowledge function as mechanisms for transmitting values, knowledge, and cultural identity. Research in cultural ecology highlights how these practices sustain everyday survival while keeping the community's core cultural meanings and messages alive (Fiharsono et al., 2024; Kambu et al., 2022; Mollet & Silo, 2024; Warami & Mofu, 2024; Yanto Wenda et al., 2025). Within this framework, sociocultural practices can be understood as living archives that preserve relational knowledge between humans and forests.

This relationship is also evident in the traditional boat-building practices of the Sentani community, where timber sourced from forest areas supports life within the lake environment (Figure 2). More than a means of mobility, boats also hold social and cultural significance, including within Isolo cultural practices. This illustrates that forests provide more than food resources; they sustain systems of mobility, social relations, and cultural expression. Contemporary shifts from wooden boats to fibreglass vessels may be read as changes in material and cultural relations, which in turn influence how cultural practices and artistic expressions are carried out.



Picture 2: The process of making *khayi* (traditional boats) by the Sentani community in Yoka Village, East Sentani, using forest timber as part of everyday life and cultural practice.

Author's documentation (2023) [source]

Human–forest relations as living space are also reflected in hunting practices and wildlife conservation among Papuan communities. In forest areas around Sentani, the forest continues to be understood as a space for wild boar hunting governed by an ethic of balance rather than unrestricted exploitation. In other regions, forests function as spaces for protecting life, as seen in practices aimed at conserving birds of paradise. Within this framework, the forest is understood as a nurturing space that safeguards the continuity of other living beings rather than serving solely human use. Such conservation practices reaffirm the forest's position as *mama* that gives birth to, nurtures, and protects life, while also serving as an important aesthetic source for artistic creation.

The forest as a living space is further evident in the use of mangrove forests by coastal Papuan communities. In Enggros Village, ethnographic studies of women's knowledge systems (Figure 3) show that the mangrove forest is much more than a kitchen or a grocery store; it is a sacred space woven with customary values, ancestral knowledge, and daily practices full of meaning. Knowledge concerning timing, methods, and rules for entering mangrove areas establishes ethical relations between humans and nature and positions the forest as a space of learning and narration. In this context, mangrove forests function as living spaces that give life, nurture, and educate, reinforcing the understanding of the forest as *mama* that sustains the continuity of social and cultural practices.



Picture 3: Women's Forest (*Tonotwiyat*) in Enggros Village, Jayapura, a sacred space reserved for women within everyday sociocultural activities.

(Tarigan & Lisnawati, 2024) [source]

These living-space relations have direct implications for artistic creation, particularly dance. Scholarship in performing arts and environmental art shows that artistic practice emerges from embodied experience shaped by specific spaces, practices, and social relations. In dance, the body does not operate as a neutral medium but as one formed through everyday engagement with nature and community. Movement, rhythm, and choreographic structure reflect ways of

living, value systems, and human relationships with the environments in which they are situated. Dance can therefore be understood as a sociocultural expression grounded in the continuity of human relations with lived space.

Beyond academic literature, the understanding of the forest as *mama* is consistently reflected in visual documentation of everyday life among Indigenous communities in the Papuan interior (Figure 4). These visual records show how forests are explicitly recognised as life-giving spaces that give birth to, nurture, and protect communities. Although such documentation is not produced as academic research, it functions as contextual illustration that reinforces scholarly findings on the forest as a living space and as a source of sociocultural relations.



Picture 4: The geographical relationship between swamp forests and cultural practices shaping the sociocultural life of customary Asmat communities in South Papua.
(Yuliani, 2020) [source]

Cosmological understandings of the forest as *mama* have long served as sources of reflection in artistic practice. In one dance-drama work created by the author, narratives of hunting in the Cycloop Mountain forest are articulated through the Sentani worldview (Peradantha, 2020). The work presents Robongholo, a *mama* figure or guardian deity of Mount Cycloop, not as a destructive force but as a maternal presence who offers guidance through song and movement (Figure 5). This artistic practice does not aim to function as ethnographic representation, but as an artistic reflection on local cosmology that understands the forest as a living and relational entity, translated into a cross-cultural hybrid form of performance. In this context, the artwork operates as a space for articulating socio-religious values embedded in human–forest relations in Papua.



Picture 5: Representation of Robongholo as *mama* (the carried dancer) in a collaborative performance reflecting forest cosmology as a living space and a source of inspiration for hybrid performing arts creation.

(Newsportal, 2023) [source]

These conceptual findings indicate that, in the Papuan context, the forest constitutes a relational foundation for the continuity of cultural practice and dance creation. Artistic practice does not emerge from an abstract void, but from networks of lived relations that shape imagination, embodiment, and meaning. When human–forest relations as living space are sustained, cultural messages remain intact within artistic practice, allowing artistic identity to develop in a strong and contextual manner. Understanding the forest as a living space and as a source of sociocultural practice is therefore central to reading dance as a sociocultural reflection of Papuan communities, and to assessing how shifts in these relations affect the sustainability of artistic creation.

Disruptions to Forest Relations and Their Impact on Dance Creation

While the previous section conceptualised the forest as a living space that sustains sociocultural practice and artistic creation, the findings in this section demonstrate that such relations are not static. Human–forest relations in Papua are increasingly disrupted in ways that gradually alter forest functions, meanings, and embodied experience within lived space. Beyond altering the physical ecology, these disruptions compromise cultural continuity and the foundations of artistic creation, particularly dance, which relies entirely on embodied experience, spatial engagement, and lived relations.

Waste and the Erosion of Relational Ethics in the Forest as Living Space

One visible form of disruption in human–forest relations is the presence of waste in forest areas that were previously understood as living and customary spaces (Figure 6). The impact of waste extends beyond physical damage to the forest, marking a fundamental change in the ethical values that shape human relationships with the natural world. Forests once understood as nurturing spaces, sites of learning, and ritual environments gradually lose their symbolic force when treated as dumping grounds. This transformation affects how bodies inhabit and relate to forest space, as polluted environments no longer support the full enactment of everyday and cultural practices.



Picture 6: Waste intrusion that damages mangrove forest ecosystems relied upon by coastal Papuan communities.
(Naser, 2021) [source]

This erosion of relational ethics is also reflected in the everyday experiences of coastal communities, where marine and mangrove spaces once integral to domestic and ritual practices can no longer be used safely. Seawater that was previously used for seasoning and washing food materials has, under certain conditions, begun to cause skin irritation and disrupt everyday practices (Naser, 2021). Such embodied experiences indicate that pollution degrades environmental quality while simultaneously disrupting the affective and sensory bonds between humans and their lived environments. When bodies can no longer engage safely and meaningfully with their surroundings, forests and seas gradually lose their roles as nurturing and learning spaces.

In the context of dance creation, this erosion of relational ethics leads to a weakening of embodied experience within lived space. When forests are no longer treated as respected environments, affective bonds between humans and nature diminish. As a result, the sensory, kinaesthetic, and emotional experiences that have long served as sources of artistic imagination become increasingly constrained. Dance practices rooted in embodied relations with nature thus lose a significant part of their relational foundation.

Deforestation and the Disruption of Lived Practice Continuity

A more structural form of disruption is deforestation, which directly severs the continuity of human relations with the forest as a living space. Deforestation not only removes forest cover in physical terms but also interrupts life practices that depend on the forest's existence, including hunting, gathering food and medicinal materials, and a range of sociocultural practices transmitted across generations. In Sentani, deforestation in the Cycloop mountain forest threatens the survival of flora and fauna traditionally used by local communities. Consequently, sociocultural practices such as Isolo performance, which continue to reference hunting practices in the Cycloop forest, are also placed at risk. Cultural values passed down through generations weaken when human–forest relations within lived spaces are no longer sustained. In this sense, deforestation should be understood as a rupture of relational continuity rather than simply a transformation of the landscape. This rupture has direct consequences for artistic creation. Dance practices that emerge from embodied everyday experience in relation to the forest lose their experiential sources when lived space disappears or becomes fragmented. When hunting, food processing, or traditional healing practices can no longer be carried out, embodied experiences once rich in rhythm, gesture, and meaning begin to fade. As a result, the imaginative and narrative sources that support dance creation are significantly diminished.



Picture 7: Left: Deforestation of the Cycloop mountain forest threatening local flora and fauna. Right: Isolo performance representing the hunting culture of the Sentani community in the Cycloop mountain forest. Left, (Wenda, 2021). Right, author's documentation (2023) [source]

Forest Conversion and the Transformation of Lived Space Meaning

Beyond deforestation, disruption of forest relations also occurs through land conversion, particularly the transformation of forests into single-purpose production spaces such as oil palm plantations and other extractive zones (Mahmud, 2022; Rahman et al., 2023). Beyond changing the ecological function of the forest, such conversion completely transforms the essence of lived space. The forest, traditionally honoured as *mama* because it gives birth to, nurtures, and protects life, is transformed into a cold economic commodity driven by productivity and profit. This shift in meaning affects cultural identity and the cultural messages embedded in artistic practice. When forests are reframed as production spaces, the symbolic and cosmological relations that once formed the foundation of cultural practice are weakened. Dance creation grounded in the understanding of forests as relational living spaces loses its conceptual grounding, resulting in increasingly fragmented cultural expression. In this context, forest conversion constitutes an ontological disruption that reshapes how communities understand lived space while simultaneously redirecting artistic identity and creative orientation.

Implications of Relational Disruption for Sources of Dance Creation

These three forms of disruption, waste, deforestation, and forest conversion, demonstrate that the weakening of human–forest relations directly affects the sustainability of dance creation. Dance does not rely solely on the presence of physical space but on lived relations that shape embodied experience, imagination, and meaning. Once these relations break down, cultural practices wither and the foundational knowledge behind artistic creation begins to erode. As the conceptual findings suggest, when the forest ceases to function as a living space, both embodied experience and cultural

meaning fall into fragmentation. This fragmentation leads to dance practices that become increasingly disconnected from the lived practices of the communities from which they emerge. The sustainability of dance creation, therefore, cannot be separated from the continuity of human relations with the forest as a living space. Disruption of these relations presents a fundamental challenge for artistic creation and choreographic education rooted in the sociocultural context of Papua.

Discussion

The findings demonstrate that, in the Papuan context, forests function as living spaces that shape sociocultural relations, cosmological orientations, and embodied experience, while forming the foundation for the sustainability of dance creation. These relations operate through forest-based life practices such as food processing, mobility, wildlife stewardship, and Indigenous knowledge systems transmitted across generations. When these relations are disrupted through waste, deforestation, and forest conversion, the impact extends beyond physical ecology to the continuity of cultural practice and embodied experience that sustains dance creation. The sustainability of dance in Papua is therefore inseparable from the continuity of human–forest relations as lived space.

Comparable relational patterns are evident among the Korowai communities of inland Papua, where forests shape subsistence practices as well as residential architecture through tree-house construction, directly linking forest relations to bodily safety and spatial organisation (Fiharsono et al., 2024). Similar dynamics are observed among the Kamoro communities in coastal Mimika, where forests function as sources of food, ritual space, and artistic material, rendering forest conversion an immediate threat to cultural and artistic continuity (Anindhita et al., 2024). These cases reinforce the study's central finding that human–forest relations constitute a fundamental foundation for artistic creation. These relational patterns suggest that the role of the forest in Papuan artistic practice extends beyond specific cultural cases and points toward a broader epistemology of performance space.

In this context, it is important to recognise that Papuan dance practices operate within a different regime of performance space from that of Western theatrical traditions. While Western performance is largely situated within formalised stages that are spatially separated from everyday life, many Papuan dances emerge within lived landscapes, where forests, land, and natural environments function as integral performance spaces. Nature does not operate as a backdrop for representation, but as a constitutive condition through which movement, rhythm, and meaning are generated, sustained, and reproduced. The forest enables dance to emerge through everyday bodily engagement and to be transmitted across generations as embodied knowledge. Consequently, the erosion of forest relations weakens the experiential foundations that sustain the continuity of Papuan dance practices.

Comparable relational logics between humans, forests, and cultural practice are also evident beyond Papua. Literary analysis of Wole Soyinka's *A Dance of the Forests* demonstrates how forests function as symbolic and ethical spaces through which political memory, collective responsibility, and cultural self-reflection are articulated, extending the relevance of forest cosmology beyond its immediate historical context (Lawal, 2022). In Latin America, studies of Indigenous music and dance in Pastaza, Ecuador, show that bodily movement, costume, and artistic expression emerge from sustained sociocultural interaction with local environments, where artistic creation operates as a means of preserving heritage amid social change (Alejandra Longa-López et al., 2024).

Similarly, research on Aboriginal cultural burning practices in south-eastern Australia highlights forests as relational partners whose care requires ethical engagement, reciprocal knowledge exchange, and embodied practice rather than extractive management (Williamson, 2022). Ethnobotanical research in Oaxaca further reveals how ritual use of specific plants is inseparable from dance, ceremony, and spatial practice, demonstrating that artistic expression is embedded in ecological knowledge systems transmitted through ritual and bodily enactment (Calvo-Díaz et al., 2023). Across these diverse contexts, forests and plants are not treated as passive resources but as relational agents that shape cultural meaning, artistic imagination, and embodied practice, reinforcing the argument that artistic creation is grounded in lived ecological relations rather than abstract representation.

As a body-based practice, dance is deeply dependent on lived experience shaped by human relations with the environment. In Papua, the body is not an abstract entity but one that acquires meaning through engagement with the

forest as a living space. When the forest is understood as *mama*, an entity that gives, nurtures, and protects, this relation generates rich sensory, affective, and symbolic bodily experiences that are translated into artistic expression. Conversely, disruption of forest relations fragments embodied experience, narrowing the sources of imagery, rhythm, and meaning that support dance creation. These findings affirm the study's initial assumption that ecological change directly affects cultural and artistic practice rather than operating as a secondary consequence.

While aligning with scholarship on Indigenous knowledge and cultural ecology that frames nature as integral to social practice and identity, this study extends existing discussions by positioning the forest as an epistemic foundation of dance creation rather than as a cultural backdrop or thematic resource. Unlike approaches that treat environmental issues primarily as representational themes in art, this study demonstrates that ecological disruption operates at a deeper level, affecting embodied experience and the continuity of lived practices that underpin creative processes.

Based on these findings, three conceptual recommendations are proposed. First, context-based dance creation should be grounded in an understanding of lived relations between humans and their environments rather than relying solely on symbolic or thematic translation. Second, the sustainability of dance creation depends on the continuity of life practices that shape embodied experience, requiring deforestation and ecological disruption to be understood as relational crises that directly affect artistic imagination. Third, in arts education, human–forest relations as lived space can serve as a conceptual foundation for choreographic learning, enabling students to understand art as a lived practice rooted in relational experience rather than as a purely aesthetic product.

This study has several limitations. As a conceptual inquiry based on literature review and contextual reflection, it does not present direct empirical field data. In addition, cultural and artistic practices are examined at a relational–conceptual level, which does not fully capture individual variation and specific local dynamics. These limitations reflect a deliberate methodological choice, as the study prioritises conceptual framework development over representative empirical mapping.

Future research is encouraged to pursue empirical studies that examine how disruptions to forest relations affect artistic creation at both community and individual levels. Further work may also explore how relational ecological approaches can be integrated into choreographic pedagogy, including how students translate environmental issues into movement structure, spatial design, and dance dramaturgy. Interdisciplinary research connecting art, ecology, and cultural education may further deepen understanding of the role of performing arts in addressing sustainability challenges.

CONCLUSION

This study demonstrates that Indonesia's existing agrarian law framework remains inadequate to regulate subsurface ownership and vertical depth boundaries in response to the growing use of underground space. Although the Basic Agrarian Law and Government Regulation No. 18 of 2021 acknowledge that land rights may extend above and below the surface, they do not provide clear standards on the legal extent of such rights, measurable depth limits, registration procedures, or the juridical status of subsurface parcels. This creates a normative vacuum that weakens legal certainty, complicates land administration, increases the risk of overlapping claims, and limits the effective use of underground space for infrastructure, utilities, and urban development.

The findings further show that the absence of clear subsurface regulation has broader legal, institutional, environmental, and social consequences. Without explicit vertical demarcation, landowners, developers, and state authorities may assert competing claims over the same underground space. The lack of a three-dimensional cadastre prevents underground parcels from being properly mapped, registered, transferred, or used as collateral. At the same time, fragmented institutional authority, insufficient environmental safeguards, and limited protection for customary communities create further challenges for sustainable and equitable subsurface governance.

Comparative experiences from Japan, Singapore, and South Korea show that effective underground space governance requires clear statutory depth limits, recognition of independent subsurface rights, and a land administration system

capable of recording three-dimensional property interests. These models indicate that Indonesia should move beyond a surface-based conception of land rights and develop a vertically integrated regulatory framework that balances private ownership, public interest, investment certainty, environmental protection, and community rights.

Accordingly, this article recommends the development of a comprehensive legal regime governing subsurface ownership and vertical land demarcation. Such reform should include the establishment of measurable vertical boundaries, the introduction of a dedicated Right to Subsurface Space, the implementation of a standardised three-dimensional cadastre, clearer institutional coordination, environmental and social safeguards, and effective dispute-resolution mechanisms. These reforms are essential to ensure that Indonesia's future underground development proceeds with legal certainty, administrative coherence, social justice, and environmental sustainability.

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