

Beyond the Visible Edge: Karang Bengang as Spatial Liminality and an Ecological-Ritual Network in Balinese Customary Space

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Abstract The concept of the boundary or edge in conventional urban image theory (Kevin Lynch) often restricts it to a static, physical, and linear element. This approach is inadequate for grasping the complexity and dynamism of boundaries in indigenous spatial contexts. This study examines Karang Bengang (KB), a unique spiritual and ecological buffer zone in the customary settlement of Ked Village, Bali, which accommodates both profane and sacred activities. KB is physically defined and separated from the settlement by the *Pemangkalan*. At this protective gate, the community performs the sacred Nangluk Mrana ceremony to invoke communal safety and well-being. Using a qualitative study (comprising a literature review, observation, and interviews), this research aims to critically challenge the limitations of Lynch's framework and enrich boundary theory with the multidimensional concepts of Spatial Liminality and the Ecological-Ritual Network. The findings indicate that KB functions as more than a visible edge. It operates as: 1) A spiritual threshold, where the *Pemangkalan* serves as the activation point for Spatial Liminality; 2) A crucial ecological buffer for biodiversity; and 3) A marker of socio-spatial identity reinforced by temporal practices (annual rituals). KB thus functions as a dynamic Ecological-Ritual Network. Theoretically, this study

makes a significant contribution by offering KB as a boundary model that challenges the hegemony of Western categories and expands post-colonial spatial discourse. Practically, the findings emphasize the vital importance of integrating these indigenous concepts into contemporary planning to maintain the KB's essential multifunctional character.

Keywords Customary Boundary, Ecological-Ritual Network, Edge, Karang Bengang, Kevin Lynch, *Pemangkalan*

1. Introduction

1.1. Critique of Urban Spatial Boundary Theory

The dominant understanding of urban morphology and imagery is often rooted in Western theoretical frameworks. One of the most influential is Kevin Lynch's Theory of the City Image (The Image of the City) [1]. Lynch defines the edge as a physical, linear element that serves as a discontinuous separator. While this approach is

fundamental to modern urban planning, it tends to be reductionist, prioritizing geometric and visual aspects. Consequently, it fails to capture non-physical dimensions, particularly the spiritual, temporal, and ecological aspects of the spatialities produced by local communities.

This critique of Lynch's technocratic-rational view aligns with contemporary academic calls to decolonize urban planning research and shift the focus from Northern theories to the concepts and realities of the Global South [2]. Theoretically, Lynch's limitations can be addressed by Henri Lefebvre's view on the production of space, which regards space as a dialectical product, not merely a neutral container [3]. Furthermore, in the context of supermodernity, clear, identifiable boundaries often contend with the phenomenon of Non-Places (Non-Places) [4] Spaces that are anonymous and transient present another challenge to Lynch's framework.

1.2. Karang Bembang as a Dynamic Threshold

In Bali, spatial structure is governed by Hindu cosmology, which distinctly separates the sacred and the profane. Within this framework, the Karang Bembang (KB) in Ked Village emerges as a boundary that conceptually challenges Lynch's definition of the edge. KB is a vegetated buffer zone situated between traditional settlements (*karang*) and spiritual/ecological areas (*bembang*). KB serves a dual function as a crucial environmental safeguard and a transitional zone that accommodates both profane activities (agriculture) and spiritual practices (rituals). More critically, based on interviews with local figures from Taro Village and Balinese architecture experts, KB is also historically recognized as a traditional village defense area, underscoring the boundary's role as a collective protection strategy that goes beyond mere physical separation.

The *pemangkalan*, a protective gateway, marks the definitive boundary of KB. The *pemangkalan* is not just a physical line, but a ritual activation point where sacred ceremonies, such as *Nangluk Mrana*, are actively performed. This ecological-ritual function is reinforced by recent studies in Indonesia, which demonstrate how the ecological values of local communities are preserved through integrated knowledge systems and rituals [5]. KB, therefore, represents spatial ambivalence; it is a boundary that is actively inhabited and celebrated by local communities.

1.3. Theoretical Framework and Study Contribution

KB's multidimensional function reveals its limits when scholars analyze it only as a Lynchian edge. To overcome this theoretical gap, this study proposes understanding KB through the concept of spatial liminality. Drawing on Victor Turner's idea of liminality [6], which explains the "betwixt and between" state in ritual transitions, this study interprets KB as a space that suspends social structures and intensifies ritual experiences. Moreover, the analysis

integrates Tim Ingold's perspective [7], which views the landscape as an ongoing narrative, thereby framing KB as a dynamic ecological-ritual network that continuously evolves through temporal and ecological interactions. The main objectives of this study are: 1) To critique the limitations of Lynch's City Image Theory in analyzing boundaries within the Balinese local community context; and 2) To develop a theoretical understanding of boundaries by proposing KB as a multidimensional model of spatial liminality and ecological-ritual network.

The refined research question is: "How does the KB, through its spiritual, temporal, and ecological functions, challenge and enrich the category of *edge* in urban spatial theory?" This research makes a significant contribution to the architecture and planning literature by strengthening the postcolonial spatial discourse and offering a comprehensive analytical framework for the preservation of local community boundaries

2. Literature Review

2.1. Local Context: The Balinese Settlement Value System and KB

2.1.1. Balinese Cosmology and Local Spatiality

Balinese communities organize their traditional settlements based on the philosophical system of *Tri Hita Karana*, which promotes balance and harmony among three elements of life: *parhyangan* (spiritual/divine relationship), *pawongan* (human/social relationship), and *palemahan* (environmental/natural relationship) [8]. They manifest this philosophy in spatial planning through sacred orientation principles that emphasize cosmological axes. In Balinese cosmology, people structure space according to a *holy-worldly* (often translated as sacred-profané) axis, with *kaja* (toward the mountain) representing spiritual purity and divine orientation, and *kelod* (toward the sea) symbolizing the human and worldly domains. They define the primary orientation through the vertical earth axis, placing *Kaja*/mountain as the *utama* or primary zone, and *Kelod*/Sea as the *nista* or secondary zone.

Studies by Dwijendra [9], Kumurur and Damayanti [10], Adiputra [11], and Wijaya [12] affirm that the spatial layout of settlements in Bali possesses inseparable spiritual and ecological dimensions. KB itself is the physical manifestation of the need for a transitional zone that fundamentally maintains the balance between *palemahan* (the environment) and *pawongan* (the people).

2.1.2. Previous Karang Bembang Studies and the Regulatory Gap

In terms of terminology, the definition of KB largely relies on Gelebet's perspective [13], describing it as a settlement boundary zone that must remain vacant or serve as a buffer, with its primary function being conservation and demarcation. General studies by Yudiantini [14],

Paturusi [15], Suyoga [16], Raharja [17], and Swanendri [18] reinforce the well-established roles of KB: as an ecological function serving as a water conservation zone, an ecosystem buffer, and a green space. Social/identity function: Acting as a marker of the settlement boundary and a symbol of the customary village's collective identity.

Only two studies have focused on KB as the main object of specific settlement case studies: Karma [19] examined the dynamics of KB utilization in the Tegallalang and Sapat Customary Villages. The other study, Wijaya [20], identified the KB landscape in Buah Village. The contrast in regulatory status found between these existing case studies is key to the emergence of the primary research gap: strong formal regulations are implemented by customary villages in Buah Village, where protection of KB has been outlined in *awig-awig* (customary law). The customary community in Buah Village has explicitly and formally stipulated rules to protect the preservation of KB within their *awig-awig* (customary law). Meanwhile, in the Tegallalang-Sapat customary village, the KB has not been protected by *awig-awig*.

Relevance of the gap to the Ked Village case study: The difference in formal regulatory status underscores the main argument of this study. In Ked Village, residents maintain and safeguard KB even though it lacks formal recognition in the *awig-awig*. This condition shows that the preservation of the boundary depends on non-formal mechanisms—specifically, the community's active engagement in collective spirituality and ritual observance.

Consequently, this study's analytical framework must move beyond Lynch's static regulatory framework and focus on the process of spatial reproduction by the local community through Lefebvre's dimension of lived space (representational space).

2.2. Critical Spatial Boundary Theories and Liminality

2.2.1. Critique of Lynch and the Dialectics of Lived Space (Henri Lefebvre)

The concept of the boundary in Kevin Lynch's City Image Theory [1] tends to be static and physical, corresponding to what Lefebvre describes as representations of space, which emphasizes geometrical, linear, and visually mappable aspects. This conventional approach is limited in analyzing KB, which is preserved primarily through non-material forces rooted in collective spirituality.

Lynch's limitations are bridged by Henri Lefebvre's theory of The Production of Space [3], which proposes that space is a social dialectical product, not merely a neutral container. Lefebvre divides space into three interacting dimensions: spatial practice (physical/perceived space), representations of space (conceived/planned space—the category closest to Lynch's edge), and the key dimension, representational space (lived space).

This research's focus shifts from the Lynchian dimension to the representational space. This dimension is where symbols, imaginary values, myths, and collective

narratives infuse physical space with meaning, representing space emotionally and ideologically [21]. In the Ked Customary Village case, this dimension is the collective manifestation of spiritual beliefs and rituals that render KB sacred, thus producing a space that is experienced and preserved through non-formal adherence.

2.2.2. The Boundary as a Threshold: Spatial Liminality (Victor Turner and Georg Simmel)

To analyze the *Pemangkalan* as the definitive KB boundary, this study utilizes the concept of liminality developed by Victor Turner [6]. Turner defines liminality as the “betwixt and between” phase in a rite of passage, where the individual temporarily leaves the old social structure and experiences a heightened sense of collective unity.

When applied spatially (spatial liminality), liminality allows KB and the *pemangkalan* to be understood not as a passive physical line, but as an active and transitional threshold. Philosophically, Georg Simmel explains that boundaries, such as a door or threshold, serve as metaphors to illustrate the dialectical nature of space, possessing a dual function that both separates and connects the two realms they delimit [22].

Consequently, the *pemangkalan* becomes the point of activation, where certain ceremonies temporarily transform the secular space of the settlement into a ritual or sacred space. The *Nangluk Mrana* ritual, performed on this threshold, activates the liminal condition, heightens collective spiritual intensity, and symbolically reinforces KB as a vital zone of protection. Through this temporary transformation, the *pemangkalan* embodies the dynamic interplay between the spiritual and the spatial, revealing how local practices sustain the continuity of sacred values within the community's lived landscape.

3. Methods

3.1. Research Design and Approach

This research employs a qualitative approach, utilizing a single-case study design, with a focus on the (KB) in Ked Customary Village, Gianyar, Bali. The selection of Ked Village is justified by its empirical significance: the strong preservation of the KB, despite the boundary not being formally regulated in the customary law (*awig-awig*). This condition specifically highlights the dominance of non-formal forces (spirituality and ritual practices) in spatial preservation.

The goals of this study are to:

1. Critically challenge the limitations of conventional spatial boundary theories (Lynch) in a local context through a deep analysis of KB's multifunctional role.
2. Conduct a critical analysis that moves from empirical description toward theoretical contribution by formulating a new boundary model based on spatial liminality and the ecological-ritual network.

3.2. Data Sources and Collection Techniques

Primary and secondary data were collected through triangulation to ensure the depth and validity of the non-physical data.

3.2.1. Critical Literature Review

A comprehensive literature review was conducted to establish the contextual foundation (Balinese Cosmology) and the critical theoretical framework (Lynch, Lefebvre, Turner, Simmel, and Ingold) that forms the basis for the deconstruction and formulation of the new boundary model (Section 2.2).

3.2.2. Field Observation and Mapping

Non-participatory observation was conducted at the KB site to document its physical characteristics, patterns of land use (including everyday and non-ritual activities), and the performance of rituals (sacred practices), particularly at the *pemangkalan* gateway. Mapping techniques were employed to visually support the analysis by linking observed spatial arrangements to theoretical concepts, such as interpreting the *pemangkalan* as a spatial threshold that connects the sacred and the everyday domains.

3.2.3. In-Depth Interviews

Purposive sampling was used to select key informants capable of providing deep narratives on the non-physical, spiritual, and regulatory dimensions of the KB. The interviews were designed to produce clear inferences from local leaders regarding the motivations behind the non-formal collective adherence. Key informants are listed in Table 1.

3.3. Data Analysis Method: Critical Thematic Analysis

To explain how the data were analyzed and to achieve the targeted theoretical contribution, the data were analyzed using critical qualitative thematic analysis, structured into three conceptual stages. This structure serves as the conceptual framework, supported by a table that guides the interpretation of field findings in relation to the new theoretical model.

This study applies a three-stage analytical process to investigate the spatial dynamics of Ked Village. Each stage provides a structured framework that guides the interpretation of the physical, social, and symbolic dimensions of the KB. Through this process, the study critically challenges the dominance of Western spatial theory and formulates a boundary model that is enriched and rooted in local spatial practices (Table 2).

Table 1. List of Key Informants

Key Informant Group	Role and Data Focus	Contribution to the Main Argument
Bendesa Desa Adat Ked (Customary Leader)	Regulation and rituals. Data on KB's history, the status of the awig-awig (confirming lack of formalization), and the meaning/procedures of the <i>Nangluk Mrana</i> ritual.	Reinforces the regulatory gap and the role of non-formal forces.
Local Community Figures (Krama Desa) of Ked	Lived space (representational space). Perspective on collective adherence, spiritual beliefs, and daily practices within the KB.	Supports the analysis of Lefebvre's representational space.
Local Figure from Taro Village (Contextualist)	Historical context. Perspective on Ked Village's position within the wider customary structure and the historical defense role of the KB.	Strengthens the KB's social/identity function.
Balinese Traditional Architecture Expert	Conceptual validation. Academic interpretation of the KB within the <i>Tri Hita Karana</i> philosophy and validation of the application of critical concepts (liminality, eco-ritual network) to the local context.	Provides theoretical weight to the research findings.

Table 2. Stages of Analysis and Core Theoretical Frameworks in Understanding KB

Analytical Stage	Core Theoretical Focus	Goal of Analysis
Stage I: Deconstruction of the Edge	Kevin Lynch's Edge (the conceived space)	To test KB's empirical data (physical, linear) against Lynch's definition to identify the inadequacy of the conventional framework in explaining KB's spirituality-driven preservation.
Stage II: Construction of Spatial Liminality	Turner's Liminality & Simmel's Threshold (the lived space)	To analyze the <i>Pemangkalan</i> as an "active threshold." Ritual data and interviews are interpreted to understand how social structure is suspended and spiritual intensity is heightened, defining the KB as a spiritual threshold.
Stage III: Formulation of the Ecological-Ritual Network	Lefebvre's Representational Space & Ingold's Temporality	To integrate the Ecological Function (physical buffer) with the Ritual Cycle (temporal practice). The goal is to demonstrate that preservation is driven by a dynamic, temporal meshwork where collective spirituality actively reinforces the KB's ecological value.

4. Results and Discussion

4.1. Results

This section presents the empirical findings regarding KB in Ked Customary Village, obtained through observation, interviews, and mapping. These findings highlight KB's role not merely as a physical boundary, but as a spatial element deeply rooted in the village's cosmology, ritual practices, and ecology.

4.1.1. Spatial Pattern and the Physical Manifestation of Karang Bembang

A. Cosmological Foundation and Definition of Ked Customary Village Settlement

The settlement structure of Ked Customary Village follows a linear pattern oriented *kaja* (north) – *kelod* (south), reflecting the Balinese sacred–worldly cosmological axis (*kaja/upstream*) from the worldly zone (*kelod/downstream*). Puseh Temple and Bale Agung Temple define the sacred northern sector, while Dalem Temple marks the southern boundary of the settlement [23]. This axis distinguishes the spiritually pure zone.

The community establishes its settlement on *karang ayahan desa* (customary village-owned land), inhabited by *krama ngarep*, the core banjar members who bear full customary obligations and possess the right to occupy the land. The *karang ayahan desa* comprises 126 land parcels, all governed by the village's customary law (*awig-awig*) [24]. The settlement is ritually demarcated by two boundary points: *pemangkalan kaja* (north) and *pemangkalan kelod* (south). The position of the *pemangkalan* is shown by the yellow dot in Figure 1. The presence of these *pemangkalan* traditionally defines the KB as a vegetated buffer zone that separates the built area from the surrounding agricultural landscape.

The Bale Banjar functions as the central node of social and ceremonial life. Villagers use this communal hall for customary meetings, collective decision-making, and community gatherings. It also serves as the venue for the *Tawur Kesanga* ceremony at the village level, which restores balance among humans, nature, and the spiritual realm before *Nyepi* (the day of silence). Through these activities, the bale banjar embodies the connection between social structure and ritual practice within the spatial framework of the village.

Two ritual boundaries, the *pemangkalan kaja* and the *pemangkalan kelod*, define the spatial limits of the settlement. Figure 1 shows the locations of these *pemangkalan*, indicated by yellow dots, illustrating the *kaja–kelod* orientation, the sacred–worldly zoning, and the vegetated buffer, KB, which separates the built-up area from the surrounding agricultural landscape. These *pemangkalan* function as ritual threshold spaces for the community.

At the southern end, *Pura Lebatu* anchors the village's

spatial sequence by marking its spiritual culmination. The temple actively defines the southern boundary and maintains a ritual connection with the *pemangkalan kelod* and the KB zone. It also provides a key reference for interpreting the south of KB, which is discussed in greater detail in the following subsection, marking the transition between residential and ecological areas.

Beyond marking spatial limits, the *pemangkalan* participates in the village's cosmological logic by structuring the relationship between the spiritual core and the productive landscape. The position of the *pemangkalan* aligns with the interface between *karang ayahan desa* and agricultural land, which is essential for maintaining the balance between daily livelihood needs and ritual obligations. This positioning ensures that the settlement remains compact in form, preventing uncontrolled spatial expansion while preserving the ecological functions of peripheral land. Thus, the *pemangkalan* does not operate merely as a visual boundary but as a culturally encoded spatial regulator.

Furthermore, the vegetated area defined as KB is not treated as empty or idle land. Instead, it acts as a multifunctional interface supporting the community's subsistence, collective identity, and ritual responsibility. KB accommodates agricultural activities managed by *krama ngarep*, ensuring the ongoing provision of food resources for ceremonial and daily consumption. The landscape also functions as a sacred ecological buffer, sustaining environmental quality, water flow, and habitat conditions that are necessary to uphold *Tri Hita Karana* principles. Through this interplay, KB becomes a lived and practiced landscape, shaping both the physical structure and cultural resilience of the village.

The spatial logic that integrates sacred hierarchy, settlement structure, and productive land forms a cohesive pattern unique to Ked Customary Village. Unlike modern zoning demarcations that rely on administrative lines or built infrastructure, Ked's spatial boundaries emerge from embodied cultural rules, cosmological narratives, and historical continuity. The *pemangkalan*, Bale Banjar, temples, and KB collectively materialize these meanings into a legible system that regulates movement, social conduct, and the rhythm of communal life. As such, the physical manifestation of KB must be interpreted inseparably from the cultural and ritual forces that continuously sustain its existence.

The spatial organization described above is clearly reflected in the mapping analysis (Figure 1), which illustrates the alignment of sacred–worldly zoning, the position of major ritual nodes, and the vegetated KB boundary. The arrangement demonstrates that the *pemangkalan* and KB are not arbitrarily placed but intentionally situated to uphold cosmological principles and to regulate the interaction between the built settlement and the agricultural landscape. This mapped configuration further reinforces the understanding that KB acts as both a physical and symbolic transition area.



Figure 1. Settlement Pattern of Ked Customary Village

B. Spatial Contrast: Polarization of Land Use in North and South KB

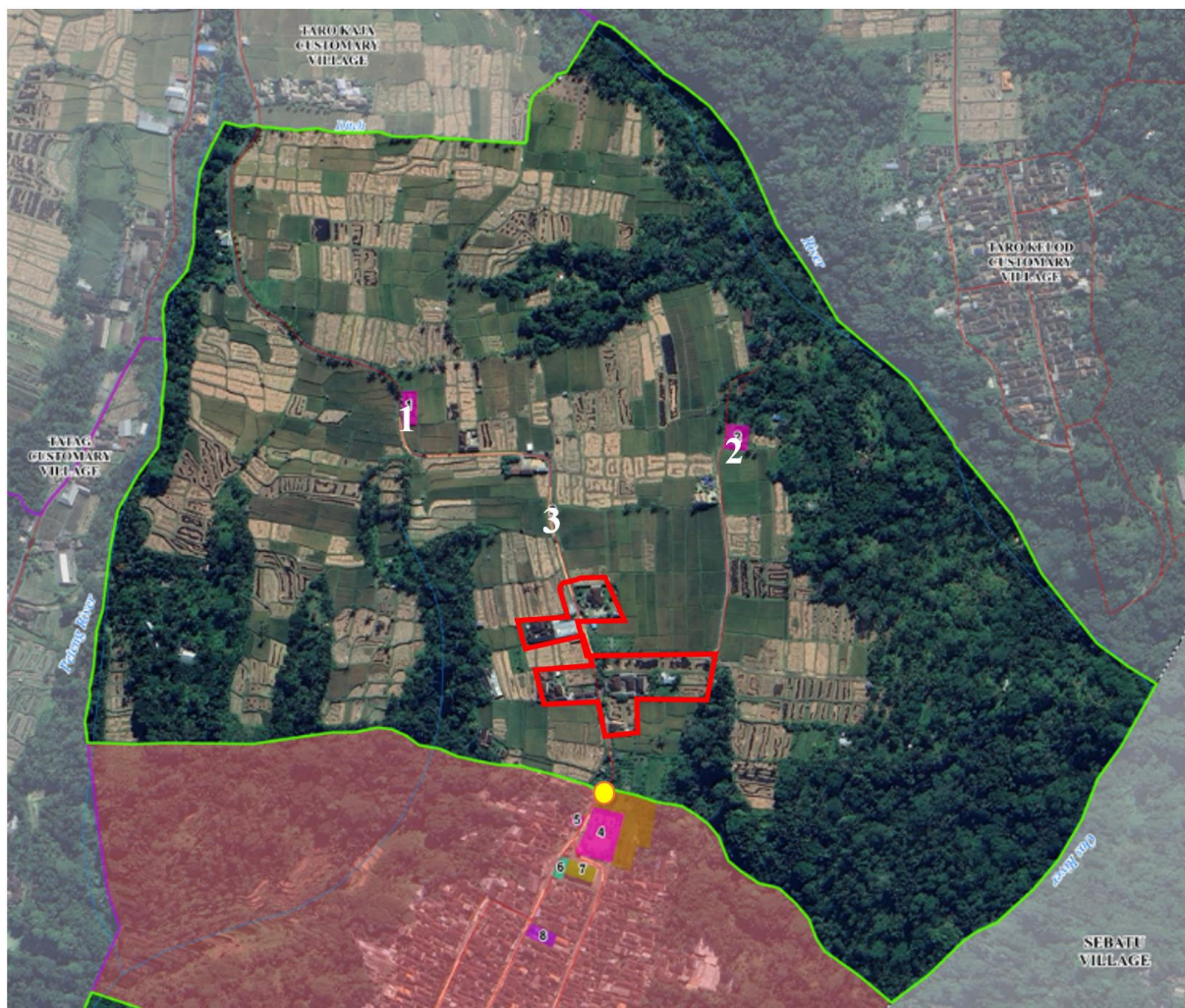
Although KB functions as a traditional spatial buffer within the village structure, the findings reveal a clear polarization in its actual land utilization.

1. Kaja (North) KB – The Compromised Edge:

In contrast to its southern counterpart, the northern section of KB has experienced a gradual spatial transformation due to increasing settlement pressure. The community expands housing in this area to meet the growing demand for residential land among krama ngarep families. This process reflects the pragmatic adaptation of residents to demographic growth while remaining within customary boundaries. However, the expansion renders the northern KB a porous boundary, where residential use begins to supplant the traditional ecological buffer role. As shown by the red-marked blocks in Figure 2, this area illustrates how physical necessity and social dynamics reshape the integrity of the traditional green belt, turning the northern KB into a compromised edge between the built and vegetated zones.

2. Kelod (South) KB – The Pure Edge:

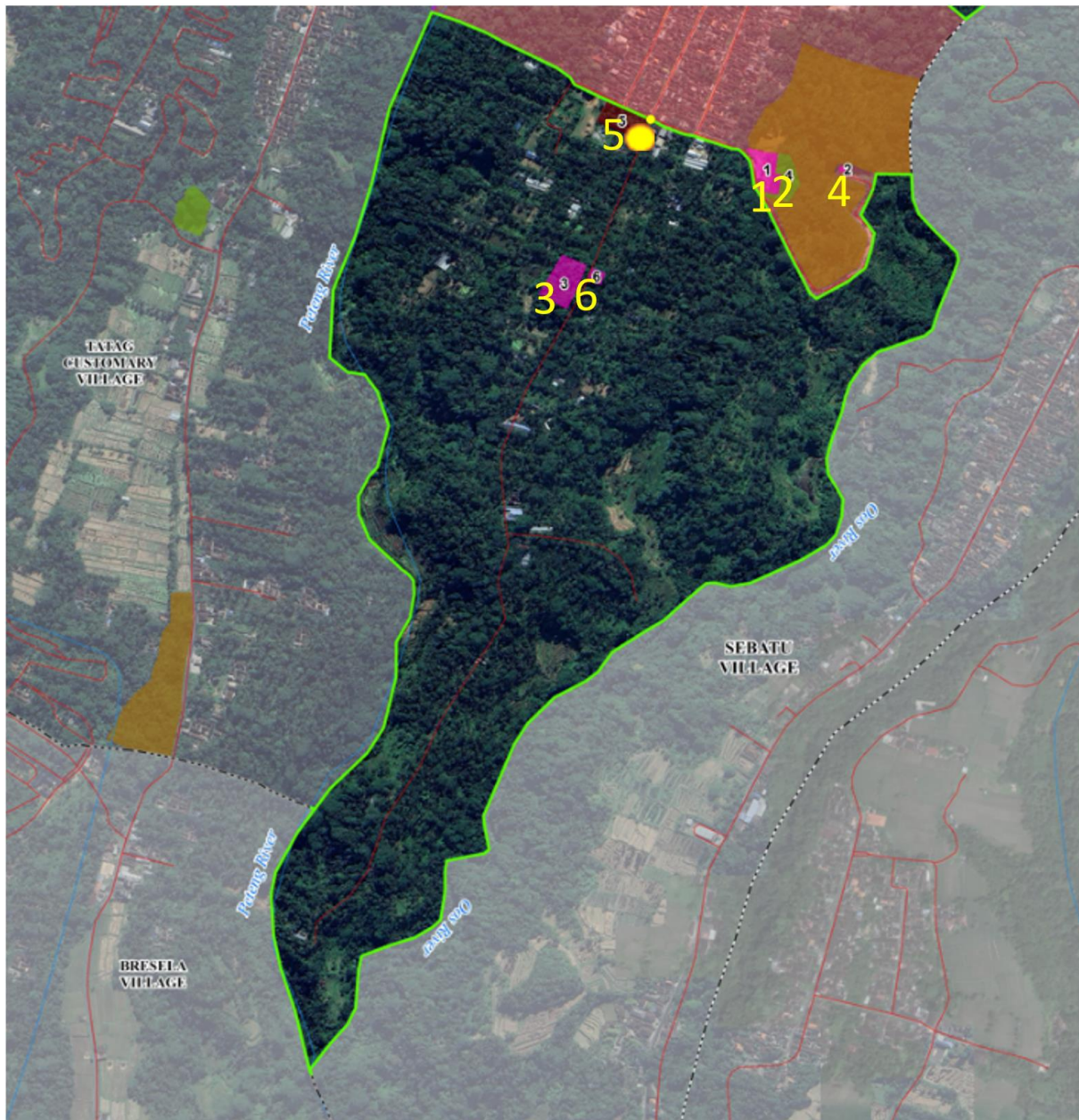
In contrast, the southern section of KB remains strictly preserved as a sacred and ecological zone designated for agriculture, livestock, and non-residential village facilities. The community regulates land use in this area through customary beliefs and ritual obligations centered on the Lebatu temple. The local people believe that the spiritual presence of Lebatu temple safeguards the land and forbids any form of residential development. This belief system, grounded in the *mertiwi* concept, where the sacred site is marked only by a natural stone instead of a *pelinggih* (shrine), reinforces a strong taboo against building family shrines (*merajan*) or housing within the area. Consequently, this spiritual authority effectively controls land-use practices and ensures the conservation of the southern KB as a pure ecological-ritual space. The location of Pura Lebatu within the southern KB is shown as number 3 in Figure 3.



Note:

- | | |
|----------------------|---------------------|
| 1. Anyar Temple | 3. Ulun Suwi Temple |
| 2. Pekarangan Temple | ● North Pemangkalan |

Figure 2. Karang Bembang as An Edge on The North Area of The Settlement of Ked



Note:

- | | | |
|------------------|----------------------|--------------------|
| 1. Dalem Temple | 4. Beji Temple | ● South Pemangklan |
| 2. <i>Setra</i> | 5. Elementary School | |
| 3. Lebatu Temple | 6. Dalem Peji Temple | |

Figure 3. Karang Bengang as An Edge on the South Area of The Settlement of Ked Customary Village

C. Physical Degradation of the *Pemangklan* Symbolic Form

The *pemangklan* functions as a *tangluk*—a Balinese term referring to a clear spatial boundary that separates the built-up residential area from open space. Originally, the *pemangklan* took the form of a complete bamboo gateway, as shown in Figure 4, symbolizing both defense and transition. However, field observations reveal that its form has now changed in response to local conditions, resulting in various structural variations. In Ked Village, it has

transformed into two separate pillars. This modification was made to facilitate movement during village ceremonial processions, yet it does not diminish its symbolic meaning as a cosmological threshold.

D. The Multi-Sensory Transition Space

Characteristic sounds include the *sunari* (a bamboo wind instrument) [25] and the loud chirping of cicadas from the trees, which serve as strong auditory markers of the expansive agricultural landscape. These sounds emphasize the sensory transition from the dense residential zone to the

open fields surrounding the *pemangkalan*. The acoustic environment thus reinforces the spatial distinction between the inhabited area and KB, highlighting how natural elements contribute to shaping the experiential perception of the boundary.

4.1.2. Temporal Dimension and the Functional Network

A. Spatial Activation by Rituals (Temporal Liminality)

KB is activated as a temporal liminal space through a network of rituals:

1. The *Nangluk Mrana* Ceremony: This ceremony is performed precisely at the *pemangkalan* during the sixth month of the Balinese calendar. *Nangluk Mrana* is a ritual that functions to ward off pestilence or pests (*mrana*), symbolically reinforcing the *pemangkalan* as the village's spiritual fence [26].
2. Subak Ritual Network: KB is a focal point for rituals related to both wet-land subak and dry-land subak farming cycles.
3. Other temple rituals take place in several sacred sites within the KB area, including Ulun Suwi Temple (a subak temple), Anyar Temple (owned and managed by the customary village as a shrine dedicated to the worship of Dewi Sri), and Pekarangan Temple (also owned by the customary village as a place for regular spiritual activities [27][28][29]).

4.1.3. Historical and Ecological Function

Historically, KB is believed to have served a regional defense function, acting as a strategic lookout area distant from the core settlement. Ecologically, KB functions as a dynamic network reflecting balance (*Tri Hita Karana*). The placement of temples in the KB area is considered an ancestral strategy to preserve the KB, linking ecological functions (such as erosion control and water absorption) with ritual obligations.

4.2. Discussion

4.2.1. Karang Bembang as a Lynchian Edge and Its Initial Limitations

Descriptively, KB, marked by the *pemangkalan*, fits the criteria of Lynch's edge element: it is a linear boundary that separates the karang ayahan desa (inhabited core) from the surrounding agricultural and natural land (rice fields, moors, and forests). KB functions as a visual transition space where one recognizes the shift from a crowded settlement to a quiet open space.

However, the analysis reveals that KB is not a passive or static boundary. Although its physical form aligns with Lynch's notion of an edge, KB operates through a much deeper layer of meaning. Its most consequential function is regulated by invisible, non-physical forces—particularly customary authority and cosmological beliefs—that govern spatial behavior in ways that cannot be captured solely by visible morphology.

4.2.2. Challenging the Static Edge: The Power of Non-Formal Control

The polarization of land use between North KB and South KB fundamentally challenges the notion of a uniform, physically defined edge. In South KB, spatial protection is enforced not through formal regulation or physical barriers but through a spiritual prohibition rooted in the authority of Lebatu Temple and the *mertiwi* concept. This indigenous mechanism of spatial governance ensures that the integrity of the boundary remains intact, demonstrating that the control of spatial transitions is upheld through cosmological values rather than administrative intervention. Consequently, this finding reveals that the KB boundary operates within an expanded logic of spatial control—one that destabilizes Western assumptions that edges rely primarily on visible morphology or sanctioned planning to maintain boundary order (Table 3).



Figure 4. Comparison Between the Intact Pemangkalan (Left) of the Taro Kelod Customary Village and the Changed (Right) of the Ked Customary Village

Table 3. The Land Use Control of Karang Bembang

Factor	North KB	South KB	Theoretical Implications on Edge
Dominant Force	Physical Need (Housing Expansion)	Non-Formal Spiritual Power (Lebatu Temple)	The function of the boundary is determined by selective spiritual authority, not uniform physical morphology.
Edge Status	Porous Edge (Irregular Development)	Immutable Edge (Strictly Non-Residential)	The same boundary can exhibit radically different characters over short distances.
Control Mechanism	Ineffectiveness of Customary Control	The <i>Mertiwi</i> Concept	The spiritual prohibition on building a <i>merajan</i> (family shrine), a prerequisite for a Balinese house, is more effective in controlling growth than physical barriers or formal rules.

4.2.3. The Dynamic and Temporal Dimensions of KB

Unlike the fixed and purely physical edge defined in Lynch's framework, KB functions as a boundary whose meaning shifts according to ritual cycles and collective mobilization. Its spatial significance intensifies during specific temporal moments when the community engages in ceremonial transitions across the *pemangkalan*. Through these episodic activations, KB demonstrates a dynamic role as a liminal zone, where boundary characteristics emerge and recede depending on time-based cultural practices.

A. Temporal Liminality and Ritual Activation

KB functions as a boundary whose role becomes pronounced during specific ritual periods, demonstrating that spatial edges in indigenous contexts are not constant but activated through cyclical temporal practices. This phenomenon underscores the study's theoretical contribution: unlike Lynch's (1960) conceptualization of edges as fixed visual elements, KB reveals that boundaries can derive their significance from rhythms of time and ritual activation.

- *Pemangkalan* as a ritual interface: The *Pemangkalan* transforms from a physical marker into an active ceremonial gateway during rituals such as *Nangluk Mrana*, a communal ceremony intended to repel and neutralize destructive forces, including agricultural pests that threaten subsistence livelihoods [28]. In these moments, the boundary transcends mere spatial separation; it becomes a mediating interface between the human-built environment and the spiritual-ecological realm (*sekala-niskala*), where visible and invisible forces intersect in maintaining cosmic balance.
- Ritual activation observed through spatial analysis: Non-participatory observation and spatial mapping conducted in this study document how everyday land use shifts to accommodate ritual procession and performance at the *pemangkalan* [28]. This transformation reinforces the *pemangkalan*'s role as a spatial threshold, where the community negotiates transitions between routine activities and ritual obligations, demonstrating that the boundary's

meaning emerges through temporal and cultural activation rather than static morphology.

B. Multi-Sensory Experience

While Lynch emphasized visual clarity in supporting imageability, the experience of KB demonstrates that auditory and atmospheric cues are equally essential in perceiving a boundary. Distinct environmental sounds—such as the *sunari* (bamboo wind instrument) [25] played during agricultural activities, and the pronounced chirping of cicadas function as auditory indicators signaling the transition from the dense built settlement to the agricultural-natural landscape. Through these cues, KB conveys its boundary condition beyond visual form, reinforcing its identity as a perceptible edge in multiple sensory dimensions.

Based on the analysis, KB cannot be adequately defined solely as a conventional Lynchian edge. It is better conceptualized as a dynamic liminal space—a multifunctional element characterized by:

1. Non-physical regulation of boundary function: Its spatial integrity is shaped not only by physical development pressures but also by non-formal spiritual authority (*mertiwi*) that restricts residential expansion.
2. Temporal activation: Ritual cycles periodically transform the boundary into a ceremonial space, allowing its function to shift in accordance with the community's ritual calendar.
3. Ecological-spiritual interdependence: KB serves as an interface that maintains balance within the *Tri Hita Karana* principle, where spiritual stewardship actively safeguards ecological productivity, particularly the continuity of agriculture vital for community sustenance.

This study contributes to urban and cultural theory by enhancing our understanding of edges, particularly in non-Western contexts, demonstrating that traditional boundaries actively regulate social and spiritual activities selectively and temporally, and provides valuable insights for integrating local wisdom into planning.

5. Conclusions

5.1. Conclusions

This research concludes that KB transcends Lynch's description of the edge element and is more accurately conceptualized as a dynamic liminal space. The characteristics of KB as a dynamic liminal space are:

1. A selective and polarized boundary: The integrity of the boundary is not uniform. *Kelod* (south) KB successfully functions as an immutable edge (an unshakable boundary) because it is controlled by a non-formal spiritual authority (the *mertiwi* concept of Lebatu temple), whereas *kaja* (north) KB has become a porous edge (a permeable boundary) due to the pressure of physical needs.
2. Temporally inhabited boundary: KB is periodically activated into a liminal space through ritual cycles—for example, when the *pemangkalan* becomes the vessel for the *Nangluk Mrana* ceremony—demonstrating that its boundary condition is not fixed but responds to the cyclical rhythm of Balinese ritual time. This temporal activation extends Lynch's notion of an edge from a static physical delimiter to a boundary whose meaning and function are periodically intensified through customary practice.
3. A multi-sensory boundary: The perception of KB as a boundary is reinforced by the audio dimension (the sounds of the *sunari* and the Cicadas, demonstrating that the imageability of the boundary is not limited to visual cues).

5.2. Theoretical Contribution and Planning Implications

These findings—derived from spatial observation, land-use mapping, and ethnographic inquiry—offer two significant contributions:

1. Contribution to spatial theory: This study advances Lynch's Edge Theory by proposing the concept of the Dynamic Liminal Space, which incorporates spiritual authority and ritual temporality as integral components of boundary formation. In the context of indigenous spatialities, boundary integrity is upheld not merely through physical morphology but through an embedded value system that governs spatial behavior and regulates expansion.
2. Planning implications: For the conservation of traditional green belts in Bali, spatial planning must formally acknowledge non-formal Spiritual Authorities (such as *mertiwi* regulations) as legitimate mechanisms of spatial governance. These cultural controls have demonstrated stronger resilience against development pressures than conventional zoning instruments, which are often compromised by

market-driven expansion and administrative limitations.

5.3. Research Limitations and Future Suggestions

This paper acknowledges methodological limitations because it derives its findings from a single in-depth case study of Ked Customary Village. Future research should conduct comparative analyses in other Bali *Aga* villages or traditional settlements, such as Tenganan Pegringsingan or Trunyan, to validate the dynamic liminal space concept and examine how different forms of spiritual authority regulate and preserve traditional boundaries.

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