ISSN 3058-7158

INTERNATIONAL JOURNAL OF ASIAN CULTURE

2024 Vol. 1,No. 1(Series 1)

International Journal of Asian Culture

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International Cultural Foundation

Asian Academy of Culture

Nanjing University of Aeronautics and Astronautics

Asian Cultural Landscape Association

International Journal of Asian Culture

Aims & Scope

International Journal of Asian Culture aims to promote in-depth research and discussions on various aspects of Asian culture. It seeks to explore the rich cultural traditions, social contexts, historical backgrounds, and contemporary changes within the Asian region. By adopting an interdisciplinary approach, the journal aims to broaden the scope of cultural studies related to Asia.

Journal Name : International Journal of Asian Culture, 2024, Vol. 1, No. 1 (Series 1)
Published by : International Cultural Foundation
Publisher : Chun, Hong Duck, International Cultural Foundation
Publication Date : October 2, 2024

Organized by :
Asian Academy of Culture

Sponsored by :
Nanjing University of Aeronautics and Astronautics

Supported by :
Asian Cultural Landscape Association

This Journal was published (also as e- Journal), printed and bound by International Cultural Foundation in seoul, Korea.

International Cultural Foundation
Hong-Duck, Chun
Address: 185 Gahoe-dong, Jongno-gu, Seoul, South Korea
Tel: 02-743-2089

Chun, Hong Duck
Publisher,
International Journal of Asian Culture

FOREWORD

It is with great pleasure that I write this forward for the inaugural issue of the International Journal of Asian Culture. This publication marks an exciting new chapter in our efforts to explore, document, and share the profound cultural diversity of Asia. Born from the thought-provoking discussions and groundbreaking research presented at the first international symposium of the Asian Academy of Culture, this journal aims to serve as a platform for the exchange of knowledge, ideas, and scholarly contributions from across the Asian continent.

At the symposium, we were honored to welcome esteemed scholars from Korea, China, Thailand, Vietnam, Indonesia, and beyond. Together, we delved into the complexities of Asian culture, highlighting not only its rich traditions but also the contemporary dynamics shaping the region today. The papers presented at this event serve as the foundation for the International Journal of Asian Culture, and we are proud to publish them here for the wider academic community.

The International Journal of Asian Culture aspires to be more than just a repository of research—it seeks to foster interdisciplinary conversations that bridge cultural studies with fields such as history, philosophy, sociology, economics, and the arts. Through this approach, we hope to create a forum where the cultural experiences and intellectual contributions of Asia can be appreciated, critically examined, and shared with the world.

In the pages that follow, you will find a diverse array of perspectives, methodologies, and insights, each reflecting the diverse cultural landscapes from which they originate. This journal aims to promote deeper understanding and meaningful dialogue about the unique cultural identities that make up this vast and dynamic region.

As we launch this journal, we invite scholars, researchers, and cultural practitioners from around the world to engage with us. We hope that the International Journal of Asian Culture will become a vital resource for advancing the study of Asian culture, celebrating its complexity, and promoting cross-cultural exchanges that enrich our shared global understanding.

We look forward to the ongoing contributions of our academic community, and to the continued exploration of Asia's cultural heritage and future. May this journal help illuminate new paths for scholarly inquiry and foster greater appreciation for the richness of Asian cultures.

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CONTENTS

Mittakham: A Participatory Approach to Preserving Bangkok's Last Water-Based Community

Rittirong Chutapruttikorn [1], Supitcha Sutthanonkul[2]

[1] School of Architecture, Bangkok University
[2] SEAMEO SPAFA

Abstract. This paper explores the cultural heritage and preservation efforts of the Mittakham community, the last remaining water-based community in Bangkok. Located along the Chao Phraya River, Mittakham faces potential eviction due to legal constraints on its stilt houses built over public land. However, the community's unique water-related lifestyle and cultural practices—ranging from traditional boat living to underwater artifact diving—represent a rich cultural heritage that is difficult to replace. The study employs a participatory design approach to develop a local museum, engaging community members in the process of mapping, boat design, and exhibition planning. By fostering collaboration and involving residents in decision-making, the project aims to raise awareness of the community's cultural significance both locally and nationally. The participatory museum design is proposed as a strategy to preserve this heritage and counter the threat of eviction. Findings suggest that involving the community in heritage preservation not only empowers residents but also enhances public recognition of their cultural legacy. The study highlights the importance of participatory methods in cultural heritage preservation, suggesting that such approaches can provide sustainable solutions to urban development challenges and ensure that the unique identity of the Mittakham community is maintained for future generations.

1. Introduction

Mittakham was originally a boat-dwelling community, where people lived on wooden boats and used them to transport and sell goods. They sailed from the northern part of the Chao Phraya River to trade rice, coal, and everyday necessities. However, as Bangkok's primary transportation system shifted from waterways (rivers and canals) to roads and railways, river transport and boat trading gradually declined in importance. In response, the community adapted by mooring their boats to the pier and starting new land-based occupations, marking the first permanent settlement of the community over 70 years ago.As transportation on the Chao Phraya River evolved from manually operated boats to engine-powered vessels, the stronger waves generated by these new boats brought unexpected changes to the shoreline, making life on houseboats more difficult. Due to increased shaking and instability, the community began lifting their boats onto wooden beams supported by poles, creating stilt houses. Parts of the old boats were incorporated into the new houses, giving rise to a distinctive local architectural style. As the number of households grew and the community expanded its housing area onto the public riverfront, issues of housing evictions emerged, causing significant anxiety among residents. This anxiety intensified with the announcement of a new landscape development project, spanning 50 kilometers along both sides of the Chao Phraya River, from the Rama III Bridge to the Phra Nangklao Bridge (Thairath Online, 2015). Despite the legal uncertainty of their location on public land along the riverside, most residents of the Mittakham community remain determined to continue living in the place where they were born and raised. The community holds valuable knowledge and a unique riverside lifestyle, encompassing occupations such as scuba diving for artifacts (Post Today, 2015), boat making, and building houses on riverbanks, along with distinctive architectural styles rarely seen in urban areas undergoing rapid technological change. The community views these cultural assets as crucial to

resolving the threat of eviction, believing that losing their homes would mean the irreversible loss of their historical and cultural heritage. This study aims to explore the cultural heritage of the Mittakham community and develop a participatory design process for a local museum that can preserve and share the community's valuable knowledge and traditions with the public.

2. Literature Review

This research focuses on the design process of a local museum through participatory approaches in the riverside community of Soi Mittakham, along the Chao Phraya River. The study explores theories and methodologies related to two main areas: (1) Designing with Participation, and (2) Cultural Heritage.

2.1 Designing with Participation

Participation is a crucial element in design at every level, encompassing opinions, advice, and suggestions. Involving people in the design process—whether they are community members, designers, or other stakeholders—allows for the exchange of ideas, collection of information, and a deeper understanding of the design process, which can lead to more beneficial outcomes for all parties involved (Spinuzzi, 2005). This research specifically emphasizes identifying and recognizing local heritage, considering it as a starting point for future community development planning in various ways. Participation in local community development can be categorized into seven levels, listed in ascending order of involvement:

1. Providing Information: One-way communication where information about the project is shared without involving the participants in decision-making.
2. Hearing Suggestions: Creating a platform to listen to ideas and suggestions from stakeholders, allowing the project operators to consider these inputs for future decisions.
3. Discussion: Facilitating opportunities for dialogue or debate between the project-affected people and the project operators.
4. Collaboration in Planning: Emphasizing two-way communication to collaboratively plan and prepare the project.
5. Co-operation: Jointly working on the project to achieve the goals of both the project operators and the community members.
6. Co-decision, Follow-up, Monitoring, and Evaluation: Involving affected people in every stage of the project, allowing them to participate in decision-making and evaluation.
7. Public Supervision: Allowing the community and the public to lead and manage all stages of the project, with government support (Chutharath Chomphan, 2012).

In museum design, Siriporn Srisinurai (2008) suggests that fostering a sense of belonging among community members requires that decisions be made by the community itself rather than by visitors or outsiders. A participatory design process encourages this sense of ownership, as it involves collaboration between designers and community members (Lee, 2006), ultimately instilling a feeling of belonging and ownership among the community (Nanthiya Hutanuwat and Narong Hutanuwat, 2003: 64). Community members are thus empowered to express their needs and realize their integral role within the community (Rittirong Chutaprutikorn and Virat Rattakorn, 2013). The extent of this sense of ownership varies depending on the level of participation, as previously outlined.

2.2 Cultural Heritage

According to UNESCO, cultural heritage is the legacy of physical artifacts and both tangible and intangible attributes of a group or society inherited from past generations, maintained in the present, and preserved for the benefit of future generations. Cultural heritage can also reflect the identity of a local community (Thanongsak Wikul, 2004). It can be categorized into two main types:

1. Tangible Cultural Heritage: Physical objects such as goods, boats, and artifacts.
2. Intangible Cultural Heritage: Non-physical elements such as languages, literature, and traditions (Ploypattra Trakulthongcharoen, 2014; Thanakorn Taraka, 2007).

Cultural heritage can also be classified based on its significant value:

1. Cultural Value: Focuses on the uniqueness of the local ethnic groups in a specific area, identifiable through cultural evidence, design, and preserved structures. This form of cultural heritage is distinct from others.
2. Social and Economic Value: Reflects the potential for cultural heritage to evolve over time, such as generating income, offering educational value, and providing social continuity for important cultural traditions. It can also hold political significance by representing national identity.

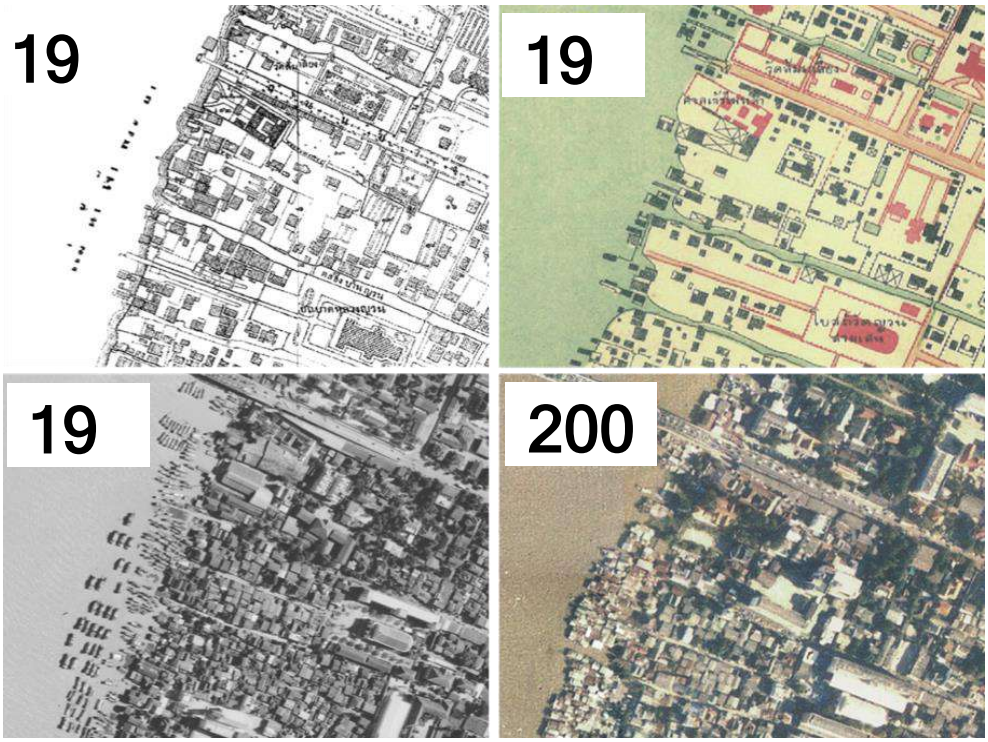
3. Process of Raising Awareness of Local Community Values

An agreement between the community leaders and the researchers identified the solution to the eviction problem: raising awareness about the importance of local culture. This approach aims to encourage not only community members but also outsiders to recognize and accept the local culture as a valuable national heritage. To gain public acceptance, it is essential first to stimulate awareness among community members about the value of their own culture, which can then be communicated to a broader audience. This project follows a participatory approach, divided into two main steps: researching local heritage and designing with community participation.

3.1 Local Heritage Research

The researchers initiated the local heritage research process in collaboration with community leaders, aiming primarily to disseminate information within the community. Although this initial step represents the lowest level of participation, providing information at this stage is crucial as it serves as a foundation for more active engagement in subsequent steps (Chutharath Chomphan, 2012). The research process for local heritage includes several stages: mapping research, physical area assessment, interviews, and presentations to the community.

3.2 Mapping Research



Picture 01 Maps and Aerial Photographs shows the settlement of Mittakham in different years 1907, 1932, 1973 and 2002

The researchers examined several historical maps from different periods to estimate the timeline of habitation in the Mittakham community. By analyzing old maps and aerial photographs from the years 1907, 1932, 1973, and 2002, the researchers approximated the period when the community first settled in its current location. The 1907 map shows no evidence of habitation at the present site of the Mittakham community. However, the 1932 map indicates the presence of a few houses near the river's edge at the current location. Aerial photographs from 1973 reveal boat houses at the same location, and by 2002, there were many houses with similar characteristics and numbers as those in the present Mittakham community, built along the Chao Phraya River's shore. Based on these findings, it is estimated that the Mittakham community has inhabited this area for approximately 80 years)Picture 01). In addition to historical habitation maps, the researchers also explored various thematic maps of the community, such as those depicting local restaurants, public spaces, religious sites, historical houses, and residents' occupations. These maps provide a comprehensive overview of the community's lifestyle and values, highlighting the locations of significant local heritage within the community.

3.3 Physical Area Research

Exploring the community on foot with local residents allowed the researchers to discover the unique physical characteristics of the Mittakham community, such as the elevated stilt houses above the water, the use of wooden parts from boats as components of houses, and the continued existence of houseboats (Picture 02 and 03). The researchers documented these findings by taking photographs and drawing sketches to record the "community's heritage," including artifacts, items recovered by local divers, and parts of boats repurposed into houses and furniture. However, the value or importance of these "community heritage elements" was assessed from the perspective of outsiders, which may differ from the views of community members who might overlook their significance due to familiarity from everyday experience.

Picture 02-03 Stilt housing and boat house lifted on the wooden beam

3.4 Interviewing

For historical and intangible heritage information that is not easily observed, interviews were a crucial research tool. Engaging with the community, particularly the elderly, provided deeper insights into the history of the Mittakham community. The research team interviewed Khun Tong (male, 80) and Khun Chaluay (female, 80), two of the earliest settlers since 1947 (Buddhist Era 2490), who decided to settle on land after docking their boats permanently (Picture 04 and 05). Through interviews with various community members, the team uncovered additional historical details about the community, such as the techniques of diving and retrieving artifacts from the Chao Phraya River, methods for constructing stilt houses over the water, and how boat houses were lifted onto stable beams. This knowledge represents local expertise that is valuable for passing on to future generations and anyone interested in the community's heritage.

Picture 04-05 Researcher team while asking the history of Mittakham's community

3.5 Research Presentation to the Community

To raise awareness about the value of the community's heritage among local residents, all information collected during the research process was presented to about 30 community members. During an official community meeting on July 22, 2016 (Buddhist Era 2559), the researchers presented maps of the community from different periods, compiled from interviews (Picture 06 and 07). After the presentation, several attendees provided feedback, offering corrections and recollections of significant events in the history of Mittakham. Through this collaborative process, the final community profile map was completed. Furthermore, the researchers presented information about the community's heritage from their perspective, including the profession of diving. During this discussion, local divers shared several artifacts with the research team, such as a diving helmet (worn while diving), an oxygen pumping tank, and various objects retrieved from the riverbed. The conversation continued to cover other community stories, including techniques for constructing houses over water.

Picture 06-07 Researcher team present information to the community with exchanging and discussion together.

Finally, the research team initiated discussions about the community's awareness of the value of their heritage, gathering opinions and facilitating dialogue between community members and the researchers. These discussions led to a consensus within the community to showcase their valuable heritage and

stories by converting an abandoned old boathouse into a local museum for the Mittakham community (Picture 08 and 09).


Picture 08-09 Old boat structure in Mittakham's community area which the community agrees to renovate and build it as local museum to express the culture of the local and community.

"If everyone agrees that our community should have a museum, my dad's old boathouse is available… I'm willing to donate it," Charad offered shortly after the meeting, following a debate on the most appropriate ways to present the community's heritage. This marked the beginning of a collaborative effort to design the museum.

4. Design with Participation

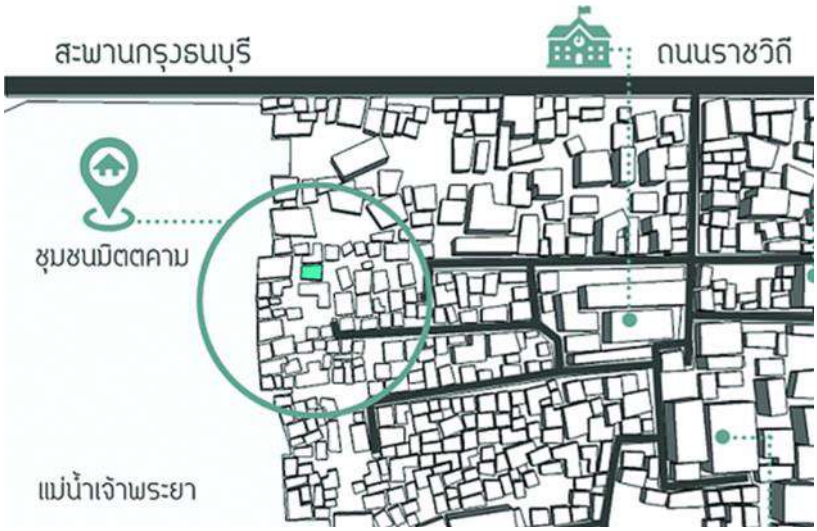
To establish a local museum, the research team developed a participatory design process involving several key steps: mapping the community route, designing the boats, and planning the exhibition. Each step incorporated different levels of community participation.

4.1 The Community Route Map

The proposed location for the boathouse museum is situated in the middle of the community, accessible only through paths that pass by several houses. The research team explored the pathways with Phumin Sum-ang (Lek), a community leader, identifying the main routes frequently used by residents and the more specific paths that pass under houses or through private areas known only to community members.

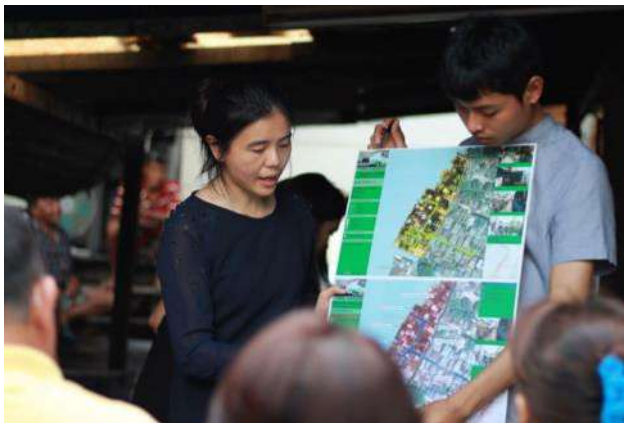
4.2 Community Museum Location

The researchers proposed alternative pathways to access the museum and presented these options at a community meeting, allowing everyone to discuss and suggest possible entrance and exit routes connecting the museum to the outside. During the discussion, it was agreed that if the community were considered a house, the local museum would serve as the living room, offering visitors a first impression of the entire community and sharing the history and lifestyle of the Mittakham people. The agreement also helped ensure that the new pathways would not intrude on private areas while effectively conveying the community's story.



Picture 10 darken square (in green) shows the position of boat planned to build as the museum while the black line indicate internal circulation within the community

Initially, a two-dimensional map was used to illustrate the proposed routes, but it did not provide a clear explanation for all attendees. To improve understanding, the research team presented a three-dimensional model of the entire community, which proved more effective in explaining the routes and showcasing the community's layout. This model helped gain a clearer understanding among the residents compared to the two-dimensional architectural plan (Picture 11 and 12).



Picture 11 (left) Researching team presenting inside community's walkway map shown circulation which connected to surrounding important area in community meeting.
Picture 12 (Right) Model that built as a communication tools to make an easier way to communicate with people in the community. The transparent box in the model shows the building location of community's museum.

4.3 Boats Design

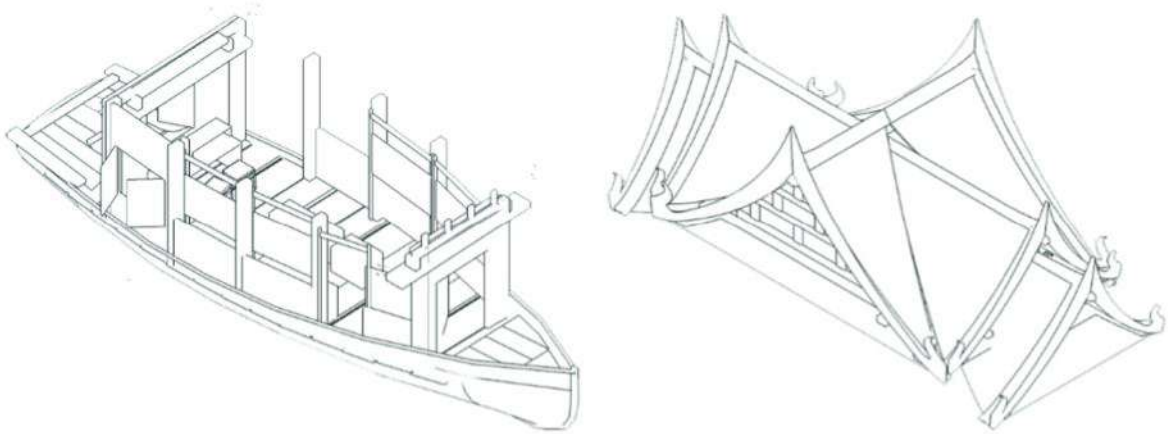
Given that only the framework of the old boathouse remained, the research team lacked sufficient information to accurately reconstruct its original appearance. To address this, they consulted the community's elders, asking them to describe the boat's original design from memory and share their vision for the museum. These discussions led to three different boat designs: a modern style, a traditional style, and a mixed style, as illustrated below:

1.First Boat Design: A passenger ship design from the Peninsula Bangkok, chosen for its eye-catching Thai-style roof (Picture 13)

2.Second Boat Design: A “boat truck” commonly used in Thailand for transporting rice or charcoal, representing the original form referred to by many community members (Picture 14).
3.Third Boat Design: A similar structure to the second design, modified for use as a boathouse with a traditional arched roof, known locally as “Ruea Krachaeng.” (Picture 15).

Picture 13, 14 and 15 Comparing picture of boats types 1, 2 and 3 that community talked about.
1st Picture’s source:
http://th.soidb.com/bangkok/pier/chaophraya-peninsula.html)
2nd Picture’s source:
https://www.thaisecondhand.com/product/10252573
3rd Picture’s source: Photo by author

When asked to decide on the final design for the museum building, most community members preferred to develop the form based on the existing boat’s structure and chose the roof style from the first design because it was aesthetically pleasing and different from the traditional roofs commonly seen by the Mittakham people (Picture 16).



Picture 16 Pictures of the boats and the roof that the community chosen

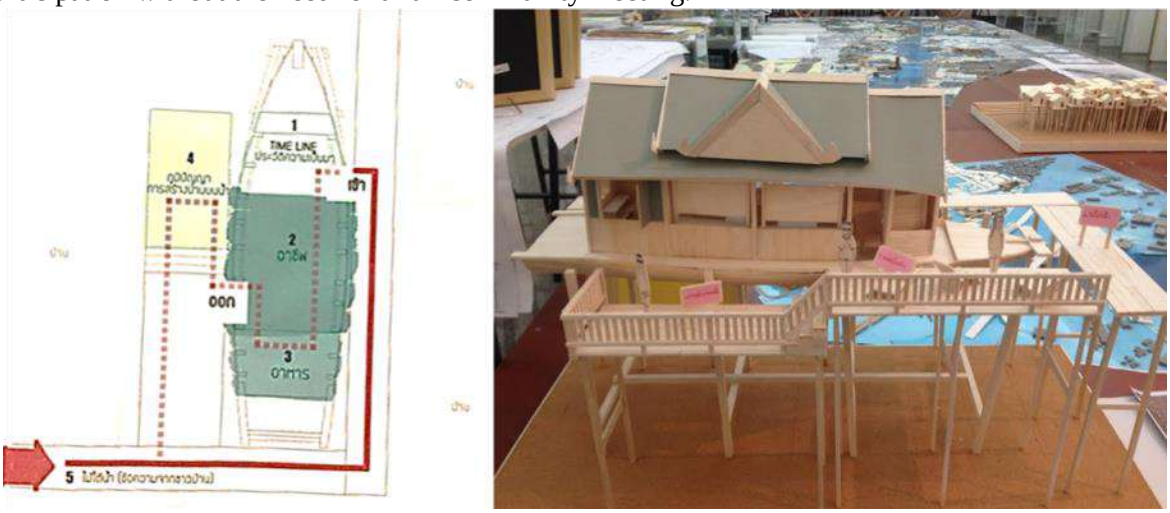
4.4 Design

The community agreed to highlight their cultural heritage, which can be categorized into two types: (1) Intangible Heritage, including the history of the community, traditional knowledge of constructing water-based structures, techniques for retrieving objects from the riverbed, and spiritual beliefs related to boating; and (2) Tangible Heritage, such as traditional foods, underwater artifacts, kitchens on boats, and wood from old boathouses or wood found underwater, which is now used to construct houses and walkways. To finalize the museum layout, including the arrangement of entrances and exits and the historical context of the community, the research team developed an exhibition plan and shared it with community members. They organized small discussion groups of 3 to 5 people to gather feedback. This feedback led to improved communication strategies for the next community presentation, including a revised exhibition plan and a tangible 3D model of the museum that showcased the participatory design

(Picture 17). The researchers used their architectural expertise to create more accessible communication tools, reducing misunderstandings that some community members experienced with the two-dimensional drawings (Rittirong Chutapruttikorn and Virat Rattakorn, 2013). Additionally, the participatory design process not only engaged the community in the museum's design but also deepened their appreciation of the cultural heritage value throughout the community.

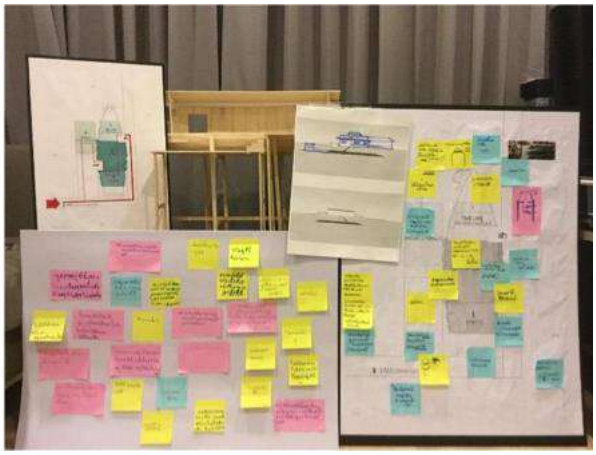
Picture 17 Small meeting to developing an alternative option for exhibition design on the boat museum.

While the boat museum serves as a central space to narrate the Mittakham community's story, the pathways leading to the museum were also envisioned by community members as another medium to express their attachment to their beloved community. In response to the question, "Why do you live in Mittakham?" community members were invited to write their answers on paper, providing a means of participation without the need for a full community meeting.



Picture 18 Exhibition plan and Mittakham's museum model

The presentation of various narratives and community stories was not only takes place through the ship museum itself, but the pathway leading to the ship contained also presented as part of messages engraving with the community's feelings in words. Mittakham people were asked to write their answers on paper (Picture 19 and 20). This considers another step of participation in communication by asking for opinions without holding a meeting, so each person can fully express themselves. These heartfelt responses will be engraved on the wooden walls along the walkway leading to the museum.

Picture 19 (left) the step walkways which will be the location of the engraved locals' feeling toward their home
picture 20 (right) the answers of community member in multicolor post it

4. Debate and Summary

The primary reason for the potential eviction of the Mittakham community is that its residents live in stilt houses constructed over a public area along the Chao Phraya River's shore. Based solely on legal considerations, the community would be required to vacate its current location. However, an exploration of the community's history and way of life reveals that Mittakham is a water-based community with a unique cultural heritage that would be nearly impossible to replace or recreate if lost. This raises a critical debate: should this last remaining water-based community in Bangkok be preserved? Additionally, should the plan to preserve the community's heritage through a local museum—currently still in its draft stage—be considered valuable enough to be recognized as national heritage? This study is part of ongoing research aimed at uncovering the cultural heritage of the Mittakham community through the collaborative efforts of both community members and researchers. The participatory design process for the museum represents a significant step toward this goal, as it allows all community members to explore their heritage, share knowledge, exchange information, develop ideas, and make collective decisions (Chutharath Chomphan, 2012). Throughout this process, the researchers provide support, facilitate analysis, and encourage motivation to create meaningful change. During the participatory design process, community members recognized that showcasing their local heritage to the public could be a potential solution to the eviction issue. Witnessing the progress of the museum design during community meetings, all members agreed to collaborate on renovating the abandoned old boathouse into the Mittakham Museum, a project in which they had actively participated in designing. This consensus marks a positive step forward in preserving this valuable local heritage, ensuring it becomes a significant learning resource for future generations.

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Integrating Cultural Values into Thematic Landscape Design: A Case Study of the Bajra Sandhi Monument Park

Joshua Egy Efrianka Ginting, Rizki Alfian, Hendra Kurniawan

Landscape Architecture, Tribhuwana Tunggadewi University, Indonesia

Abstract. Thematic parks often embody elements that reflect deeper philosophical aspects of design. In Bali, the Tri Hita Karana philosophy is realized through the Tri Mandala and Sanga Mandala spatial planning concepts, resulting in nine distinct zones. This study aims to evaluate the implementation of this philosophy in the Bajra Sandhi Monument Park and its impact on visitors' perceptions. Utilizing a qualitative research approach, data were gathered through field observations, visitor surveys, and landscape analysis to understand how the park's design aligns with the Tri Mandala philosophy. The analysis revealed that while the park successfully integrates the Tri Mandala Concept into its spatial arrangement and landscape elements, there is a noticeable gap in visitors' awareness and understanding of this cultural philosophy. Most visitors perceive the park's theme positively, yet they lack knowledge of the cultural values it represents. This disparity suggests the need for improved information media within the park to enhance visitor understanding, potentially influencing visitor behavior and increasing cultural appreciation. The study emphasizes the importance of cultural education in thematic park design, highlighting the necessity for effective communication strategies to convey local philosophies. Further research is recommended to explore innovative media strategies for enhancing the transmission of cultural values in park settings.

1. Introduction

1.1. Research Background and Purpose

Denpasar City, Bali, is home to a significant Green Open Space (RTH), the Monumen Perjuangan Rakyat Bali (MPRB), widely known as the Bajra Sandhi Monument. Green Open Spaces are developed to meet the community's needs, providing both ecological benefits and aesthetic value. One evolving form of RTH is the thematic park, a park designed with a specific nuance or theme to enrich visitor experience and cultural significance【1】. Thematic parks play a crucial role in embodying philosophical elements, enhancing their educational and cultural value. In the context of Bali, the concept of Tri Hita Karana serves as a fundamental spatial planning philosophy, which manifests through the Tri Mandala principle, dividing spaces into hierarchical zones. When implemented comprehensively, this philosophy ensures that land use is harmoniously aligned with cultural values, avoiding discord among the elements of Tri Hita Karana【2】. Understanding how this philosophy is integrated into thematic parks like the Bajra Sandhi Monument Park is vital for promoting cultural awareness and sustainability in urban planning.

The Bajra Sandhi Monument has become a prominent public space and cultural landmark, attracting the attention and interest of both local residents and tourists. Its architectural grandeur and traditional Balinese design patterns evoke admiration, reinforcing its status as a cultural tourism landmark in Bali. Visitor engagement with the monument is considerable, with an average of 100 visitors daily during the COVID-19 pandemic, surging to 14,342 visitors in

February 2023【3】. This high level of visitor interest underscores the monument's role as a cultural and recreational destination. The monument's architecture embodies the Tri Mandala concept, dividing the park into three main areas: Niti Mandala Renon Field Area (Nista Mandala), Monument Park Area (Madya Mandala), and Monument Area (Utama Mandala). These divisions reflect the Balinese philosophy of Tri Mandala and Tri Angga, which represent a harmonious hierarchy and structure within the landscape, including elements such as fish ponds and statue decorations that offer a distinctive experience to visitors.

However, there is a research gap concerning the extent to which visitors understand and appreciate the underlying cultural values embedded in the park's design. While the Bajra Sandhi Monument successfully integrates traditional Balinese spatial concepts, there is limited knowledge about how visitors perceive and internalize these cultural elements. This gap is critical, as it may indicate a disconnect between the design's intended cultural message and the visitor's experience, potentially undermining the monument's role in cultural education and preservation. Addressing this gap is essential to enhance cultural awareness and ensure that the thematic design serves its purpose in promoting local wisdom.

This study aims to identify the local wisdom values embedded in the design concept of the Bajra Sandhi Monument Park and assess visitors' knowledge and perceptions regarding the park's thematic alignment with Balinese cultural philosophy. The research questions guiding this study are: (1) What local wisdom values are inherent in the design of the Bajra Sandhi Monument Park? (2) How do visitors perceive and understand the thematic concept of the park in relation to Balinese cultural values? The research seeks to contribute to the preservation of cultural values in landscape architectural design by highlighting the importance of aligning visitor experiences with cultural education. The implications of this study are significant for landscape architects, cultural planners, and urban developers, offering insights into how thematic parks can be leveraged to promote cultural awareness and sustainability in urban environments.

1.2. Literature Review

The Tri Hita Karana philosophy, foundational in Balinese culture, encompasses three core elements: Parahyangan (the relationship between humans and God), Pawongan (the relationship between humans and other humans), and Palemahan (the relationship between humans and the natural environment) (Local Government of Denpasar City, 2019). This philosophy serves as the basis for the use of space in Bali, ensuring harmony between spiritual, social, and environmental aspects. The application of Tri Hita Karana in spatial planning aims to protect spatial functions while minimizing negative environmental and cultural impacts. Therefore, spatial plans are designed to guide the realization of Tri Hita Karana philosophy, adapting it to the community's socio-cultural character. This philosophy provides a framework for sustainable development, emphasizing the balance and unity of these three relationships in daily life【2】.

Central to the implementation of Tri Hita Karana in spatial planning are the concepts of Tri Mandala and Sanga Mandala. The Tri Mandala concept, particularly in temple architecture, divides space into three zones: the inner, transition, and outer zones, which are interpreted as sacred, semi-sacred, and profane areas, respectively. These zones correspond to the levels of sanctity and are essential in the spatial organization of temple complexes. The outermost area, known as Jaba Sisi or Nista Mandala, represents the least sacred zone. The transition area, Jaba Tengah or Madya Mandala, holds a semi-sacred status, while the innermost area, Jeroan or Utama Mandala, is the most sacred and houses the temple's core spiritual elements【4】. This zoning approach ensures that the sanctity of the temple is maintained, with the placement of buildings and statues reflecting their level of holiness. The Tri Mandala concept not only preserves the spiritual significance of sacred spaces but also guides the harmonious integration of cultural and environmental elements in broader spatial planning contexts.

Perception plays a vital role in how individuals interact with and interpret their environment. It is defined as the experience of objects, events, or relationships acquired by interpreting sensory information【5】. Perception is inherently subjective, with each individual's perception potentially differing even when observing the same stimulus. Several internal and external factors influence a person's perception. Internal factors include individual feelings, attitudes, personality, prejudices, desires, expectations, attention, learning processes, physical conditions, mental health, values, needs, interests, and motivation. External factors encompass family background, the information obtained, knowledge of the surroundings, intensity, size, resistance, movement repetition, novelty, and familiarity with the object【6】.

Understanding these factors is crucial in analyzing how individuals perceive thematic park elements and cultural values. Three primary factors influence public perception: the perceiver, the target or object, and the situation. The perceiver's personal characteristics significantly shape the interpretation of what is seen. The characteristics and context of the target or object also play a crucial role in perception. Objects are not perceived in isolation; their relationship with the background and their similarity or proximity to other objects affect how they are interpreted. The situation, including the surrounding environment's elements, further influences perception by providing context for the object or event being observed【6】. In the context of thematic parks like the Bajra Sandhi Monument Park, these factors determine how visitors interpret and engage with the park's design and the cultural values it embodies. Understanding visitor perception is essential for ensuring that the thematic design effectively communicates the intended cultural messages and fosters a deeper appreciation of local wisdom.

2. Research Method

This study was conducted from June 2024 to August 2024 at the Bajra Sandhi Bali People's Struggle Monument, located in City Park on Jl. Raya Puputan No. 142, Panjer, South Denpasar, Denpasar City, within the central government area of Bali Province.

Figure 1. Research location at Bajra Sandhi Monument Park

The monument was chosen due to its significance as a cultural landmark and its embodiment of the Tri Hita Karana philosophy in its thematic park design. The research employed a survey method, integrating various data collection techniques such as observation, interviews, perception analysis, and literature review. This multifaceted approach was aimed at gaining a comprehensive understanding of visitor perceptions and experiences in relation to the park's thematic elements, cultural integration, and overall design.

The identification of visitor perceptions was carried out through structured questionnaires distributed to park visitors. The survey was designed to capture data on four key aspects: theme, comfort, beauty, and completeness of park elements. The 'theme' aspect explored visitors' perceptions and preferences regarding the alignment of the park's thematic concept with local culture, assessing the park's success in conveying its intended cultural narrative. 'Comfort' assessed visitors' perceptions of cleanliness, safety, and accessibility, which are crucial for the overall visitor experience and influence their engagement with the park environment. 'Beauty' focused on the aesthetic aspects, including the diversity and arrangement of plant species, as well as the maintenance of both hardscape and softscape elements. Finally, 'completeness of park elements' evaluated visitor perceptions of the infrastructure within the park, including amenities and facilities that contribute to a well-rounded visitor experience.

For the sampling process, a non-probability sampling method was utilized, where not all visitors had an equal chance of being selected as part of the sample. This method was chosen due to the nature of the study, aiming to capture a diverse range of visitor experiences and perceptions within a limited timeframe. By using this approach, the study could target specific visitor groups that were more likely to provide insightful data on the thematic and cultural aspects of the park. The data collected were then analyzed to identify patterns and trends in visitor perceptions, providing valuable insights into how the park's design and thematic elements are perceived by different segments of the visitor population. This analysis contributed to understanding the effectiveness of the Bajra Sandhi Monument Park in conveying its cultural narrative and the role of thematic design in enhancing visitor experiences.

3. Results and Discussion

3.1. Cultural Value in Thematic Parks

Figure 2. Division of Tri Mandala Concept Zoning

Thematic parks are distinguished by their unique characteristics, which are tailored to align with a specific theme, setting them apart from other park types. Each thematic park incorporates elements that reflect its chosen theme, resulting in diverse and distinct park experiences. In Bali, the traditional park theme is deeply rooted in the island's cultural heritage, particularly through the concept of Tri Mandala. This traditional Balinese philosophy serves as a foundational guide for optimizing the use of sacred spaces, aiming to foster spiritual well-being and holistic human development. Tri Mandala divides spaces into three hierarchical areas: utama mandala (main area), madhyama mandala (middle area), and kanistama mandala (outer area)【4】. This zoning principle is integral to Balinese cultural practices, ensuring that

spatial arrangements within parks and temples adhere to a structured order that reflects spiritual significance and cultural values.

Bajra Sandhi Monument Park exemplifies the application of the Tri Mandala concept in its spatial organization, divided into three distinct zones: the Niti Mandala Field Area (Nista Mandala), the Monument Park Area (Madya Mandala), and the Monument Area (Utama Mandala). The Niti Mandala Field Area, situated on the outermost side (Jaba Sisi), functions as a space for public activities, including sports, community events, and cultural festivals. This outer area aligns with the kanistama mandala concept, providing a profane space that fosters social interaction and community engagement. The Monument Park Area occupies the middle zone (Jaba Tengah), serving as a transitional space that surrounds the core monument area. This semi-active zone reflects the madhyama mandala, acting as a buffer while offering a more serene environment that gradually leads visitors towards the monument's center. The Utama Mandala (Jeroan) represents the innermost and most sacred area of the monument, serving as the focal point and housing a temple for worship. This zone aligns with the concept of utama mandala, emphasizing the spiritual essence and cultural sanctity of the space.

The findings highlight the park's successful implementation of the Tri Mandala concept, mirroring traditional Balinese spatial arrangements that balance public use with spiritual sanctity. The division of the park into these three zones not only serves functional purposes but also conveys cultural values through its design. This thematic structure creates a journey for visitors, transitioning from the outer, more profane areas to the inner, sacred core, thus providing a layered experience that reflects Balinese cultural and spiritual principles. Comparatively, previous research on thematic parks has focused on their aesthetic and recreational value, often overlooking the deeper cultural and philosophical aspects embedded within their design. This study contributes to the literature by demonstrating how thematic parks can serve as mediums for cultural preservation, offering visitors an immersive experience that educates and fosters appreciation for local traditions.

The implications of these findings are significant for landscape architecture and cultural heritage preservation. By incorporating traditional cultural concepts like Tri Mandala into park design, thematic parks can function as educational tools that communicate and sustain cultural narratives. This approach not only enhances the visitor experience by providing a deeper understanding of local culture but also supports the preservation of intangible cultural heritage. Future research could explore the impact of visitor engagement with thematic parks on cultural awareness and appreciation, as well as investigate how different cultural philosophies can be integrated into thematic park designs globally. The successful application of the Tri Mandala concept in Bajra Sandhi Monument Park offers a model for how cultural values can be effectively embedded in public spaces, promoting a harmonious relationship between modern recreational needs and traditional cultural principles.

3.2. Users' Perception

Understanding the relationship between user activities, accessibility, and utilization in thematic parks is crucial for assessing how visitors perceive and interact with these spaces【1】. In the context of the Bajra Sandhi Monument Park (MPRB), this relationship provides insights into the effectiveness of the park's design in conveying its cultural theme. The study reveals that 56.66% of visitors believed they were aware of the park's theme, while 43.33% indicated they were not. This suggests a significant portion of visitors may not fully grasp the cultural nuances embedded within the park, highlighting a potential gap in the park's ability to communicate its thematic intent effectively. Such findings emphasize the importance of providing adequate information facilities within thematic parks to enhance visitor understanding and engagement, particularly for foreign visitors and those unfamiliar with local traditions.

Visitors expressed a desire for more informational resources related to the park's theme, indicating that enhancing such facilities could increase their insight into the Balinese Traditional Park Theme. This aligns with previous research suggesting that knowledge of history, cultural values, and myths enhances the visitor experience, contributing to increased tourist attraction and visit frequency【7】. By providing educational materials and interpretive displays, the park could bridge the gap between visitors' visual perceptions and their understanding of the cultural philosophy underpinning the landscape design. This educational approach would not only enrich the visitor experience but also promote cultural appreciation and preservation.

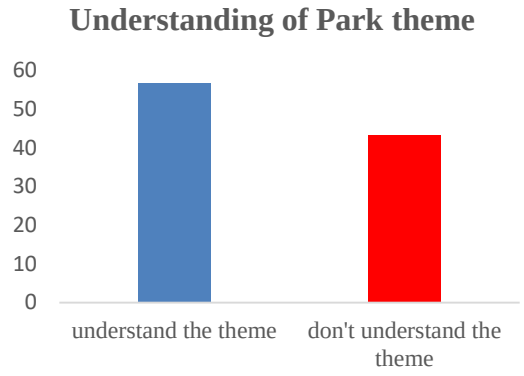

Figure 3. Respondents' Knowledge of Themes

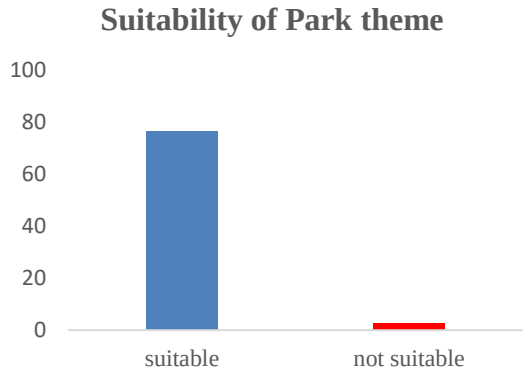

Figure 4. Respondents' Perception of Theme Suitability

Figure 5. General overview of tree planting at the research location

Figure 6. Puppet statues at the research location

The harmony between the monument's theme and the surrounding park is an essential factor in creating a cohesive and culturally resonant space. The study found that 76.66% of visitors perceived the park's theme as appropriate, indicating that the Balinese Traditional Park complements the monument's aesthetic and philosophical elements. However, 23.33% of visitors disagreed, suggesting a divergence in perception that may be influenced by individual backgrounds or varying levels of cultural knowledge. The presence of traditional Balinese

garden elements, such as specific plant species like frangipani, bottle palm, and Bodhi tree, as well as puppet statues, contributes to the park's cultural nuance. These elements align with traditional Balinese garden design, reinforcing the park's thematic authenticity and enhancing its visual appeal.

Despite the successful integration of cultural elements, the study identified a discrepancy between visitors' visual perception of the park and their understanding of its cultural philosophy. While the design effectively incorporates Balinese concepts, the lack of visitor knowledge about the underlying theme suggests that the visual representation alone is insufficient for conveying the park's cultural narrative. This finding is consistent with previous studies that emphasize the need for interpretive materials and educational programs to facilitate a deeper understanding of cultural heritage in public spaces. The limitation of this study lies in its reliance on visitor perceptions, which may be influenced by individual biases and varying levels of cultural familiarity. Future research could employ a more in-depth qualitative approach, such as interviews or focus groups, to explore the nuances of visitor engagement with thematic parks and develop strategies for enhancing cultural education.

In conclusion, while the Bajra Sandhi Monument Park effectively embodies the Balinese Traditional Park theme through its landscape design and cultural elements, there remains a need for improved communication of its cultural philosophy to visitors. Providing more informational resources and interpretive experiences could enhance visitor knowledge and appreciation of the park's cultural significance. This study contributes to the understanding of how thematic parks can serve as tools for cultural education and preservation, suggesting that future research should explore innovative methods for engaging visitors with cultural themes in public spaces.

4. Recommendation

Given the study's findings that the Bajra Sandhi Monument Area successfully implements the Tri Mandala Concept in its landscape design, yet many visitors remain unaware of this cultural philosophy, it is crucial to enhance educational and informational resources within the park. The lack of visitor understanding regarding the cultural theme may lead to a disconnect between the intended cultural narrative and visitor experience, potentially impacting tourist behavior in a way that diminishes the value of culturally-based tourism. To address this gap, it is recommended that the park introduces comprehensive information facilities, such as interpretive signage, guided tours, and digital media presentations, that explain the significance of the Tri Mandala concept and its application in the park's layout. These resources should be designed to engage visitors of diverse backgrounds, including international tourists, ensuring that the information is accessible and appealing. By providing a clearer understanding of the cultural values embedded in the park's design, these efforts can enhance the visitor experience, promote respectful and informed interactions with the space, and increase the park's appeal as a cultural tourism destination. Furthermore, integrating educational programs or workshops focusing on Balinese cultural philosophies could foster a deeper appreciation and encourage visitors to engage more thoughtfully with the cultural environment. This approach not only enriches the tourist experience but also contributes to the long-term preservation and dissemination of Balinese cultural heritage. Therefore, enhancing the communication of cultural themes is essential for aligning visitor perceptions with the park's philosophical intent and sustaining its role as a cultural landmark.

5. Conclusion

The Bajra Sandhi Monument Park effectively integrates the Balinese Traditional Park theme through the implementation of the Tri Mandala concept, dividing the area into three distinct zones: Niti Mandala Renon Field, Monument Park, and Utama Mandala. This spatial arrangement aligns with Balinese cultural philosophy, offering a rich and immersive

experience. However, the study reveals a gap in visitor understanding, as many are unaware of the Tri Mandala concept despite recognizing the park's thematic appropriateness. This finding implies that while the park visually represents its cultural philosophy, there is a need for enhanced communication and educational resources to deepen visitor knowledge and appreciation. The research underscores the importance of thematic parks as cultural educational tools, suggesting that providing more interpretive experiences and information can influence visitor behavior positively and enhance the cultural significance of such spaces. Future research should explore innovative methods, such as interactive media or guided educational programs, to engage visitors more effectively with the cultural themes in public spaces, ensuring a more informed and enriching visitor experience.

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Environmental graphic design, sustainable development solutions for the community.

Nguyen Dac Thai

Faculty of Art and Design, Van Lang University, Ho Chi Minh City, Viet Nam
No. 69/68 Dang Thuy Tram st., Binh Thanh District, Ho Chi Minh City, Viet Nam

Abstract. The change in social structure has led to a change in how people live in the community, so the old community space cannot be transformed simply by increasing its function and beautifying it. To achieve sustainable development for the community, we need to create new, more adaptive meanings for the community interaction space to improve the quality of life. Based on the research of SEGD (Society for Environmental Graphic Design) and experience design and the theory of meaning change, this study points out the role, benefits, and values that the field of environmental graphic design contributes to the sustainable development of a community. The study further demonstrates the practical relevance of these findings through case studies of global projects, such as the High Line in New York City and the Cheonggyecheon Restoration Project in Seoul, where design thinking methods have been instrumental in constructing modern living environments that are more suitable for people's lifestyles in the new era. This research underscores the importance of environmental graphic design systems in addressing issues in local community interaction environments tailored to people, context, and sustainable development. It also offers a fresh perspective on the role of this design approach in the sustainable development of residential areas in Ho Chi Minh City.

1. Introduction

1.1. Research Background and Purpose

In 2015, the United Nations announced 17 Sustainable Development Goals (SDGs) in "Transforming our world: The 2030 Agenda for Sustainable Development", of which SDG 11 is "Build inclusive, safe, resilient and sustainable cities and human settlements", which states that all countries need to strengthen their capacity to plan and manage human settlements, liveable communities inclusively and sustainably, and provide safe, inclusive, accessible and green public environments for all, especially women, children, older persons and persons with disabilities, and build inclusive and sustainable communities. The public environment is the closest contact with people in the urban living environment. Considering the needs of different people in improving community spaces and building safe, accessible and inclusive public spaces is of great significance to the sustainable development of communities. In recent years, changes in the economy, culture, population structure and living habits of people in the community have greatly affected the living environment. Therefore, enhancing the experience of community spaces is an issue that needs to be addressed. Human interaction in the community environment will create practical values regarding material and spirit. Therefore, the transformation of old communities not only focuses on physical space but also needs to rethink the meaning of the old community. Thus, environmental graphics play a meaningful role in creative design. Liveable communities should be inclusive and sustainable and provide safe, accessible, and green public environments for all, especially women, children, older persons, and persons

with disabilities. They should also build inclusive and sustainable communities. The public environment is the closest contact with people in the urban living environment. Considering the needs of different people in improving community spaces and building safe, accessible and inclusive public spaces is of great significance to the sustainable development of communities. In recent years, changes in the economy, culture, population structure and living habits of people in the community have greatly affected the living environment. Therefore, enhancing the experience of community spaces is an issue that needs to be addressed. Human interaction in the community environment will create practical values regarding material and spirit. Therefore, the transformation of old communities not only focuses on physical space but also needs to rethink the meaning of the old community. To do this, environmental graphics play a critical role and are significant in creative design.

For sustainable community development, we must fundamentally promote the old community's change of meaning and value. Environmental graphics will contribute to designing community living spaces in residential areas and promote sustainable development through interactive relationships between people and the environment, ecology, and culture. Through the art of environmental graphic design, this study builds a conceptual framework for interaction and experience design based on the theory of meaning change and design thinking methods. For sustainable community development, we must fundamentally promote the old community's change of meaning and value. Environmental graphics will contribute to designing community living spaces in residential areas and promote sustainable development through interactive relationships between people and the environment, ecology, and culture. Through the art of environmental graphic design, this study builds a conceptual framework for interaction and experience design based on the theory of meaning change and design thinking methods.

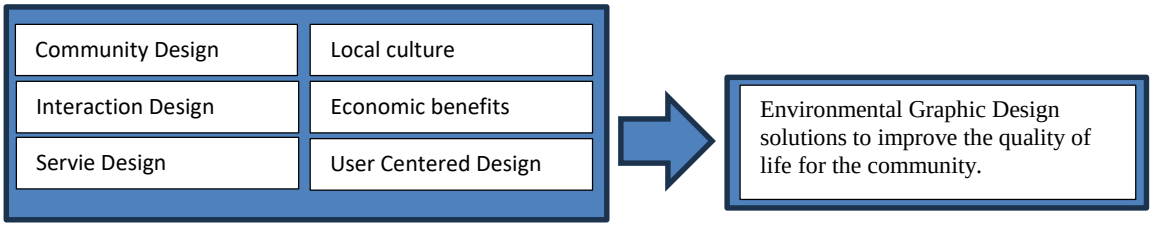

Figure 1. Summary diagram describing the EGD field

1.2. Literature Review

Urban environmental sustainability encourages the restoration and transformation of metropolitan areas and cities to improve livability, promote innovation, and reduce environmental impacts while maximising economic and social benefits. However, this transformation can take different directions depending on local needs and opportunities. Common approaches include initiatives aimed at resilience, greening, low carbon, inclusion, health, or circularity. Resilient cities focus on their ability to survive, adapt, and thrive while considering external stresses such as climate change. Green strategies often include the provision and restoration of nature through nature-based solutions. Inclusive cities take the needs and equity of their communities seriously by promoting spatial, social and economic strategies geared towards inclusion. Healthy cities focus on providing people with physical and social environments that allow for daily activities without incurring health risks such as high noise exposure or air pollution. Strategies include expanding green areas and pedestrian pathways or creating bicycle lanes [2]. Urban environmental sustainability encourages the restoration and transformation of metropolitan regions and cities to improve livability, promote innovation, and reduce environmental impacts while maximising economic and social benefits. However, this transformation can take different directions depending on local needs and opportunities.

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The study of sustainable neighbourhoods and healthy lifestyles requires a multidisciplinary approach in which environmental quality and human well-being must be addressed. In this context, the quality of life in a city is directly related to the quality of public spaces in a residential area. There are several benefits associated with the creation of quality public spaces, from supporting the local economy to improving the quality of public health through better conditions for walking, a better urban environment or better mobility (both collective and public transport as well as seamless modes of travel). Therefore, the future goal is to design urban community places that are active, enjoyable and have a positive impact on the environment, the main ideas being open spaces to improve health, quality of life and human contact; street and square frameworks; greenery and landscaping to enhance pollution; differences in landscape and culture; a sense of place that combines the new with the old; use of natural resources such as solar energy…[3]several benefits associated with the creation of quality public spaces, from supporting the local economy to improving the quality of public health through better conditions for walking, a better urban environment or better mobility (both collective and public transport as well as seamless modes of travel). Therefore, the future goal is to design urban community places that are active, enjoyable and have a positive impact on the environment, the main ideas being open spaces to improve health, quality of life and human contact; street and square frameworks; greenery and landscaping to enhance pollution; differences in landscape and culture; a sense of place that combines the new with the old; use of natural resources such as solar energy…[3]

Recently, more and more researchers have focused on sustainable urban design. Concerns include sustainable design concepts for climate and environment by reducing carbon emissions and saving energy as ideas for making cities more sustainable by enhancing physical space. Although the sustainable design of urban space is the focus of design, a significant obstacle to concrete design is the degradation of the existing spatial environment, which needs to be adequately addressed. Many designs attempt to achieve sustainable design through large-scale demolition and construction or small-scale renovation, such as urban reconstruction, demolition, organic renovation, community renovation, green space renovation [4], etc. However, since the renovated space still cannot meet the new lifestyle needs of urban residents or fundamentally change the environmental degradation, the renovated space will again have low space utilisation, traffic congestion, poor environmental sanitation and other problems in a relatively short period. Therefore, a new design framework is needed to guide the design in solving these existing ecological degradation problems and achieving sustainable design. This paper builds a conceptual framework for design based on the theory of meaning change.[5].a relatively short period. Therefore, a new design framework is needed to guide the design in solving these existing environmental degradation problems and achieving sustainable design. This paper builds a conceptual framework for design based on the theory of meaning change.[5].

Visions and activities of SEGD projects. The Chamberbrook Business and Arts District. Finalist 2023 The Chamberbrook Business and Arts District of North Side RVA is a groundswell effort by longtime residents, community organisations, and designers to engage international entrepreneurs, artists, business owners, and all neighbours in conversations on revitalising the neighbourhood along Chamberlayne Avenue and Brookland Park Boulevard intersection. Our client challenges us to restore this area through tactical urbanism, with placemaking

critical in addressing the root causes of poverty and violence.[10]

2. Research Method

Case study: The Barcelona City Model

Several cities have undertaken transformation projects to provide their citizens with high-quality public spaces that enhance their quality of life. Pedestrian-friendly urban neighbourhoods are being implemented across Europe. In Barcelona, Spain, since 2016, a redefinition of public space and reduced road traffic has been implemented. In this model, streets become community centres, facilitating children's playgrounds, fixed areas, conveniences or dedicated lanes for physical activity. [9]centres, facilitating children's playgrounds, fixed areas, conveniences or dedicated lanes for physical activity. [9]

Gamcheon Mural Village in southern Korea is famous for its lovely and fresh beauty, but few people know that this place was once a gathering place for refugees during the Korean War in 1950. This emotional history has created an exceptional setting for the village, making each spiral alley, each slope and each vertical staircase more impressive than ever. Behind the beauty of diverse colours and designs, Gamcheon Mural Village contains touching stories of human resilience and hope in difficult times. Previously, when it was first built, the houses here used wooden materials and more than 800 were made temporarily along the mountain road. After the war ended, the lives of the people here did not develop much. It was not until 2009 that the government ordered the renovation of the entire village, and this place was built and used to combine colours as it is today. Thanks to that, it is now one of the top tourist attractions in Korea. The renovation has created a village with unique beauty, attracting the attention of tourists worldwide and becoming a must-see destination when visiting Korea.

Design Thinking (according to 5 stages): In the design thinking method, wicked problems refer to complex challenges that do not have clear solutions or boundaries. Unlike puzzles with definite answers, wicked problems are unique, have no classic formula, and their potential solutions are countless. Complexity arises from the connection of elements and the inability to use previous solutions for a new problem. These problems often require creative, personalised approaches and deep understanding. Design thinking as a methodology emphasises empathy, iteration, and collaboration, making it well-suited to solving complex problems by redefining and understanding them from multiple perspectives.

3. A theoretical study

Global Public Space Programme: The UN-Habitat Urban Lab has published "My Neighborhood," a guide that provides a checklist of urban design principles to create more sustainable and resilient cities. Consisting of actions that can be applied at the neighbourhood scale, the guide presents an integrated approach that addresses critical areas such as transportation, local urban initiatives, housing, public spaces, amenities, and more. The guide's goal is to help create good neighbourhoods, understood as areas that provide an enabling environment to enhance the quality of life for all. The neighbourhood scale ensures the maximum impact of these strategies without losing the perspective of the city-wide systems that contribute to the neighbourhood.[7]

The Concept of Meaning Change: Donald A. Norman and Roberto Verganti developed the concept of meaning change. Their research on product and service innovation found that innovation can be divided into two types: incremental innovation and radical innovation. Incremental innovation advocates further improvement of the function or appearance of existing products, allowing for a better solution to an existing problem. However, it does not solve new problems, let alone discover new ones. Radical innovation advocates thinking outside the box and identifying new issues and solutions. Therefore, radical innovation can often provide a new solution when a product's design is problematic. One of the best ways to achieve radical innovation in a product or service is through meaningful change. This method can give the product or service a new meaning and language. It identifies new problems

that existing products or services do not address through in-depth research on social changes and finally proposes solutions.[5]

4. Design Process

The design is carried out according to the design thinking process, field trip survey, data synthesis and analysis, and economic, cultural, environmental and human impact assessment in an actual community area. The storytelling concept is built on the factors of Indigenous cultural characteristics, community development strategies and plans to improve the quality of life of people in the community. Modern technology factors such as materials, lighting, and modern interactive communication techniques must be considered and actively applied to have high interaction efficiency in the community, bringing significant economic benefits.

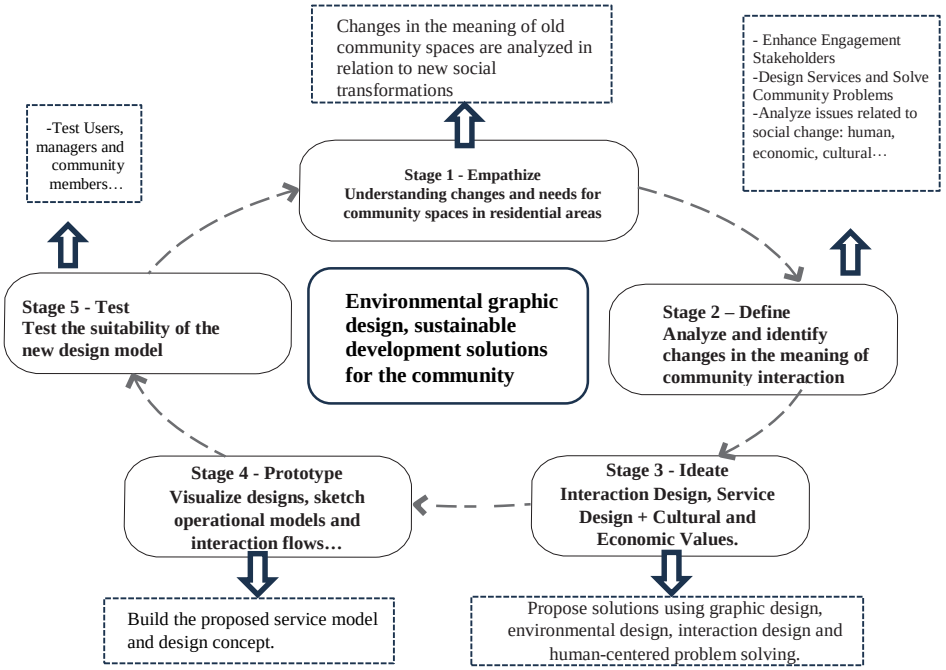

Figure 2. Design Process

5. Conclusion

The design method based on the framework of meaning change is a new approach to designing the community environment. The core of this theory is to recognise the problems of the existing climate in both material and immaterial aspects through the analysis of new social changes and then give new meanings to the existing community from a new perspective to redesign the community environment and improve the quality of life. This approach can provide new ideas for environmental graphic design and solve the problems caused by the degraded environment and lack of meaning of the existing space to reconstruct a community living space that is environmentally, ecologically and culturally sustainable. Degraded environment and lack of meaning in the existing space to rebuild an environmentally, ecologically and culturally sustainable community living space.

Successful community environments support and facilitate social activities and interactions, which can help improve existing spaces or build public environments with the understanding that quality and comfort can be achieved without additional costs. Because the structure of the community environment in the residential area is essential, the types of community activities in each residential area must be considered and analysed separately. The analysis

shows a clear relationship between the stakeholders in the community environment. Environmental graphic design will significantly improve the organisation of the community's living environment. Environmental graphic design will be created based on service design elements and interactive design, exploiting the community's cultural values and socio-economic development and improving the quality of life of people in the community. Based on service design elements, interactive design, exploiting the community's cultural values and socio-economic development, improves the quality of life of people in the community.

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Challenges in Integrating Traditional Brocade into Modern Design: An Interdisciplinary Approach to Sustainable Preservation and Innovation in Vietnam

Ho Thi Thanh Nhan

Van Lang University
No. 69/68 Dang Thuy Tram Street, Ward 13, Binh Thanh District, Ho Chi Minh City, Vietnam

Abstract. This paper explores the challenges and potential solutions in integrating traditional Vietnamese brocade into modern design through an interdisciplinary approach. Focusing on the Central Highlands' brocade weaving tradition, the study highlights the cultural significance of brocade and its current decline due to modernization and socio-economic changes. Using fieldwork, digitalization of traditional patterns, and a review of international brocade preservation projects, the research aims to demonstrate the necessity of an interdisciplinary approach that incorporates textile engineering, information technology, and economics to effectively preserve and adapt brocade for contemporary markets. Case studies of successful integration of brocade into fashion and interior design demonstrate how modern applications can ensure the sustainability and continued relevance of this cultural heritage. The study concludes that collaboration across multiple disciplines is essential for the preservation, development, and commercial viability of traditional brocade, ensuring it remains a living heritage in the modern world.

1. Introduction

1.1. Overview of traditional brocade in Vietnam

Brocade stands as one of Vietnam's most prolific traditional handicrafts. Some typical examples include the brocade of Vietnam's northern mountainous ethnic groups (such as the H'mong, Dao, and Thai), the Cham people of the central coastal region (primarily in Ninh Thuan and Binh Thuan provinces), and the ethnic groups of the Central Highlands (most notably the Jrai, Ba Na, Ede, and K'ho). A cursory visual analysis of historical artifacts preserved in museums, private collections, or family heirlooms reveals distinct variations in color schemes, compositions, and detailed patterns among different cultural regions, while also highlighting similarities among ethnic groups that have been living for extended periods in shared natural environments.

The diversity and richness of Vietnam's brocade underscore the potential of this folk art throughout history. However, the significant social changes in recent decades, marked by increasing demands for quantity, functionality, and aesthetic preferences, have rendered traditional production methods inadequate. Consequently, the craft of brocade weaving has been gradually declining in various localities. Moreover, the ease of cultural exchange within Vietnam among different regions has posed a risk to the preservation of unique regional characteristics in brocade, as local styles become increasingly hybridized. Over time, this could lead to the erosion of the distinct identities of ethnic groups and cultural regions.

1.2. Research objectives

Based on published research on Vietnamese brocade and fieldwork data collected on the current state of restoration, preservation, and promotion of brocade in the Central Highlands cultural region, this paper aims to highlight the value of brocade heritage in Vietnam and its potential applications in modern design. Through several case studies of brocade preservation and promotion projects in contemporary design around the world, including Vietnam, the paper also identifies common limitations of current projects and demonstrates that an interdisciplinary research approach is essential for addressing many issues faced by ongoing and future projects.

1.3. Literature review

Recent years have seen extensive documentation in the media regarding the Vietnamese government's policies and initiatives aimed at revitalizing and preserving the traditional textile weaving craft of ethnic minority communities. Such information is readily accessible through the websites of cultural management bodies at both the national and provincial levels, including the Committee for Ethnic Minority Affairs, the Vietnam Museum of Ethnology, and various provincial museums in regions like Gia Lai, Dak Lak, and Ninh Thuan. These sources provide detailed accounts of the government's ongoing efforts in this area. In addition, published scientific papers and completed research projects on this subject are no longer rare, such as those focusing on the brocade of ethnic groups in the Central Highlands in general [7] or specifically on the brocade of different ethnic groups like the Jrai [4], Ede [8], or Cham [6]. However, most of these studies have been limited to fieldwork and the documentation of the costumes and patterns of ethnic groups, with most aiming to affirm their cultural and historical value rather than to elucidate aesthetic characteristics and propose specific solutions for modern design applications. Studies on the potential application of brocade textiles in modern designs in Vietnam have emerged but are scattered and primarily within the fashion field [5]. Although the solutions go further, such as the digitalization of patterns, they have not yet presented truly groundbreaking technological innovations. Additionally, Vietnamese research in the areas of trade and market consumption of brocade has also surfaced [3], focusing on the economic viability and commercialization of these traditional crafts in both domestic and international markets.

There are several international studies that explore the integration of traditional brocade heritage into modern design, in which technological issues are studied much more thoroughly. For example, research on Zhuang brocade from China [1] discusses the use of automated pattern generation technology to reinterpret traditional patterns for contemporary cultural products. This involves extracting key pattern elements like colour and organization using machine learning algorithms, which are then applied in modern design contexts, particularly through computer-generated patterns. Specifically, from a technical perspective, modern algorithms such as K-means have been employed to cluster colours and extract image features from representative Zhuang brocade samples. Image processing algorithms like GrabCut and the Relative Total Variation (RTV) model have been applied to extract the morphology of patterns and the compositional structure in these brocade samples.

Another study on Dong brocade from Hunan Province, China [2], offers a fresh perspective on the impact of identity formation and diversification among artisan groups on innovation in traditional craft design. This research highlights the importance of state policies in preserving intangible cultural heritage, which significantly influences the traditional craft market and leads to the diversification of artisans' social identities. These social identity groups include inheritors of intangible cultural heritage, traditional artisans, performing artisans, and modern ethnic designers. Artisans with different social identities tend to innovate brocade in distinct directions, such as traditional products serving daily life or modern designs inspired by brocade. For example, cultural heritage inheritors focus on preserving and

creatively developing traditional weaving techniques, while modern designers incorporate brocade elements into contemporary products. Overall, the study provides an in-depth look at the interplay between heritage preservation and creative innovation in a modern context, emphasizing the importance of social and economic factors in the development of traditional crafts. Similar studies that reach comparable conclusions underscore the significance of interdisciplinary approaches in determining the success of restoration, preservation, and innovation projects, breathing new life into brocade in a way that aligns with the present era.

The gap, or rather the weakness, in research on brocade in Vietnam can be observed in the fact that the research subject is often approached from the perspectives of different disciplines. As a result, finding comprehensive solutions is often challenging, particularly due to the lack of studies on techniques and traditional innovation solutions for creatively applying brocade in the design industry. Therefore, this paper investigates the challenges and solutions involved in transforming traditional brocade into modern designs, with a particular focus on the urgency and advantages of an interdisciplinary approach. Such research can serve as a reference for brocade conservation and development projects in Vietnam.

2. Research process

This paper adopts an interdisciplinary research approach, integrating perspectives from cultural studies, history, design, textile engineering, materials technology, information technology, digital replication, and finally, business and commercial promotion to ensure long-term product distribution. The research was conducted in several steps: Firstly, published studies on brocade, including websites, papers, books, and national and local projects in Vietnam were collected, analyzed and compiled to create a secondary database of brocade images from various ethnic groups, as well as to draw conclusions on Vietnamese brocade from the viewpoints of experts in different fields. Simultaneously, fieldwork and data collection, including activities of photo taking and interviewing artisans, residents, and cultural management officials, were carried out. Additionally, market demand surveys were conducted locally with two primary groups: ethnic minorities and tourists, revealing their emerging needs for brocade, both now and in the future. However, all these methods are widely used in previous research.

The novelty of this study lies in the author's attempt to design an integrated project combining the familiar methods with some other approaches that are rarely emphasized in cultural preservation projects, maximizing the involvement of different disciplines, particularly from the fields of economics and technology. Specifically, after data on brocade patterns were collected from two main sources including historical documents and fieldwork, they were categorized according to various criteria (such as form, meaning, size, and proportion). Experts in textile engineering would then be responsible for encoding these brocade patterns into diagrams, which could be stored as printed or digital documents. With these documents, anyone with knowledge of textile coding could reproduce the brocade patterns in the future, even if the original designs had been lost. In addition to digitalization for easy archiving, IT experts could further contribute to the research by using new technologies such as NFTs to ensure intellectual property rights and the heritage ownership of the ethnic communities to which each brocade lineage belongs. Finally, technology experts could collaborate with designers and economic experts to create efficient business models, where buyers and sellers (either directly with ethnic communities or through designers and companies) can interact in a sustainable and increasingly prosperous supply-demand relationship.

The result is a highly effective economic model with the participation of all stakeholders, aimed at enhancing the value of traditional brocade products, transforming brocade into a living heritage capable of adapting to contemporary life.

3. Interdisciplinary research approach

3.1. Rationale for using an interdisciplinary research approach

Based on field surveys of weaving practices in various regions of Vietnam, interviews with consumers and designers, as well as an analysis of the effectiveness of previous weaving restoration projects, there are numerous reasons supporting the assertion that applying an interdisciplinary approach to brocade research is justified. Broadly, there are three primary reasons as follows:

First, due to the complexity of brocade weaving: Brocade weaving is not merely a production technique, but it is also closely tied to cultural, social, economic, and environmental factors. Conducting a comprehensive study on the value of brocade and the potential solutions for applying these values to new designs requires the integration of knowledge from various disciplines. The interdisciplinary research approach allows researchers to examine issues from multiple perspectives, leading to more objective and comprehensive evaluations. Collaboration among researchers from different fields also enhances research efficiency, shortens the time needed for studies, and minimizes risks.

Second, due to the demand for product diversification: To meet the needs of the modern market, brocade products need to be redesigned, integrating with contemporary fashion trends. This requires the involvement of designers and market researchers, alongside traditional artisans. The integration of diverse interdisciplinary expert groups contributes various knowledge and skills, facilitating the generation of novel ideas that break free from the traditional approaches of previous isolated studies. This provides creative solutions for the preservation and development of brocade weaving.

Third, due to the critical importance of sustainability in the current concepts of preservation and development: Preserving brocade weaving must go beyond maintaining traditional techniques to include finding sustainable development solutions that generate income for local communities, ensuring that brocade weaving remains a living heritage. The innovation and relevance to contemporary life further enhance the value of traditional products in the eyes of new generations of consumers. Brocade products designed and developed based on interdisciplinary research tend to possess high aesthetic value, meeting the demands of the modern market.

3.2. Key fields for applying an interdisciplinary approach in brocade research

Based on the rationale for using an interdisciplinary research approach in brocade studies, the involvement of the following fields is essential:

Humanities: History, ethnology, and cultural studies are crucial for understanding the origins, significance, and cultural value of brocade weaving.

Natural Sciences: Chemistry and Biology contribute significantly to brocade research. Chemistry is essential for analyzing the materials used in brocade production, from fibers to natural dyes, and for developing methods to enhance the fabric's color fastness. Meanwhile, Biology focuses on studying the plants that serve as raw materials for weaving and natural dye production. Together, these two fields within the Natural Sciences provide a foundation for understanding and improving the materials and processes involved in brocade weaving, ensuring both cultural preservation and technological advancement.

Arts and Design: Research in fine arts helps identify the unique artistic value of brocade patterns, including color schemes, motifs, and layout. Some special majors in this field include Fashion and Interior Design play an important role in creating modern brocade products that align with market trends. Additionally, weaving techniques can be integrated into the early stages of digitalization, such as vectorizing photographed patterns to schematic layouts.

Information Technology: Digitalizing brocade patterns allows for data storage and the preservation of weaving techniques. Additionally, technologies such as NFTs (Non-Fungible Tokens) can protect the intellectual property of ethnic groups and modern designers who contribute to the creation of new products from this heritage.

Economics: Economics is vital for market research, developing efficient business models, and identifying distribution channels for brocade products.

The interdisciplinary approach enables a comprehensive exploration and modernization of brocade, ensuring its cultural preservation while promoting economic sustainability. All these fields are integrated into our ongoing research project titled *"Preserving, Developing, and Empowering Jrai Crafts in Vietnam through Co-Design, Innovation, and Education"*. The project aims to preserve, develop, and apply the traditional crafts (including brocade weaving) of the Jrai people in the Central Highlands of Vietnam, with a focus on sustainable cultural heritage and innovative applications.

4. Case study: Applying an interdisciplinary approach to the project of "Preserving, Developing, and Empowering Jrai Crafts in Vietnam through Co-Design, Innovation, and Education"

4.1. Background and objectives of the project

The Jrai people are one of five ethnic minority groups that migrated to Vietnam from Southeast Asian archipelagos, primarily from what are now Indonesia and Malaysia. According to the 2019 census, their population stands at 513,930, accounting for approximately 0.53% of Vietnam's total population. Despite possessing an impressive cultural heritage, most notably in brocade weaving and bamboo weaving, the Jrai community currently faces significant challenges in ensuring the survival and commercial viability of these traditional crafts in the future.

Initial data from the project indicates that both traditional crafts are on the verge of decline, particularly in terms of the diminishing number of artisans. In Ia M'nong commune, Chư Pah district, Gia Lai province, one of the areas where Jrai brocade weaving has been best preserved, the number of traditional brocade weavers (primarily women) has dropped to only 58, with just 8 of them under the age of 40, and the majority between 65 and 70 years old. Similarly, bamboo weaving (practiced by men) is now limited to about 10 artisans, all of whom are between 70 and 75 years old. Meanwhile, the younger generation shows little interest in learning these crafts, as traditional Jrai products are sporadically sold to tourists visiting Gia Lai and remain largely unadapted to the tastes of visitors from different regions and countries. Moreover, some rare brocade items produced in the 1970s, currently preserved in museums or by local families, demonstrate a far higher level of complexity and aesthetic quality than the recently produced commercial items. This highlights the urgency of the project, as the gradual loss of crafting techniques and patterns poses a serious threat to the survival of this artistic heritage. Without immediate efforts to document and preserve these traditions through various means, the art of Jrai brocade is at risk of disappearing entirely soon.

In response to this situation, the project was initiated with the goal of creating an intergenerational community of practice focused on the preservation, sustainable development, and empowerment of the intangible cultural heritage of the Jrai people in Gia Lai province, Vietnam.

4.2. Current members and a call for potential candidates for the Project

Based on the theoretical framework outlined above, the project adopts an interdisciplinary approach involving the participation of at least three groups as follows:

Van Lang University, Ho Chi Minh city, Vietnam: This group includes full-time faculty members from the Fashion Design and Interior Design programs within the Faculty of Fine Arts and Design, including the author of this paper who serves as the Project Leader. Additionally, the project involves approximately 100 students enrolled in these two programs.

Middlesex University, London, UK: This group comprises a Head of the Fashion Design Department with extensive expertise in textile research, having experience in textile development projects in India and several Southeast Asian countries; a Professor from the Telecommunications Department, Director of the London Digital Twin Research Centre, and Head of the 5G/6G and IoT Research Group at Middlesex University, with substantial experience in implementing digital twin projects for architectural heritage conservation in Egypt, machine learning projects for communications, and wireless network applications; as well as several fashion lecturers and policy specialists who can contribute from the economic and commercial perspectives of Middlesex University.

Local Community in Gia Lai province: This group includes a team of female artisans skilled in traditional brocade weaving, male artisans skilled in bamboo and rattan weaving, and the Jrai community in Ia M'Nong Commune, Chu Pah District, Gia Lai Province; the Community Tourism Management Board of Ia M'Nong Commune; the Women's Union of Ia M'Nong Commune; and a technical advisor who is a former Director of the Gia Lai Provincial Museum with a Ph.D. in History and extensive experience in the research and management of minority heritage conservation in the Central Highlands.

In addition, the project benefits from the support of various individuals and organizations from both national (expected involvement of representatives from the National Council for Cultural Heritage and Vietnam National Institute of Culture and Arts Studies in the project's final assessment) and cultural management agencies (currently including the Central Highlands Provincial Museums, the Community Tourism Management Board of Ia M'Nong Commune, the Women's Union of Ia M'Nong Commune, etc.). The interdisciplinary nature of the project has been fully utilized, allowing the project to progress from the heritage research phase to the innovation phase in both conservation and application development. The project continues to ensure close coordination and mutual support among members from different disciplines and is actively seeking the participation of experts from other countries, which is why we are sharing such an ongoing project at the 1st AAC conference.

4.3. Research steps and initial results of the project

(1) Field trip and document research: A series of field surveys were conducted in Gia Lai Province to engage with residents and understand their current weaving needs and skills. The photos of brocade, including artifacts woven before 1975 and then inherited by several generations, exhibit a level of detail and sophistication far exceeding that of modern brocade. Natural dye sources and tools used in the process were also documented through photographs and video descriptions of their use.

(a)

(b)

(c)

(d)

(e)

Figure 1. Collect samples of brocade and tools, take photos of patterns, and interview local people (source: Ho Thi Thanh Nhan, 2023-2024)

According to the information compiled from interviews with artisans, local residents, and officials involved in local cultural conservation projects, alongside the significant decline in the number of skilled traditional brocade weavers (as discussed in the project background), natural raw materials have also become extremely scarce. This has led to the inevitable replacement of most materials used in recent local products. Specifically, the traditional brocade base materials, once made from natural cotton fiber, have largely been replaced by imported wool or synthetic fibers. The black and indigo colors, dominant in the traditional brocade of the Jrai people, were originally dyed with extracts from the Mo plant (Figure 1d), a familiar herbaceous plant in their habitat. Other colors used in traditional Jrai brocade patterns including green, red, and yellow came from turmeric and certain minerals found in rocks and tree bark. White in these products was simply the color of cotton, which, after extensive processing, often turned ivory.

Although these materials are still used today, the finished products from them are limited in quantity, usually expensive, and primarily reserved for ceremonial gifts within families. The visible differences in hue and surface texture between brocade woven before 1975 and contemporary brocade (Figure 2) are not merely due to the age of the artifacts, but also to the properties of the dyes and fibers used. Traditional brocade has a muted tone and a rougher texture, as the cotton fibers were hand-spun using bamboo tools, resulting in a relatively thick and rough thread (Figure 2a). In contrast, modern brocade, although still woven by hand, is made from machine-spun synthetic or artificial fibers, producing sharper patterns, smoother surfaces, fewer wrinkles, and much brighter colors (Figure 2b).

(a) Traditional Jrai brocade woven before 1975, (source: Ho Thi Thanh Nhan, 2024)

(b) Modern Jrai brocade woven after 2011, (source: [4])

Figure 2. Comparison of traditional and modern brocade of the Jrai people in Vietnam

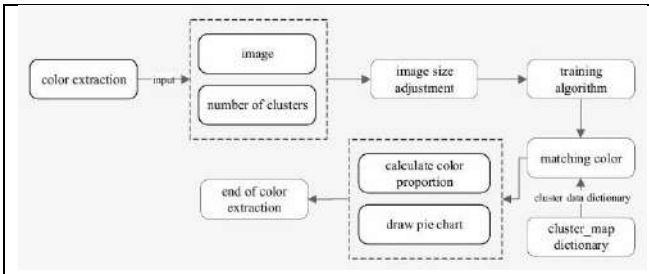
In cases where modern brocade is handwoven using wool fibers, the texture appears more porous compared to artificial threads, yet it still shares the overly smooth and uniform sensation, lacking the emotional depth derived from the “imperfections” inherent in traditional natural materials. Moreover,

the stark difference in colour palette between contemporary and traditional brocade is evident with the inclusion of many new colours, such as blue and purple. Particularly, the green hue now spans a range of distinct shades, further distinguishing modern brocade from its traditional counterpart (Figure 3).

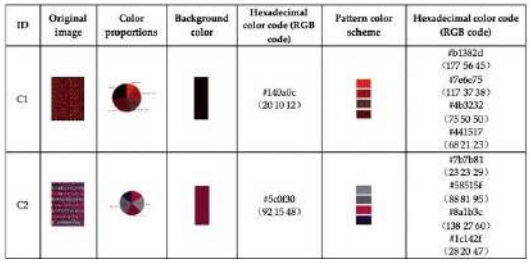
Figure 3. Colors of patterns on Jrai brocade woven after 2011 (source: [4])

Most documents from fields such as cultural studies, history, and geography offer valuable references regarding the origins, customs, and environments of ethnic groups, which in turn help explain the forms and materials of traditional brocade garments. These characteristics are shaped by local living habits, labor activities, and the availability of raw materials. While project reports in these areas often provide a rich visual database of Jrai brocade, they are typically stored within governmental agencies and rarely made publicly available. Consequently, designers face significant challenges in accessing and utilizing these detailed pattern statistics and descriptions of traditional weaving processes. This limitation underscores the major drawback of studies that do not employ an interdisciplinary research approach.

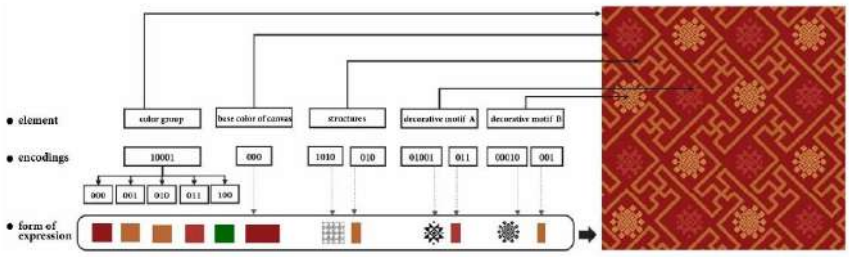
(2) Pattern Digitization: In order to digitize and archive patterns for the future restoration and innovation of brocade weaving, the project requires converting pattern shapes from photographs into a detailed schematic, mapping the position of each thread in the motif. Additionally, color analysis of the motifs must be conducted on a large enough sample size to identify colour characteristics that closely resemble traditional Jrai brocade. Based on this data, individual patterns and the broader weaving craft can be fully restored at any time, even if the craft itself is no longer practiced. Currently, the project has not yet applied precise algorithms for colour and pattern analysis; however, several techniques from prior research by Chinese authors could be leveraged for this purpose (Figure 4), (Figure 5).



(a) Flow chart of colour feature extraction

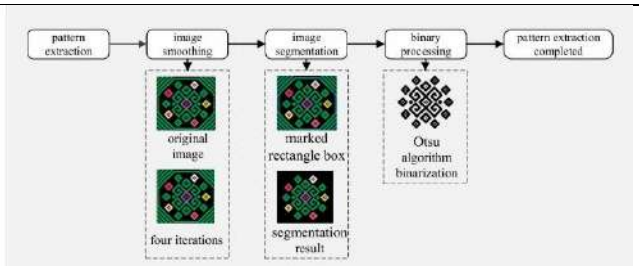


(b) Examples of extraction results



(c) Examples of extraction results

Figure 4. Refer to a color analysis process aplying on patterns from Chinese brocade (source: [1])



(a) Flowchart of pattern shape extraction (source: [1])

(b) An example applying on brocade of Ma people in Vietnam (source: [10])

Figure 5. Refer to a form analysis process aplying on brocade patterns in China (a) and Vietnam (b)

(3) Creative Application in Design: The project plan includes applying the digitized brocade patterns to designs in at least two fields including Fashion Design and Interior Design. The process of transforming traditional cultural values into commercial value involves the personal contributions of various stakeholder groups within society can be easily visualized by referring to previous global studies (Figure 6). Although modern applications of brocade in design have become more frequent, they often stem from separate, spontaneous efforts by individual designers. As a result, these designs do not always accurately reflect the characteristics of traditional brocade, primarily due to the absence of an interdisciplinary approach involving multiple fields (Figure 7).

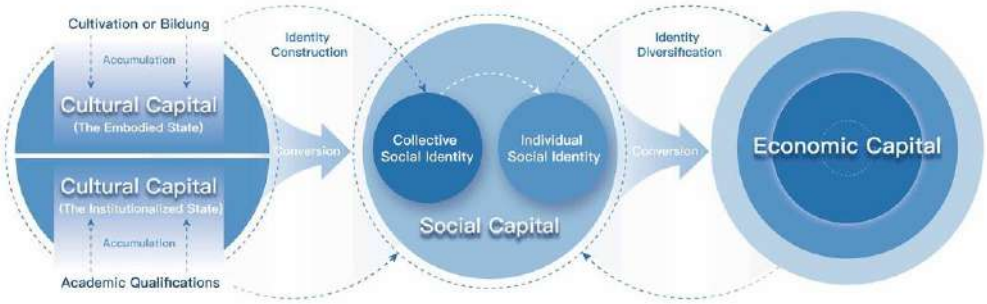


Figure 6. The process of transforming traditional cultural values into commercial value involves the personal contributions of various stakeholder groups within society (source: [2])

(a) Design process based on traditions

(b) Design products inspired by Zhuang brocade

Figure 7. Creative process from traditional heritage inspired by the Zhuang brocade research group (China) and some design products based on this heritage (source: [2])

(4) And more…: In sharing the project "Preserving, Developing, and Empowering Jrai Crafts in Vietnam th*rough Co-Design, Innovation, and Education"*, the members aim to connect with researchers from other disciplines, such as Chemistry, Biology, Information Technology, and Economics, to foster comprehensive collaboration. This approach seeks to address not only the cultural, aesthetic, and design values of the heritage but also enhance its value through contributions from technology and commerce, thereby ensuring a sustainable market for Jrai brocade products in Vietnam.

5. Conclusion

This study reaffirms the importance of an interdisciplinary approach to heritage preservation, particularly for brocade heritage, and for all forms of heritage in the contemporary context. The review of existing research from various countries highlights that an interdisciplinary approach is not only beneficial but essential. The field of design must extend its connections beyond cultural and social research to encompass material technology, information technology, and economics.

The project “Preserving, Developing, and Empowering Jrai Crafts in Vietnam through Co-Design, Innovation, and Education” serves as a case study to illustrate the necessity of such an approach. The Vietnamese government is actively engaged in cultural revival activities, encouraging the restoration and appreciation of ethnic heritage. However, these efforts alone are insufficient to ensure long-term success, particularly concerning the output of local brocade products.

To achieve meaningful development and integration of brocade products into both domestic and international markets, collaboration across diverse scientific fields is crucial. Interdisciplinary research

projects can provide valuable scientific insights, enhance designers' understanding of the cultural arts of various ethnic groups and nations, and facilitate exchanges between minority communities, designers, tourists, and consumers in both domestic and international markets. This interaction will enable local artisans to better understand market trends and preferences, make necessary adjustments, and take pride in seeing their products gain recognition and potential beyond local boundaries, reaching the international market.

Acknowledgements
We would like to express our sincere gratitude to the organizers of the AAC 2024 conference and Bangkok University for providing us with the opportunity to engage, exchange ideas, and present our ongoing project. We look forward to continued collaboration with individuals who are interested in exploring Vietnamese brocade in a comparative context with their own countries and contributing to this research.

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Designing for Inclusivity and Ecological Resilience: Integrating Betawinese Cultural Heritage into ISTN's Urban Landscape

Daisy Radnawati [1], Kuntjoro Pinardi [1], Sri Shindi Indira [2]

[1] Institut Sains dan Teknologi Nasional (ISTN), South Jakarta, Indonesia
[2] Universitas Pembangunan Panca Budi (UNPAB), Medan, Indonesia

Abstract. What the ISTN shows is how cultural and ecological environments can interweave: the Betawi heritage is preserved in the urban environment while the latter becomes the space for developing new environmental policies and initiatives. The end-product is the creation of a space that is not just populated with purpose, culture and sustainable activities but also becomes long-lasting. As an emerging and incredibly enriched model for international best-practice inclusive landscape architectural design, this subtlety serves as a radical innovation of the future of pro-human/culturally-sensitive/post-industrial city-making, healing, enhancing, and celebrating meaning in environment.

1. Introduction to Inclusive Landscape Design

The campus of ISTN in Setu Babakan offers a chance to combine Betawinese cultural identity with sustainable landscape design not as the art-form for aesthetic purposes, but as the tool of ecological sustainability and cultural resilience. This work demonstrates how a selection of the urban landscape can respond to some of the user's emotional and physical requirements, especially children and the elderly. The design adds ecological, functional, and cultural values into the functional elements of the landscape by integrating Betawinese Batik patterns for the improvement of the Betawi ethnic group, as well as providing everyone with an opportunity to become a part of the design.

Following Alberti's (2023) idea about city environments as complex and constantly changing ecosystems, ISTN is considered to be a flexible environment that complies with the culture and natural environment. As issues of climate change hit many urban areas Cities are forced to adapt and this calls from change in spaces. The overall concept is that of eco-evolutionary development being an important aspect to this project's design, with the landscape being flexible and constantly changing in response to both cultural and environmental changes. The philosophy of Design with Nature propounded by McHarg (1969) also underlines the concepts of functional ecology implicit in the project. Local species such as Hibiscus, Jasmine and Frangipani are important to facilitate local plant species, improve the quality of air and water provided and effective water management. It ensures that there are people-made modifications towards the landscape that are ecological and they will support ecosystems. McHarg underscored the importance of maintaining the well-being of the physical environment and cultural assets and this has been factored in the spatial design of ISTN campus.

Besides ecological objectives, the emphasis of the design is the subject of Yi-Fu Tuan's (1974) topophilia – the affection of people toward places. Lawasan motifs of Batik are incorporated into the interactivity of children's play structure and shaded seating area related to senior citizens appear to tap on a different emotional and physical level of connectivity in the specific environment. These features make it possible for the younger as well as the older generations to be able to associate with the environment in a cultural way. It is also based on John Dewey's theory of learning through experiences where the students interact with the different communities and environments to facilitate their learning.

Through integrating Betawinese cultural icons with indigenous plants and eco-friendliness, ISTN's campus not only illustrates the aspect of cultural mapping in cities but also the campus as a learning model of the interaction of people with nature. This is emphasised as how occupants can be engaged with history and nature through Inclusive Design, a timeless adaptable environment for learning and participation of all age groups. The elongation of these consolidations enhances people's appreciation of environment by keeping the physical arrangements of the landscape relevant and sustainable both culturally and naturally.

2. Cultural Engagement through Design

2.1.Integration of Betawinese Cultural Motifs

The landscape of ISTN campus is in the where it represents Betawinese culture and ecological in its campus design and it shows the deep roots of Betawi culture. Betawi culture based on centuries of the mingling process with the Chinese, Arab, Indian and Europeans can be represented through arts, where Batik's patterns and Ondel-Ondel dancers are most legendary. These ornaments are not only the features of the visual perception but also the ways of defining the Betawi people with the help of the culture artifacts that have the meaning of the narrative. For example, the Ondel-Ondel motif which was originally used in the Betawi culture during festivals to keep evil spirits at bay is now considered as a symbol of Betawi resistance and identity that symbolizes the existence of the indigenous community in the face of the contemporary forces of globalization.

Picture: Ondel-ondel Batik Motif
(source: https://www.batikprabuseno.com/artikel/edukasi/batik-betawi/)

Indeed, the Betawi culture has been able to evolve with the ever-changing society, and with elements such as the Ondel-Ondel growing as signs of an anchored society from the past, through the present to the future. These cultural elements are not mere ornaments; they are embedded with responsibility to provide users with emotional ties to the landscape thus improving on the cultural quality of the space. Such elements as Batik patterns, Ondel-Ondel can be integrated into the design of the campus area of ISTN, thus, they play ornamental and practical roles. Such symbols are creatively placed in pathways, seating areas, and water channels where users can touch, knead as well as feel attached emotionally while going through the pathways. Thus, by incorporating these motifs into the actual and practical parts of the landscape, the landscape is a signifying space that relates the story of Betawi culture as well as immersing the users in it. The use of Batik patterns adds the different colour and aesthetic to the building and at the same time maps and directs the rainwater towards soil management and reducing erosion thus showing how cultural values can also complement ecological functions.

Following McHarg's (1969) Design with Nature concept, ISTN focuses on techniques of designing built environment in harmony with nature. The cultural values of Betawi people are further complemented

by these plants since hibiscus, jasmine, and frangipani are used in the context to help to support battery conservation as well as increase the capacity of air purification and water management. These plants have cultural importance, and are also beneficial for the environment as they help pollinators such as bees and butterflies while helping to sustain the local habitat of Jakarta's Betawi people. Another plant, frangipani with its drought resistant capabilities contributes to water management which is very important especially in an environment like Jakarta.

The choice of native plants and rocks corresponds to the view of McHarg that landscape architecture has to be naturally integrated. The building design of the ISTN campus shows an integration of culture and environment hence promoting sustainability and respect of our culture. The integration of cultural motifs into ecological systems like the Batik-patterned water channels in the locality make the landscape to function as a reminder of culture as well as counterpoint to modern environmental issues such as rainwater harvesting. Culture and ecology are intertwined in this proposal to perpetuate the cultural heritage of Betawi people while at the same creating a sustainable environment in the landscape. In accordance with McHarg's ecological principles and by incorporating the Betawi cultural elements, the ISTN landscape is presented as the socially and environmentally responsible exemplar of the modern urban design solution. This way it proves that cultural identity and environmental conservation are not two opposing factors but can be interlinked to develop long lasting meaningful landscape features. Ondel-Ondel phenomenon, as the marker of culture, is transformed into the landmark in the geography, and enables people to gain the identity and personal experience. These cultural symbols provoke thinking over Jakarta's history on one hand, and meet the modern requirement for environmental solutions on the other hand.

In other words, the use of Betawi cultural motifs and the ecological roles in the environment at ISTN, convert the campus into a cultural correlate that connotes how cultural identity or ecological health can be optimally attained. However, apart from the cultural aspect, the ISTN campus can prove the good point in the discussion on the future of the sustainable city showing how culture and ecological sensitivity can be combined in order to create spaces that reflect the values of a society as well as of the nature.

2.2. Physical and Emotional Engagement with Cultural Symbols

In addition to ornamentation that symbolizes Betawinese culture, the setting of ISTN captures user's interaction with such symbols in a more pragmatic and literal sense of the word. Batik patterns which are taught to the children are Physicalised and incorporated into play equipment, making learning fun and Tactile. These patterns kind of encourage children to touch and physically move around with as they also engage in cultural learning at some point. This not only helps in the aspect of movement but also develop the early cultural likeness and belonging with their people.

To seniors, the design provides a rigorously calmer and self-reflecting socialization with the cultural aspects. Hospitality furniture also incorporates symbolic Bird and Tree motifs related to this traditional cloth where seating designs containing batik patterns make the places familiar and continuous. Staircases and the shaded areas for seating have been made with cultural motifs to signify times of reflection moments. It lets elderly people interact with their cultural background and restore their cultural memory while in the music park; they can have a peaceful time and soothe their souls. This careful inclusion of touchable cultural signifiers is such that users of all ages can not only literally but also viscerally interact with their history, causing the creation to be not only a sight to behold, but also a richly kinetic experience.

3. Designing for Child-Friendliness

3.1. Safety and Playability

Cognitive process of designing for children implies adding enough interest to the product while at the same time ensuring it is safe for the children. It is also noteworthy that both the structures and the

surfaces for children's play are made safe: many of the play areas contain a play structure with soft-finished textures and no sharp lines and edges that could potentially mutilate a child getting into an accident. These are the play structures: Each of them is designed in Batik patterns so the children are exposed to the cultural representations playfully and safely. In contrast to other designs that just incorporate play areas, this design incorporates cultural learning as an element of play into designs. In the process of running through these active motifs children are not only engaged physically but they are also learning more about their traditions.

Key Design Elements

a. Safety and Engagement for Children:
The proper design for children in the urban environments should consider the aspect of safety as well as play. Again, ISTN features soft bearing grounds and curves edges on play zone to minimize on cases of accidental falls. Play structures with low height that will enable the children to safely engage with include; Climbing frames and slides. These structures are interlaced with motifs of Batik and symbols of Ondel-Ondel whereby children are allowed to get both an education on the traditional aspects of Indonesian culture as well as engage in some form of exercise.

The play spaces focus children on Betawi culture in a fun and natural manner and turn learning into a concrete experience. Incorporation of cultural motifs within the play structures is effective because it involves the children directly in the playing process and at the same time the children learn cultural values. The following strategy adopted makes certain that children are engaged both physically through exercise and mentally as they learn about their culture.

b. Site Analysis:
The specific analysis made for children and the elderly included the site's topography and water flow. This way areas with gentle slopes were looked for so that children could have easy mobility; play areas and rest zones were sited to minimize steep ground and or increased slipperiness. The analysis also included water management take into consideration, which means that neither rainwater flows will hinder usability of such areas.

c. Survey of Native Plant Species:
Specifically, with regards to the flora, native plant species including Hibiscus, Jasmine and Frangipani were included to improve both the biological and cultural values. These plants, used in Betawi culture, were chosen based on its positive impacts for the ecosystem, including air purification, pollinator attraction and characteristics that allow the creation of multi-sensory environments. In children play area, play and interesting colors that improve the physical, social, sensory and emotional literacy of the children as well as has health effect plants. Very nicely done for elderly, soothing plants like Jasmine and gardenia to make the atmosphere of the place look more therapeutic.

d. Consultation with Betawi Cultural Experts:
Due to the integration of aspect of the Betawi cultural to the landscape design, cultural historians assisted in the process. The motifs that were considered as vital for representation were Ondel-Ondel and the Batik patterns, both of which have cultural relevancy high enough to justify their use. All this represents not only the aesthetics of the culture but also the functionality of it in the interactive sense. For instance, Ondel-Ondel motifs were installed to the play structures in which children physically interact with these motifs as they climb and play; this way, play and exploration of culture are synched.

3.2. Sensory Stimulation in Play Areas

This is incurred since children are aware of environments that enhance the feeling of sight, sound and touch, and these make them explore through play. In ISTN specified play areas are fitted to catch children's interest because of flashy colours, different texture and attracting sound. They are crafted in a sequential manner such that they accommodate the use of more than one sense at a time and provide an elaborate setting that children can use to relate with both the nature and culture.

Vibrant Colors. The very design of the play structures is Sunny Colorful and authoritative to capture children's attention without much effort. These colors are not only interesting as aesthetic feature but also correspond to the Batik patterns such as Sunflower, Jasmine and Ondel-Ondel which is associated with the cultural part of the design. By having the traditional Betawi colors incorporated in the structure, one can explain that it becomes easier for the children to engage in some form of culture and have fun at the same time.

Textures. Fabrics, carvings and play surfaces are provided that are inspired by Batik and this gives the children an opportunity to touch and explore. These facets make it possible to ease children's perception of sensations and their coordination when using their hands. For instance, the incorporation of Climbing structures with motifs of Ondel-Ondel enables the children touch and, thereby, play with the cultural forms, which makes cultural learning part of the play domain. This form of touch-basis promotes a positive way of getting to know the cultural components embedded in the geometric features on the ground giving the children a much deeper experience.

Sounds. Other sounds form natural environment are also used to contribute to the stimulation of the senses. Fountains that are incorporated in the layout generate soft and circulating rhythms that blend into the atmosphere of the healthcare. Also, about the play areas, vegetation comprising of native species including the sunflower and jasmine to name but a few are ideal since they act as a source of food for the local wildlife such as birds and insects. From the auditory perspective, children are able to enjoy the whispering of the leaves, bird melodies, water flow, etc, which contributes to the awakening of the natural rhythms where children have the opportunities to carefully watch the surrounded environment.

Native Plants and wildlife: sunflower and jasmine. These are not only ornaments but act as the Eco-system where butterflies and bees come to pollinate and therefore form part of the young children's experience. Wildlife on their own brings children to the realisation that within an ecosystem there are plants, animals and people and everyone has a role to play. Every child is able to witness butterflies sucking on the nectar or bird nesting in trees within the natural environment, thus developing curiosity. It also provides them a means of learning how features of their culture such as the Batik designs on the playground equipment relate to nature**.**

Blending Natural Elements with Embossed Batik Pattern. This way the play areas are built in harmony with natural elements complemented by the practical and aesthetic application of Batik patterns that makes it possible for children to play and learn in a novel way that combines both the physical and emotional response. Many of the tangible features such as soft flooring, low rise building forms and indoor play areas are made safe for active use, and the motifs are intended to let people touch and engage culturally. Such a two-fold interaction enhances the child's appreciation of both facets realizing that he or she is not only playing, but also gaining knowledge on cultural beliefs and surrounding physical world respectively.

Physical Activity and Cultural Learning. The integration of play space design of physical activity and the literal contextualization of culture and history in the ISTN layout to make sure that children get active learning. While playing, running, climbing and at the same time acquire the cultural information

embodied in the Batik designs and the Ondel-Ondel figures. These elements do not only act as the embellishment of the area but narrate authentic histories of Betawi culture relevant to children's play patterns. These motifs can be exploited to enable children to develop or imbibe on cultural values and norms in a fun way through the physical activity of exploring them.

Holistic Engagement with Nature and Heritage. Finally, the play areas' design at ISTN facilitates the child's formation of relations with both nature and cultural references. Sensory experiences such as the ability to differentiate between colors and textures of objects and sounds during the cultural programs make the children understand the environment and their cultures better. This multisensory, participatory environment guarantees that culture retention remains part of the community's daily environment and use of the landscape goes beyond leisure activities; the landscape itself becomes a pedagogical tool for cultural and environmental learning.

3.3. Design Example: Illustrating Sensory Stimulation in Play Areas

For a clearer understanding of how play areas in the ISTN landscape can meet children's stimulative sensitivity and cultural and ecological education needs, this paper provides a detailed example to meet the requirements mentioned in Section 3. 2.

Design Overview

Objective:
To create a multisensory, engaging, and culturally immersive play area where children can interact with vibrant colors, varied textures, and sounds from both natural and human-made elements. The design will incorporate Betawi cultural motifs, specifically Batik patterns and Ondel-Ondel symbols, and utilize native plants such as sunflower and jasmine for ecological integration.

Design Features

1. Interactive Tactile Surfaces
   On the ground floor there is a play area with walkways made of soft material with Batik patterns at the child's touch level when they are moving around the play area. These surface-textures are relatively smooth as well as relatively rough, which assists in the psychic and motor refinement of the children.
2. Sensory Pathways
   White painted slabs with raised Ondel-Ondel faces are painted to guide children along paths towards different play areas of the park. These tactile paths promote the sense of touch and therefore help the audiences feel Betawi culture both physically and emotionally.
3. Native Plants and Wildlife Integration
   Underneath the play structures there are gardens of native plants which provides food for butterflies or bees. Youngsters may watch these pollinators with close-knit feelings, in hope that a closer look will enlighten them with their function in the ecosystem. Furthermore, bird house that are installed in strategic areas help in attracting local birds which in turn makes the environment highly interactive.
4. Wildlife Observation Zone
   There is a small courtyard type garden arrangement where children can sit and watch butterflies and birds. Billboards placed in this area discuss the role of native plants for local fauna, thus inspiring children for habitat linking in the area.
5. Sound and Water Features
   In the play area, there is a water feature as a small river channel to solve the need to interact with water a small river channel with Batik inspirations. Some of them include the use of

running water as a soft sound – motif for calming the young ones while at the same time provoking their curiosity.

Sensory Sound Play. The fountain pool section of the waterway is designed to be shallow so that children can safely splash and touch the water flow and listen to the various sounds produced when the water hits the stones.

6. Shaded Seating for relaxation

For parents and elders who might not be able to play with kids or just need some rest there are provided gazebos with benches in the form of sunflower and jasmine pattern. These seating areas are enclosed by Jasmine and gardenia plants thus creating a sensory garden environment meant to encourage people to reflect or even take a nap. These plants also emit some fragrances that are soothing to people's olfactory hence making it even easier for both the children and the adults to bet on them.

Seating Zones: Covered by large native trees these seating places provide calm and comfortable areas where parents and children can take a respite while being engaged with cultural and natural context. The benches themselves have a Batik carving on the surface that children can run their hands on as well as grown-ups.

Design Illustration (Example)

- Walkways: Installing embossed Batik motifs along the walkway in the park area






Create a path design with embossed Batik motifs like the one shown above. The intricate shapes give children the opportunity to touch them with their hands and feet as they walk towards the playground area and the meadow filled with green grass. The aesthetic features are bright ethnic motifs complemented by nature pieces that create an interesting multisensory experience

- Forest: There is forest considerable imagery in ISTN campus, some typical Betawi fruit trees such as Buni trees, Lute trees, Gohok trees, Rukem trees, Gambir trees and Menteng trees around the garden area as well as birdhouses up the trees; one can also see butterflies.

  Below is an advanced design of the green open space garden of a children's playground area to include Hibiscus and Frangipani plants, bird house, butterflies especially Batik design with Ondel Ondel design imbedded in the surroundings. The requirements of cultural components are well integrated with the natural environment to enhance a learning environment that will foster learning among children.

- water elements: there is a fountain pond that contains a shallow water section and is surrounded by Batik motifs that allow children to play in the water safely. While in the connecting park between buildings, a deck is provided near the pond as a water recreation facility for adult visitors.


The design illustration above depicts a colorful children's play place which is decorated with Betawi motifs and plants familiar to the child: tactile objects lesson, exercising, teaching cultural and ecological values at the same time. Bright colors, Batik carvings, Ondel-Ondel motifs make colorful atmosphere that allows children to play, study and have interaction with Betawi cultural background.

- Shaded seating area: Some of them are benches with floor patterns using sunflower and batik motifs which are equipped with native plants around to give shadow for the visitor to rest. It is a shaded seating layout with floor patterns using sunflower and batik motifs surrounded by scented local plants such as jasmine and gardenia. These benches are patterned with Batik, along with floral motifs, thus creating cultural harmony with nature and providing an area for people to rest.


Holistic Engagement through Play
This design ensures that the children learn in a total sense where aesthetic features such as vision, hearing, touch and even the sense of smell are used to embrace the lessons in cultural motifs and native ecology. Through landscaping with native plants and providing wildlife observation areas the students become more in tune with their environment and the concepts of stewardship in combination with the cultural lessons. From this body of knowledge, the play-scape is an intriguing sensory-stimulating play and learning ground where children can learn about their cultural roots and the world in a harmonized integrated system.

4. Designing for Elderly Accessibility and Well-being

4.1.Accessibility Features

Ensuring accessibility for elderly users is a core component of the ISTN landscape design. The landscape includes smooth, even pathways that allow for easy navigation, as well as ramps where necessary to accommodate those with mobility issues. Wide seating arrangements are provided, complete with armrests and backrests to ensure comfort. These design elements are carefully placed near fragrant plants like Jasmine and gardenia, creating sensory-rich environments that are both physically accessible and emotionally engaging.
Such features help elderly visitors to easily navigate the territory, and the environment of cultural references and the beauties of nature contribute to the emotional perception of the space.

4.2.Restful and Reflective Spaces

Those green areas are necessary for designing spaces with elderly persons in mind and allow them to sit down and take a break while watching and enjoying their environment. This is with a view of providing an environment that is physically comfortable and emotionally stimulating whereby the seating arrangement is under the local trees with plant species such as jasmine and gardenia around the site. Such aromatic plants combined with other plants beautify the environment and make the atmosphere serene thus enabling elderly patient to contemplate on their root culture.
Indeed, Sunflower and jasmine motifs are included into these parlour sitting areas to establish the connection with Betawi culture as well as leaving cultural signals which is not dominating but influential enough. It also allows elderly visitors to find not only an area to spend time in a relaxed manner, but also exploring and reminisce about their roots.

5. Shaded and Restful Intergenerational Spaces

5.1. Creating Shared Spaces for Families

One of the most important aspects of the ISTN landscape design is the creation of shared spaces where families—comprising children, elderly members, and everyone in between—can gather and interact. These open spaces are designed to encourage intergenerational interaction, with shaded seating areas.

In this regard, these spaces are not only repositories of the Betawi heritage but transmitters of these heritages from one generation to the other. Even here, the use of the cultural motifs to decorate these spaces to make the focal gathering areas hence enhances the spirit of togetherness especially because families come together to share on their cultural experiences and stories.

6. Ecological Resilience and Cultural Continuity

6.1.Role of Native Plants in Cultural and Ecological Sustainability

The inclusion of native plant species such as sunflower, jasmine, gardenia, Betawi fruit trees plays a crucial role in supporting both ecological resilience and cultural continuity. These plants are significant in Betawi culture, symbolizing purity and protection, while also providing important ecological functions like supporting local biodiversity and attracting pollinators.

Thus, through the incorporation of a set of meaningful plants in combination with the plants that serve a functional ecological role within the urban environment, the ISTN landscape sustains the semantics of culture and environment and proves that the urban space can nurture a culture as well.

6.2. Functional Use of Cultural Motifs in Ecological Systems

The existence of forests around parks and ponds can benefit the water management system at ISTN. Batik and sunflower patterned planting patterns are examples of how cultural symbols can be integrated into ecological functions. Waterways around the garden help direct rainwater to retention areas, prevent soil erosion, and encourage natural water infiltration. This use of cultural motif not only honours Betawi heritage, but also supports the sustainability of the landscape by improving water management capabilities. This blend of cultural symbolism and ecological functionality ensures that the ISTN landscape is both resilient and deeply connected to the traditions it seeks to preserve.

7. Conclusion: A Landscape for All Ages and Cultures

In this context, the realization of great cultural aesthetics along with financial and ecological sustainability: the ISTN landscape project is a model of inclusive urban design. Since the focus is made on the accessibility for children, elder citizens and everyone in the middle, the project stimulates the feeling of belonging to the environment and Betawi cultural identity. Incorporation of Batik patterns, Ondel-Ondel motifs and native plants also does not only enhance the beautification process of the space, but also cultural values to contour the landscape as sustainable and functional.

Apart from looks, the ISTN landscape transition into an educative platform where users can practise sustainability ideas. The implementation of native plants increases the levels of biodiversity whereas designs such as a rainwater channel inspired by the Batik boosts stewardship. This experience impacts the visitor with an understanding of the close link with cultural and ecological systems; sustainable development and cultural sustainability are not two different things but are the two sides of one process. What the ISTN shows is how cultural and ecological environments can interweave: the Betawi heritage is preserved in the urban environment while the latter becomes the space for developing new environmental policies and initiatives. The end-product is the creation of a space that is not just populated with purpose, culture and sustainable activities but also becomes long-lasting. As an emerging and incredibly enriched model for international best-practice inclusive landscape architectural design, this subtlety serves as a radical innovation of the future of pro-human/culturally-sensitive/post-industrial city-making, healing, enhancing, and celebrating meaning in environment.

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Study of Cultural Spatial Patterns, Why It Is Important?

Ray March Syahadat

Department of Landscape Architecture, National Institute of Science and Technology (ISTN), Jakarta, Indonesia

Abstract. The rapid economic growth in Asian countries has had a significant impact on development and also on the rise of urbanization. Developing areas generally imitate spatial patterns that originate from outside their area or even outside their country. If examined more deeply, long before development and urbanization took place, cultural communities already had their local wisdom in choosing, planning, and designing their cultural spatial patterns based on their experience studying the environment hundreds or even thousands of years ago to achieve sustainability. This article aims to provide insight from 12 ethnic groups in Indonesia that have their cultural spatial layout patterns. It is hoped that disseminating this article will trigger many regions to start re-exploring and implementing their cultural spatial layout patterns in their regional development.

1. Introduction

1.1. Research Background and Purpose

The preservation of traditional architectural facades and ornaments can be said to be well developed. However, cultural spatial patterns do not seem to be. Many cultural spatial patterns are not used, not studied, forgotten, and even on the verge of extinction. The narrow understanding of the concept of cultural landscape influences this. Architects certainly have a responsibility for this because the recent phenomena cannot be separated from the role of architects. Wahid and Karsono in their writings describe the development of the landscape from era to era, starting from the Paleolithic, and Neolithic, to the Bronze Age [1]. Wherever human interaction occurs, there will also be deliberate modifications to the landscape. The initial goal is to survive, then for pleasure, until finally to master nature. Humans have known the landscape since they were nomadic (moving/not settling). The process of choosing a place to live certainly takes the landscape into account. A place to live can be a tree house, caves, or a house made of wood or stone. As time progressed, humans finally settled and began to make gardens. Limited knowledge at that time made humans live on the banks of rivers. Perhaps humans at that time began to question the cause and effect in the movement of life and the surrounding nature. Infertile areas turned out to contain minerals. Humans realized that minerals had value. There was interaction between fertile and infertile areas through barter. This progress has an important meaning for the world of technology and also art. The bronze civilization period is characterized by the presence of carvings on a landscape. The sense of landscape is older than human civilization. Tens of thousands of years ago when humans did not yet have architecture, humans claimed nature as theirs. Hunters chose dramatic landscapes for religious ceremonies and social gatherings. Humans in the past also chose landscapes with good quality for festivals or dances. Cultural spatial patterns were finally formed. This is the

result of ancestral learning about the environment. At that time, humans still had limited knowledge to explain cause and effect so they conveyed it with things related to mythology. Many things can be learned and implemented in development in the current era. As we know, development and urbanization are currently occurring in many places. Unfortunately, they forget their cultural style, follow the style of a particular location that may not be by its environment, and even only use the ornaments which are then labelled as culturally insightful designs. Cultural spatial patterns are born from a long process of human interaction with nature which has been inherited from ancestors for many years. Identification of cultural spatial patterns is a relevant and crucial thing to do. As one of the countries in Asia that has a diverse natural and cultural wealth, Indonesia has an important role in preserving cultural spatial patterns. Therefore, this article aims to provide insight into cultural spatial patterns, especially those that have been identified in Indonesia so that they can be further studied in the planning and landscape design process in modern times.

1.2. Literature Review

Cultural spatial patterns refer to how cultural activities, institutions, and symbols are distributed and organized within physical space. This concept encompasses both the material and symbolic dimensions of culture. According to Soja, space is not merely a neutral backdrop but is socially constructed and shaped by cultural, economic, and political forces [2]. Cultural spatial patterns, therefore, reflect the power dynamics and social structures that influence the arrangement of spaces, whether urban or rural and help to reveal underlying societal values and hierarchies. Harvey emphasizes the importance of space in understanding the spatial distribution of resources and opportunities within a society [3]. The study of cultural spatial patterns thus goes beyond architecture and urban planning to examine how space is used and contested by different social groups. This approach allows for a deeper understanding of how cultural practices influence and are influenced by the spatial organization of societies. The relationship between culture and space is a central theme in the study of cultural spatial patterns. Lefebvre argues that space is produced by cultural practices, and in turn, influences those practices. This reciprocal relationship suggests that space is an active agent in shaping social and cultural identities [4]. For example, religious spaces such as churches or temples are not only physical structures but also spaces of symbolic and cultural significance that influence the behaviour and beliefs of the communities that use them. Scholars such as Massey [5] and Low [6] have explored the role of space in creating and maintaining cultural identity. They argue that cultural spatial patterns are crucial for understanding how communities define themselves and their boundaries, both physically and symbolically. This is particularly important in urban areas where diverse cultural groups coexist and negotiate their presence in shared spaces. The layout and design of cities, including neighbourhoods, public spaces, and transportation networks, often reflect the cultural and social divisions within a society. The study of cultural spatial patterns is particularly relevant in the context of urban development. As cities grow and evolve, cultural spatial patterns help to shape the development of urban spaces. According to Jacobs, cities are living organisms that are shaped by the interactions between people and their environments [7]. The distribution of cultural spaces, such as markets, religious institutions, and recreational areas, plays a key role in fostering community interaction and social cohesion. Urban geographers like Zukin have argued that cultural spatial patterns are often shaped by economic forces, particularly in the context of globalization and urban redevelopment [8]. The commodification of culture, as seen in the gentrification of neighbourhoods and the commercialization of cultural heritage, alters the spatial dynamics of cities. This can lead to the displacement of local communities and the erosion of traditional cultural spaces. Studying these patterns is important for understanding the social and economic impacts of urbanization on cultural practices. Studying cultural spatial patterns is essential for

several reasons. First, it allows for a deeper understanding of how culture influences and is influenced by space. By examining the spatial distribution of cultural practices, researchers can gain insights into the social structures and power dynamics that shape society. Second, this study provides a framework for analyzing the impact of urban development and globalization on local cultures and communities. As cities become increasingly diverse and interconnected, the study of cultural spatial patterns offers a way to examine how cultural identities are negotiated and maintained in the face of change. Third, cultural spatial patterns play a critical role in heritage preservation and cultural sustainability. As cultural spaces are often at risk of being eroded by modernization and urbanization, understanding how these spaces are valued and used by communities can inform strategies for their protection. Scholars such as Smith have emphasized the importance of recognizing intangible cultural heritage, such as traditional practices and rituals, which are often deeply connected to specific spatial settings [9]. Fourth, the study of cultural spatial patterns can inform policy-making and urban planning. By understanding the spatial needs of different cultural groups, planners can design cities that are more inclusive and responsive to the diverse needs of their inhabitants. This is particularly important in multicultural societies, where different groups may have distinct spatial preferences and practices. Several theoretical models have been developed to analyze cultural spatial patterns. One of the most prominent is Soja's concept of "Thirdspace", which emphasizes the hybrid nature of space as both physical and symbolic [10]. This model suggests that space is not only a product of material forces but also shaped by social relations, ideologies, and cultural practices. By focusing on the interconnections between these different dimensions of space, Thirdspace provides a comprehensive framework for analyzing cultural spatial patterns. Another important model is Lefebvre's production of space, which emphasizes the role of capitalism and economic forces in shaping spatial arrangements. Lefebvre argues that space is produced through social processes, including economic relations, political power, and cultural practices [4]. This model is particularly useful for analyzing the impact of urban development and globalization on cultural spaces.

2. Research Method

This article uses two main approaches. The first is observation and the second is literature study. Some areas use only one approach and other areas use both approaches depending on the amount of information collected. We collect traditional cultural spatial patterns from 12 ethnic groups from 11 provinces that represent 6 regions/islands in Indonesia and explain them descriptively. The twelve cultural spatial patterns can be seen in Table 1 and Figure 1.

Table 1. Twelve cultural spatial patterns were identified based on ethnicity, province, and region

No.	Ethnicity	Province	Region/Islands
1	Batak Toba	North Sumatra	Sumatra
2	Minangkabau	West Sumatra	Sumatra
3	Kerinci	Jambi	Sumatra
4	Toraja	South Sulawesi	Sulawesi/Celebes
5	Bugis	South Sulawesi	Sulawesi/Celebes
6	Buton Wolio	Southeast Sulawesi	Sulawesi/Celebes
7	Dayak Ngaju	Central Kalimantan	Kalimantan/Borneo
8	Madura	East Java	Java
9	Java	Yogyakarta	Java
10	Bali	Bali	The Lesser Sunda Islands
11	Ngada	East Nusa Tenggara	The Lesser Sunda Islands
12	Moile	West Papua	Papua

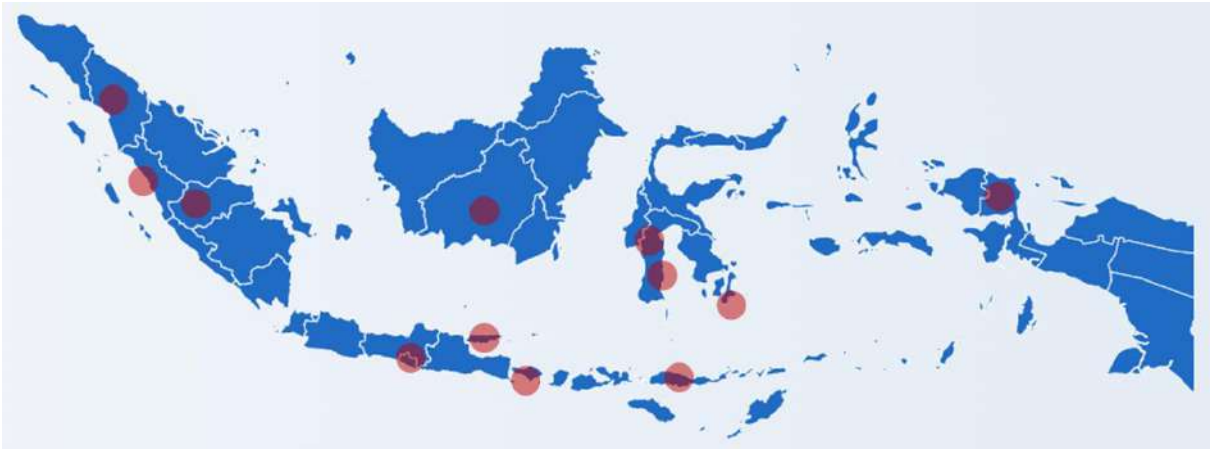

Figure 1. Twelve Study Sites

3. Result and Discussion

3.1. Batak Toba

The cultural spatial pattern of the Toba Batak ethnic group in North Sulatera Province cannot be separated from the character of their settlements which are located in the highlands. They also cannot be separated from agriculture and water sources. Therefore, their cultural spatial planning is greatly influenced by these elements. Firmando in his study summarizes the Batak Toba's cultural spatial pattern [11]. The villages of the Toba Batak people are called *parhutaan* and the rice field area is called *hauma* or *tano maraek*. The location of the rice fields is called *balian* which is not far from the house. In addition to *hauma*, they also have space for farming tubers and other plantation crops such as coffee which is called *pargadongan*. There is also *adaran*, which is a place for grazing cattle and buffalo. The community classifies adaran into two, namely *jalangan* and *jampalan*. *Jalangan* is a large grazing area while *jampalan* is a grazing area that requires livestock guarding activities because its location is close to other functional areas such as rice fields and fields. The Toba Batak people choose a location for gardening with the requirement that a *homban* or spring can be found. This area is well maintained and planted with flowers because the community believes that the *homban* is a place of offering to the creator. In addition to the *homban*, there are also waters called *parmualan* which can form a small lake called ambar. *Harbangan* is the entrance to a settlement made of large stones, arranged, and surrounded by bamboo vegetation or *Ficus benjamina* trees. Around the *harbangan* there is *abalan ni huta*, which is the entrance area of the village. *Abalan* is land or empty space outside the village that can be developed for various purposes, such as *partungkoan* (a place for deliberation of the elders) and a temporary resting place for groups of guests who will carry out traditional ceremonies for the villagers. Traditional Batak Toba villages have traditional houses that face each other parallel to the east and west, the houses consist of two types, namely *ruma bolon* and *sopo*. *Ruma bolon* is a large house where parents who have been married for a long time live, generally *ruma bolon* is decorated with traditional carvings called *gorga*. *Sopo* is a house that is used as a storage place/barn for agricultural products such as rice. *Sopo* is also a place to live for newly independent families (*dipajae*) or a place for young people to live. Traditional houses in every traditional Batak Toba village lead to a yard (*pogu ni alaman*). Each family uses *pogu ni alaman*, such as for drying agricultural products and as a place to hold parties. In addition, there is also a *portak* which is another space for interaction in the community. *Parbandaan* is part of other sources that are outside the residential areas. Parbandaan is a public cemetery (graveyard). The location of the *parbaaan* is generally in a higher place than the residential

areas such as on a hill or mountain (*dolok*). The bodies buried in the *parbadaan* are not only residents of the village but can also be from other areas that still have genealogical ties with the villagers.

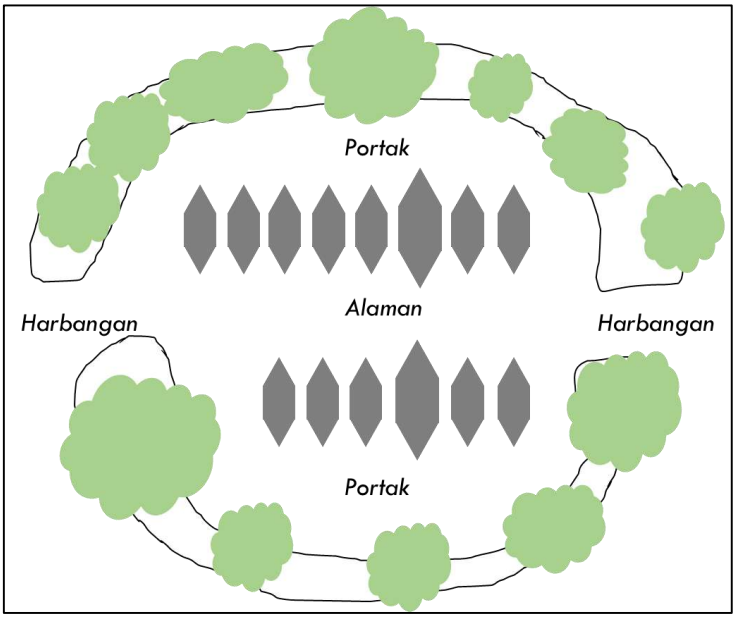

Figure 2. Cultural Spatial Pattern of Batak Toba

3.2. Minangkabau

The Minangkabau ethnic group is one of the largest ethnic groups in Indonesia. They originate from the west coast of Sumatra Island. The Minangkabau ethnic group inhabits coastal areas to the mountains. Based on their heritage, the oldest Minangkabau people are known to come from Tanah Datar Regency. The Mianangkabau people adhere to a matrilineal system or adhere to a descent system based on the maternal line. The Minangkabau people are also famous for their culture of migrating, especially men. They migrate to all corners, closely related to the matrilineal system because men do not have the right to inheritance. The community generally works as farmers and traders. This ethnic group is also famous for its famous and delicious culinary culture. One of them is rendang, which was named the most delicious dish in the world by CNN. *Rumoh gadang* is their traditional house name and is owned by a woman/wife. Once a *rumoh gadang* is built, it is not allowed to be demolished. This contains the values of sustainability. Their spatial pattern is greatly influenced by the social system that applies there. The hilly contour also influences the spatial pattern of their culture. In terms of spatial division, they divide their space into five parts. *Bapandam bakuburan* is placed in the highest area. In this area, they consider that high places are good areas to remember death and also the final resting place. *Baswah baladang* is a place for farming and cultivating. The border between the rice fields is usually limited by a bamboo forest area. Furthermore, the *barumah batanggo, bakorong bakampuang*, and *babalai bamusajik* areas are areas where humans live every day to carry out their obligations to meet their needs. Finally, *balabuah batapian* and *bagalanggang* are areas close to water bodies. This area describes a place to utilize water bodies. Judging from the concept, it can be concluded that the Minangkabau people greatly appreciate their natural resources. They organize space so that excessive exploitation does not occur [12].

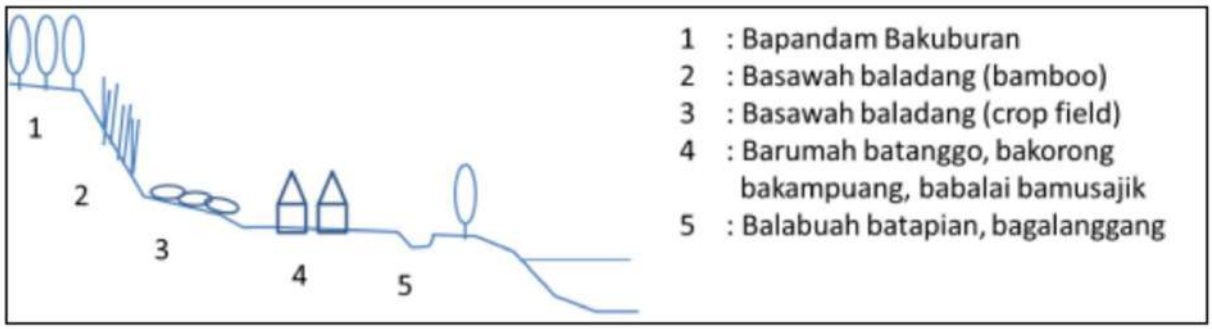

Figure 3. Cultural Spatial Pattern of Minangkabau

3.3. Kerinci

The Kerinci ethnic group is close to the Minangkabau ethnic group in terms of their matrilineal social system. However, their lifestyle is different and tend to be sedentary. They are farmers who cultivate rice in mountainous areas near rivers. It is thought that they are much older than the Minangkabau ethnic group. Their cultural spatial layout divides between residential areas, rice fields, fields, and forests. The spatial pattern of the settlement called *luhah* has a long and layered formation of traditional houses called *laheik*. In the middle is placed a place of worship (*langgar/surau*), rice storage, and various sacred artefacts such as menhirs, *tabuh larangan* (sacred drum), and grave [13].

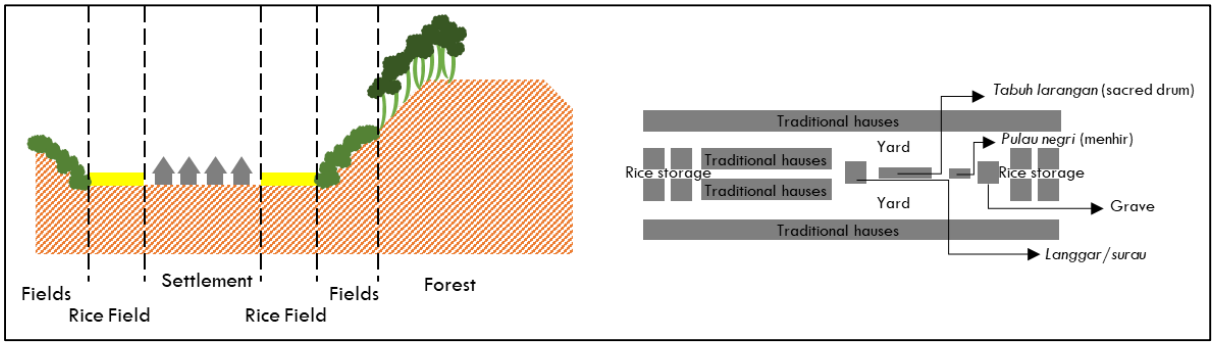

Figure 4. Cultural Spatial Pattern of Kerinci

3.4. Toraja

The Toraja ethnic group is one of the four majority ethnic groups in South Sulawesi Province. Their culture is included in the Proto-Malay group or what is defined as the first migration group in the Indonesian archipelago. They live in the hills with a cool climate and work as farmers. The Toraja people have a traditional belief called *Aluk Tadolo*. This belief greatly respects ancestors and for them, the real life is the afterlife. Therefore, they always celebrate death very lively and magnificently. Their traditional house is called *tongkonan*. The *alang* is rice storage located in the north of *tongkonan*. The oldest house is placed in the direction of the sunset because they believe in its connection with their ancestors and the realm of the dead. In addition, the west direction is also believed to be the place where they first came before finally settling in their village. The orientation of the *tongkonan* and *alang* faces north. Between the tongkonan and alang is an empty land used for social activities such as gathering, ceremonies, working, playing, and other activities [14].

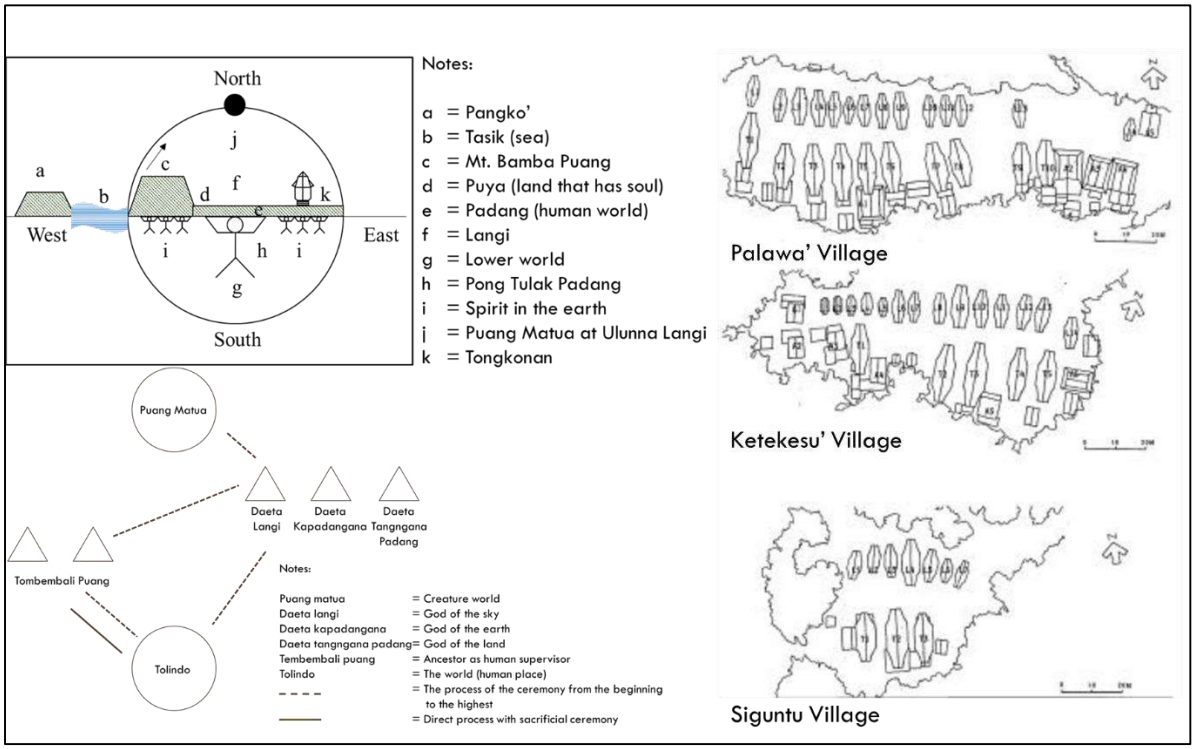

Figure 5. Cultural Spatial Pattern of Toraja

3.5. Bugis

Bugis is the largest ethnic group in the Sulawesi Islands. They are known as skilled sailors and rice farmers. Their cultural spatial patterns can be summarized into several important points. Orientation to the north and south is recommended if it is adjusted to the topographic conditions of the land where the house is located on the hills because houses on the hills will face the higher ground, namely the mountains. In terms of cosmology, mountains are considered the upper world/head (a good and holy place). In addition, the mountains are where people in this hamlet earn a living as farmers, so this is a form of appreciation for the mountains that have become a source of life. The orientation of houses on hills is recommended to face higher ground. Furthermore, houses on flat land should consider the orientation of the east and west. This concept shows that the orientation of the house can face east, west, north, and south by considering elements of belief and environment [15].

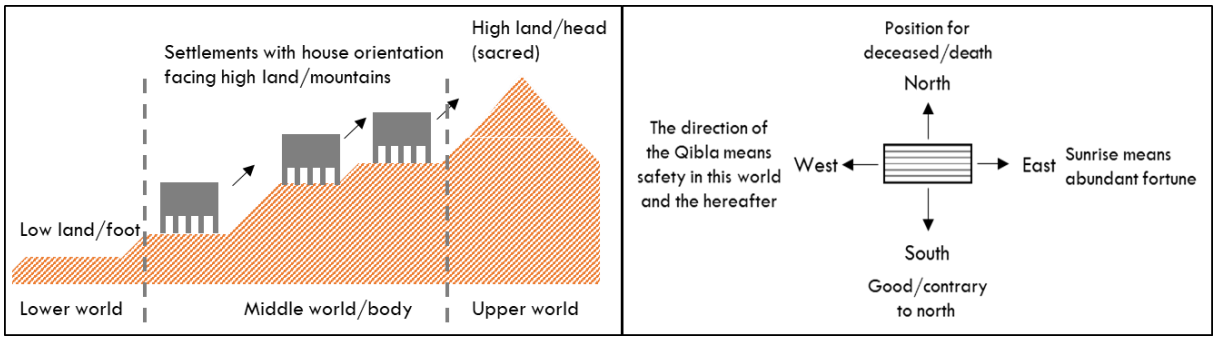

Figure 6. Cultural Spatial Pattern of Bugis

3.6. Buton Wolio

The Buton Wolio ethnic group in the Southeast Sulawesi Islands is mostly found in Baubau City. This is inseparable from the existence of the centre of government of the Buton Kingdom and Sultanate in the past. The Buton Wolio community is Deutro Malay, making it one of the youngest ethnic groups in the Sulawesi Region. Based on historical records, the culture of this nation was formed from three regions, namely Malay, Javanese, and Chinese, which then received influence from Arabia after Islam entered, which ultimately changed the order there, which was marked by a change in the government system from a kingdom to a sultanate [16].=

Their spatial pattern is inseparable from their location which is always fought over by nations in Eastern Indonesia who want to control the spice trade because this area is on the world's spice route. Its position in the middle makes it never in a safe condition in the past. This is what makes them a maritime society but lives on cliffs and each area protects itself with forts armed with both traditional and modern weapons, as well as natural and artificial.

Their cultural layout does not have a specific orientation. Each house will face the view they like and many traditional houses are found facing hills. There is no record of why this happened but communally it means that each house can watch all directions and strengthen surveillance apart from the fort which already has guards at each corner. This will strengthen their defence compared to if all the houses were oriented the same way [17].

The houses also always follow the contour. They believe that positive energy as fortune flows from the highlands to the lowlands. If the house faces or backs onto a cliff, then fortune will fall. Therefore, the position of the house next to the cliff means that they can embrace the positive energy that comes from the heights. These kinds of patterns are also often found in the spatial layout of cultures in East Asia [18], [19].

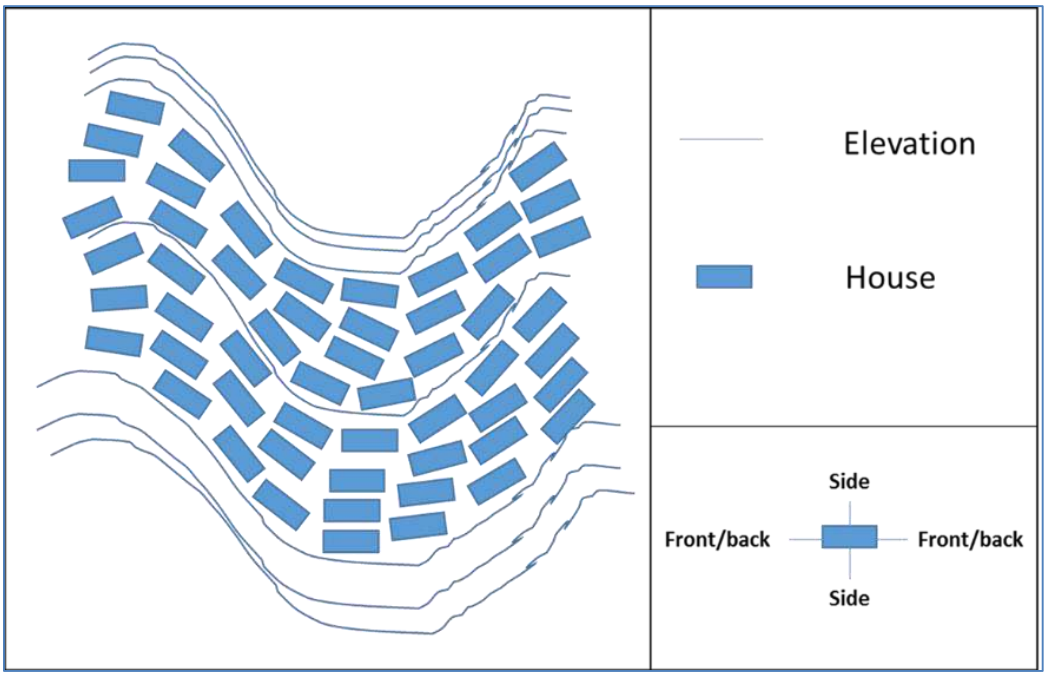

Figure 7. Cultural Spatial Pattern of Buton Wolio

3.7. Dayak Ngaju

The Dayak ethnic group is the majority ethnic group inhabiting the island of Borneo. One of the Dayak sub-ethnic groups that dominate the island of Borneo is the Dayak Ngaju. Their culture is inseparable from the results of their interaction with nature. As we know, the third largest island in the world has many rivers, therefore it is not surprising that its culture, including its cultural spatial patterns, is

inseparable from rivers. The river is used as the front yard of their house. In determining the residential area, they have visual criteria for a clean river, with a fast current, and has function of social, cultural, and economic. Based on orientation, the East direction is considered to have the best magical power for life and faces the river because the river is considered a source of life. This is reflected in the placement of attributes (facilities and equipment) in the Tiwah Ceremony which is always placed on the East side of the yard of the house used for the ceremony. The belief of the Dayak Ngaju community that considers the upstream and east directions to be better than the downstream or west directions greatly influences the determination of the direction of the building [20], [21].

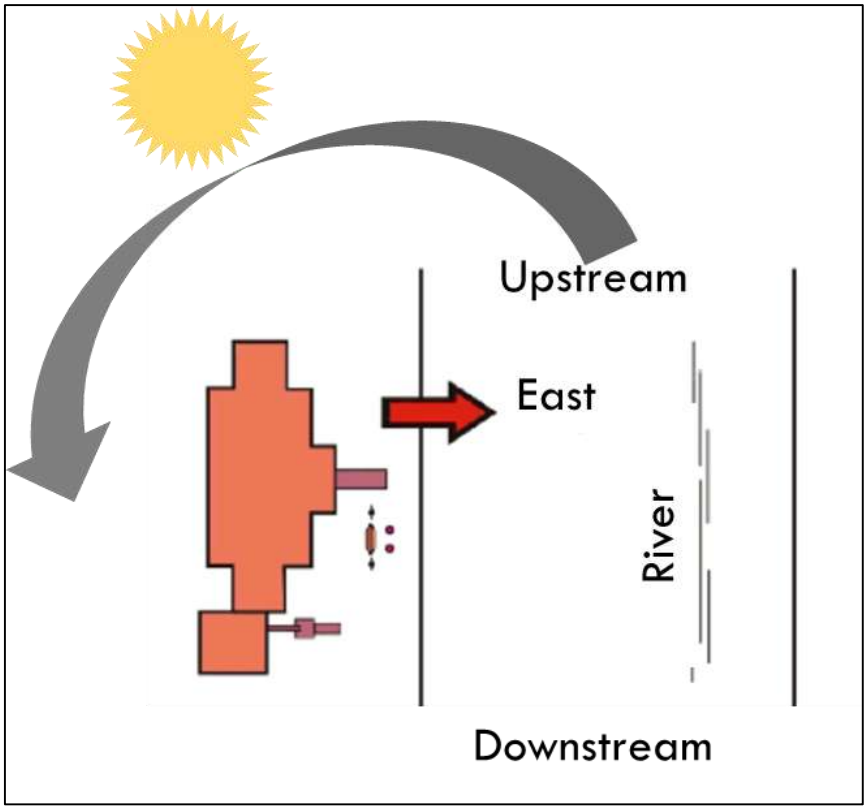

Figure 8. Cultural Spatial Pattern of Dayak Ngaju

3.8. Madura

Madura is one of the islands in East Java Province. Their culture is different from Javanese culture even though the distance between the two land masses is not too far. Madurese people also have their own cultural spatial patterns. This can be seen from the spatial pattern of settlements called *tanean lanjhang*. Madurese settlements are oriented west to east. The western area is placed as a *langgar* for worship, The first house was built to the northeast of the prayer room. The second house and successive houses are lined up to the east. The northern area represents the nature of women, deep, dark, and sacred. Across the house or in the southern area is placed a cage. The southern area represents the nature of men, outside, bright, and profane. This meaning illustrates that women must be protected and men have the responsibility not only to protect their families, but also as connectors with the outside world. *Tanean* is an area that appears in the middle between the north and south which functions as a social space where people interact. *Tanean* as space will appear naturally when a community has formed due to spatial arrangements [22], [23].

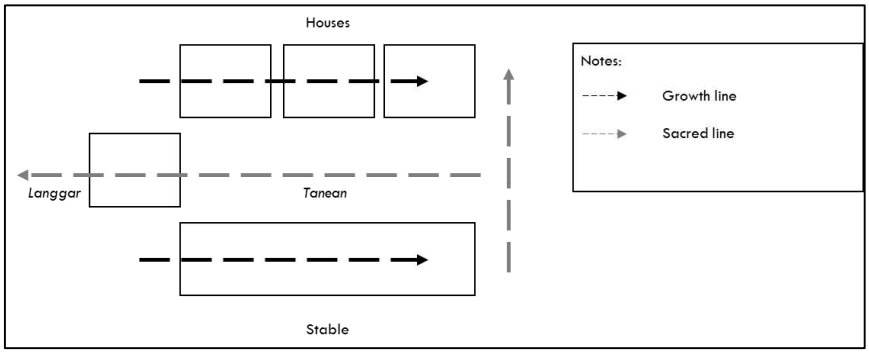

Figure 9. Cultural Spatial Pattern of Madura

3.9. Java

Java is the largest ethnic group in Indonesia. Their culture cannot be separated from the influence of Hindu civilization. Javanese people who still hold ancestral beliefs, greatly respect mountains. They believe that mountains are sacred places and manifestations of God in the world. Furthermore, Javanese kings are considered representatives of God to rule mankind. As with Hindu beliefs, the sea area is considered a profane area or the antithesis of mountains. The residence of the king and his palace staff is called the *Kraton*. The *Kraton* is located between the mountains and the sea which symbolizes power in the world in the middle. The king has an *alun-alun* which is not only a courtyard for the king's residence but also a public space. There are two of them, namely in the north which is private and in the south which tends to be more inclusive. The north-south orientation in the spatial pattern of culture in Yogyakarta is not only meaningful from the dimension of religiosity but also the results of their learning about nature. The southeast wind from Australia and its position in an area prone to earthquakes and tsunamis make the southern area an area that must be monitored because a disaster could occur at any time. Likewise, the northern area which is oriented towards Mount Merapi is one of the most active volcanoes in Indonesia which can erupt at any time [24]–[26].

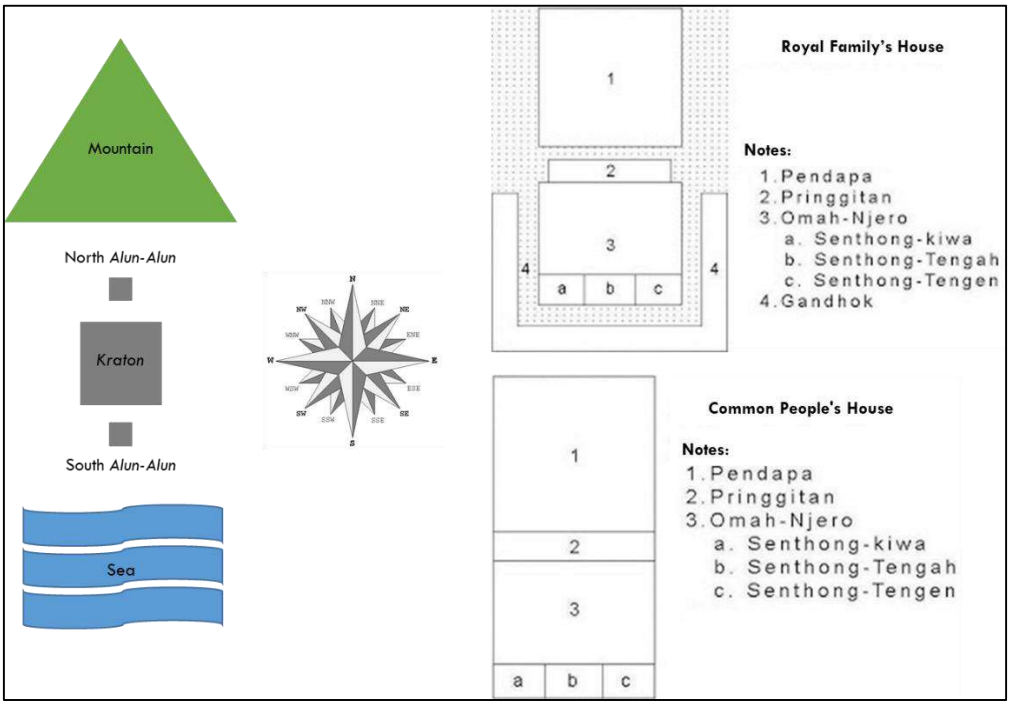

Figure 10. Cultural Spatial Pattern of Java

3.10. Bali

Bali is one of the islands in Indonesia that is inhabited by a majority of Hindus. Hinduism in Bali is different from Hinduism in India because Hinduism in Bali experienced assimilation and acculturation with local culture. The cultural spatial pattern in Bali is strongly influenced by the Tri Hita Karana philosophy, which emphasizes the balance between humans, nature, and God. This concept is the basis for spatial planning and development in Bali, creating a harmonious and sustainable environment [27], [28]. In Balinese culture, spatial planning is not only a physical arrangement, but also reflects cultural and spiritual values. The spatial structure in Bali shows order both vertically and horizontally, reflecting the integration between various elements in society. For example, the existence of a temple (a place of worship) is often the centre of a community, regulating settlement patterns and social activities around it. Bali has strong local wisdom in spatial planning, which includes philosophy, value systems, and ethics that regulate human interaction with nature. This wisdom plays an important role in maintaining the sustainability of ecosystems and culture, and ensuring that development does not damage existing cultural heritage. Thus, the spatial pattern of culture in Bali reflects the harmony between development, cultural preservation, and environmental sustainability, which are the core of Balinese life. In general, the spatial pattern of culture in Bali is divided into the upper, middle and lower world like the human body. If combined between the standing and lying positions, it will form a nine-square pattern from the most considered the most sacred to the most considered the dirtiest. This pattern is always applied from micro, meso, to macro spatial arrangements. Even one island of Bali applies this pattern.

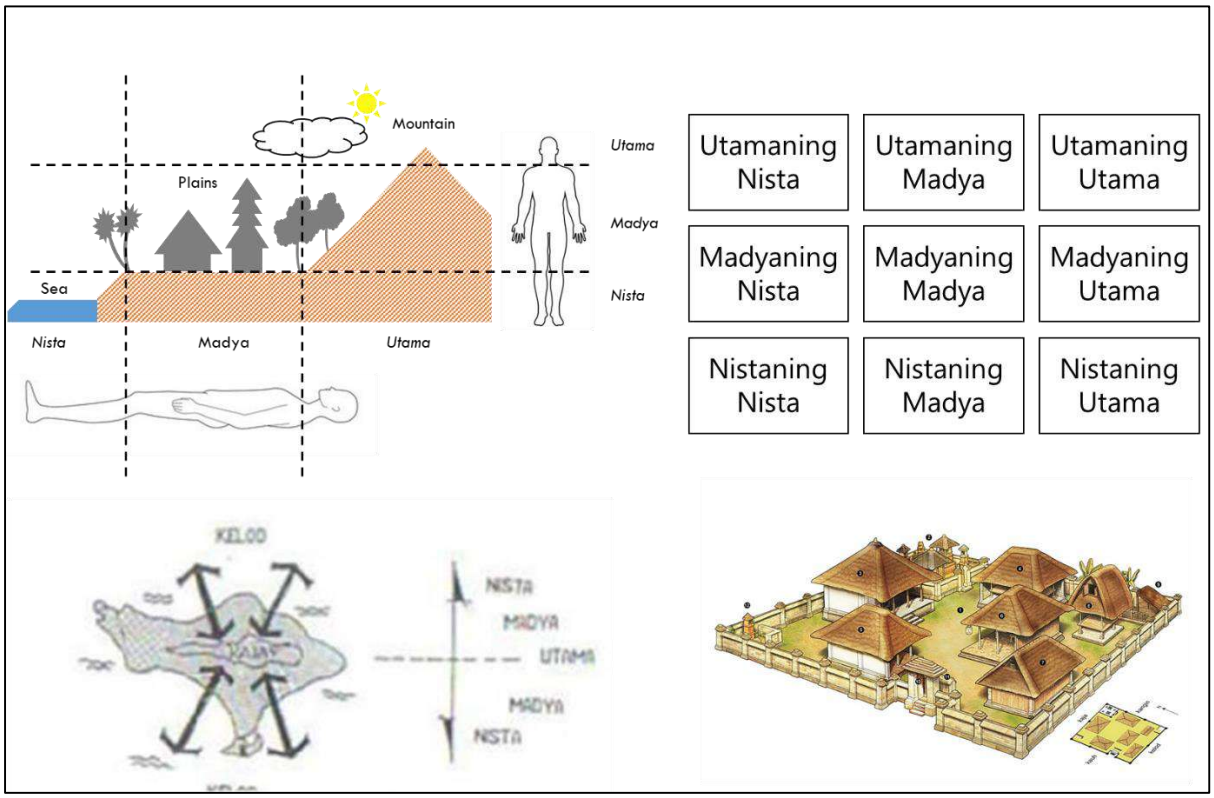

Figure 11. Cultural Spatial Pattern of Bali

3.11. Ngada

Bena Village is one of the villages located in Ngada Regency, Province of East Nusa Tenggara. This village is one of the megalithic villages. The uniqueness of this village is that it is inhabited by nine clans which are usually called the Ngada tribe. The nine clans that inhabit this village include Ngada, Dizi, Dizi Azi, Wahto, Deru Lalulewa, Deru Solamae, Khopa, and Ago. They inhabit around 45 houses that surround each other forming the letter U. Each house has a different roof decoration from each other

based on the lineage that rules and lives in the house. Clan yard (*loka woe*) which consists of 9 clans. Each clan has a traditional building in its *loka*. The traditional buildings in the *loka* are *bhaga* (a building where the spirits of ancestors are located, a symbol of the mother's house of origin of the tribe/clan), *ngadhu* (sacrificial pillar), *ture woe* (arrangement of megalithic stones), and *peo* (megalithic stones for tying the ropes of sacrificial animals). The courtyards of traditional houses are called *sa'o* [29]. The green space on the edge of Bena Village becomes a green belt to protect the village. There is no clear boundary of the green space in this village. However, its importance for local culture is that the green space symbolizes the universe (*ota ola*) or macro cosmos of Bena Village. The Bena community believes that if they want to see the world to come, in their life journey they must protect the universe in line with the principles of environmental sustainability.

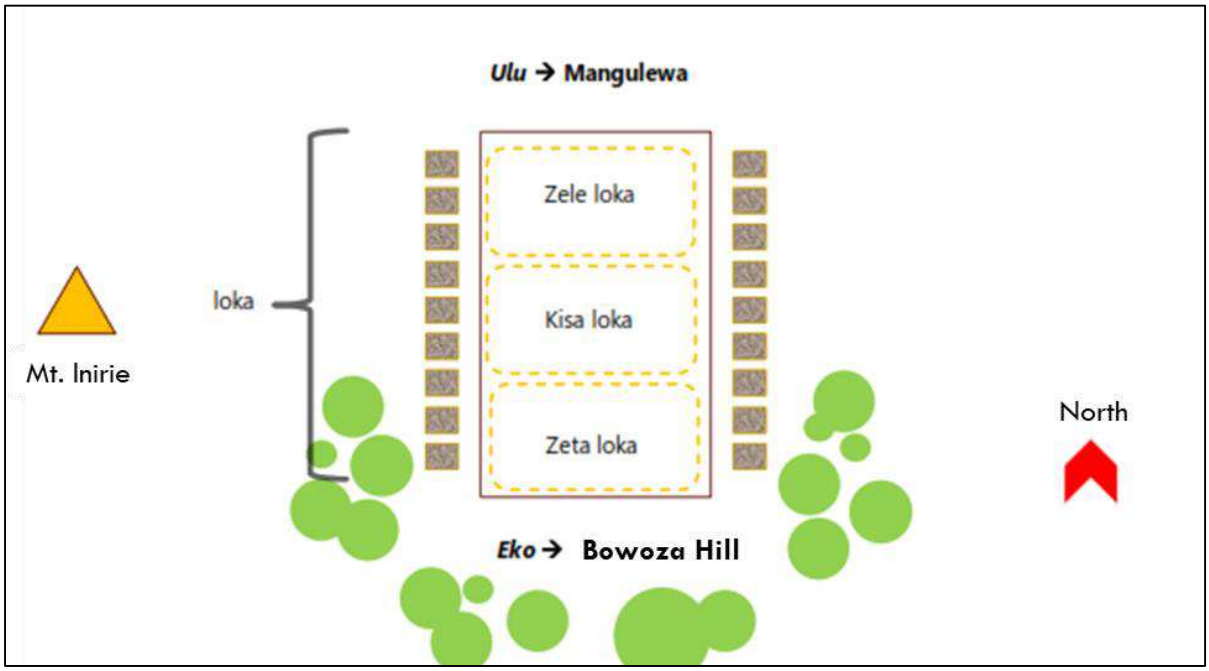

Figure 12. Cultural Spatial Pattern of Ngada

3.12. Moile

The Moile ethnic group in the Arfak Mountains, Province of West Papua has a unique spatial pattern. Living in the mountains makes them understand how to protect nature so that their lives can be safe, healthy, and sustainable. They have a concept called *igya ser hanjop* which means maintaining forest boundaries for the common good. The Moile ethnic group lives in the valley between the hills. They divide the space into four. The four areas are *bahamti*, *nimahamti*, *susti*, and *situmti* [30]. *Bahamti* is the name for the primary forest. This area has customary rules in the form of a prohibition on building houses or gardens. This area is where they get wood for house construction, bark for house walls, and wooden ropes to tie the house. Its use is also regulated by custom which can only be taken in moderation. The next area is called *nimahamti*. This area has the same status as *bahamti*. Their local knowledge has been able to see the differences in vegetation structure at different heights. Although the formation looks different, they know from generation to generation that not all plants in the area can grow well because the conditions are damp and cold. Next, *susti* is a secondary forest. This area is an area that can be exploited for farming activities. They divide it into two parts, namely *susngoisi* and *susmahan*. *Susngoisi* is an area of a former traditional farming that has been abandoned for about a year and has sprouted new plants. *Susmahan* is an area of a former traditional farming that has been abandoned for about five years so that trees with a diameter

of 30 to 40 cm have grown. Finally, there is *situmti*, an area for settlement and the establishment of a village. From the local wisdom of the Moile community, we can learn not to overdo it in exploiting nature and to live in line with the natural system to achieve sustainability.

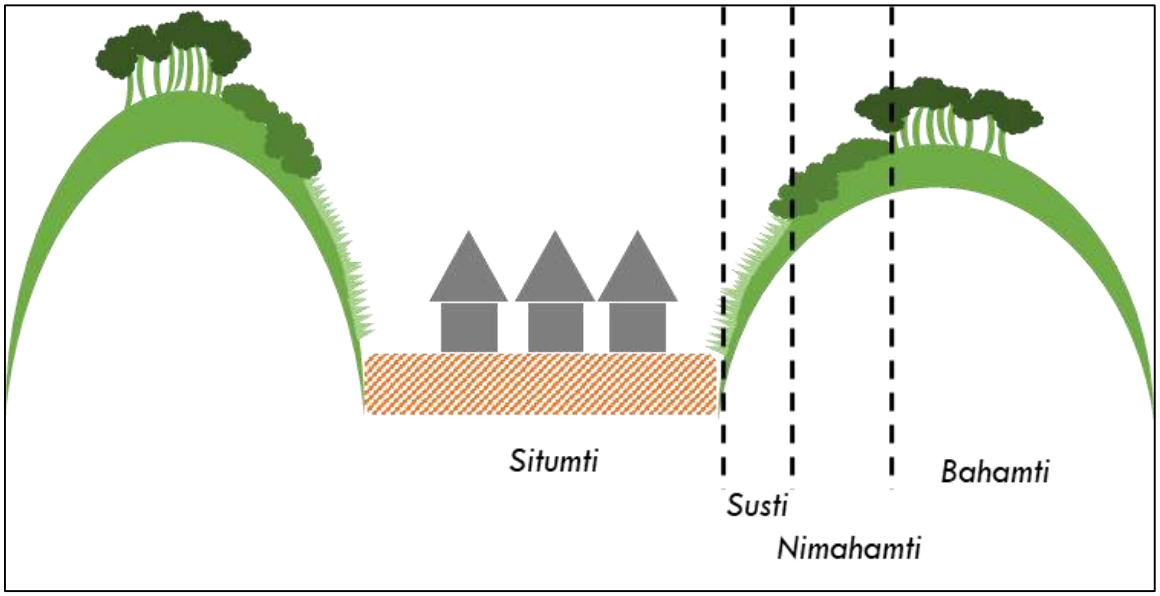

Figure 13. Cultural Spatial Pattern of Moile

8. Conclusion

Cultural spatial patterns in Indonesia are very diverse. They are influenced by many factors such as geography, social systems, beliefs, politics, and security factors. Each spatial pattern has its own characteristics and is the result of a long process of studying environmental phenomena to achieve sustainability. We recommend that the identification of cultural spatial patterns continue to be carried out and also implemented in modern architectural works not only in Indonesia but also in other countries which of course have diverse backgrounds. Because there are still many cultural spatial patterns that have not been identified and are threatened with extinction even though they have many values that are beneficial for achieving a better life.

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Planning and Design on Asian cultural university in Indonesia

Chun Hyunjin, Lan Ding, Zhang Yue, Yin Yan, Zhang Xiaojiao

School of Arts, Nanjing University of Aeronautics and Astronautics, NJ 211106, China
No. 29 JIangjung Road, Jiangning District, Nanjing 211106, Jiangsu, China

Abstract. Many developing countries are facing the contradiction between economic development and environmental protection, and most Southeast Asian countries are developing countries with unique histories, and we study how to better design campuses in this context through the case of Indonesia's relocation to a new capital and the Asian Culture University in the new capital.

1. Introduction

With the economic development higher education in Southeast Asia has seen significant growth and transformation in recent decades. Countries like Singapore, Malaysia, Thailand, and Indonesia have invested heavily in their educational infrastructure to meet the demands of a rapidly evolving global economy. However, higher education institutions in Southeast Asia face several challenges in campus design. These issues can impact the overall educational experience and the well-being of students and faculty. Mainly the following five questions: space constraints, sustainability, accessibility and inclusivity, technological integration, cultural and environmental context. We would like to take the design of a campus located in the new capital of Indonesia as an example to explore the design strategies of campuses in developing countries with long cultures.

2. Research Method

In this study, we use the Literature Review, Case Study and Action Research. We do the research by the campus designed by our team.

3. Case Design

3.1. Project Summary

3.1.1. Background

Due to overpopulation, Jakarta, the capital of Indonesia, faces urban traffic congestion, air pollution and other problems, as well as because of excessive groundwater extraction, resulting in subsidence of the ground and seawater flooding, resulting in frequent flooding in Jakarta. At the same time, the development across Indonesia is uneven, and the Indonesian government hopes to drive the development of the eastern part of Kalimantan Island, so Indonesian President Joko proposed the idea of moving the capital in 2019. In May 2019, the Indonesian Ministry of National Development Planning invited the governors or representatives of four provinces - Central Kalimantan, West Kalimantan, West Sulawesi and East Kalimantan - to the Presidential Palace to discuss the location of the new capital, and three alternative sites were identified in Central Kalimantan and East Kalimantan. President Joko then visited two alternative sites in East Kalimantan province - Bukit Soeharto and Palangkaraya - and identified the

Bukit Suharto area as the site for the new capital. In this case, we need more universities to support the development of the new capital.

3.1.2. Purpose of Project

To establish an Asian cultural university. An art and culture university located in Nusantara, the new capital of Indonesia. Design the campus.

3.1.3. Scope of the Plan

TIME : 2024.5-2024.6
SPACE : Nusantara
SIZE : 15000 * 10000 (mm)
CONTAIN : Three buildings

3.2. Nusantala Environment Analysis

3.2.1. Location Analysis

Nusantara, located in East Kalimantan province, was chosen as the new capital of Indonesia. This region is rich in natural resources and relatively stable geographical environment, which is not prone to natural disasters. It's the geographical center of Indonesia and may contributes to the balanced economic development of the East and west of the country. The initial construction area will reach 2560 square kilometers, of which 68.56 square kilometers will be the government center area, 561.8 square kilometers will be the capital area, and the rest will be the expanded capital area. In addition, some surrounding cities such as Bali and Samarinda will belong to the Nusantala metropolitan area.

3.2.2. Topographic Analysis of Nusantara

The area has a variety of landforms such as mountains, plains and forests, providing a rich natural landscape and ecological diversity for the construction of the new capital. The mountains of Kalimantan stretch out from the mainland, and are higher in the northeast, including Mount Kinabalu, the highest mountain in Southeast Asia, at 4,102 meters above sea level. The terrain is undulating and gentle, the rainfall is abundant, and many rivers separate into the sea. The forest cover rate is 80%. Agricultural production of rice, rubber, pepper, corn, coconut and so on. The island is surrounded by mountains and plains. The south is very low lying and has a large wetland. This island occupies a large area of Indonesia and is mainly distributed in the southern region. Kalimantan Island is located in the southern part of the Eurasian Plate, the geology is relatively stable, only the southern coast has a seismic zone distribution. The island is surrounded by mountains and plains. The south is very low lying, becoming a large wetland, and few people go into it, but there are some primitive tribal people living in the forest. Many parts of Kalimantan Island are covered with virgin forests, and Kalimantan Island has the largest tropical forest in the world except for tropical rainforests in the Amazon River basin of South America.

3.2.3. Religious Analysis

Nusantara has a rich and diverse cultural background. Indonesia as a multi-ethnic, multi-religious country, Nusantara area is no exception. There are many ethnic groups living here, such as Dayak, Malay, Chinese, etc. All ethnic groups coexist harmoniously and influence each other, forming a unique cultural landscape. In terms of religion, Islam is the main religion in Indonesia, and the Nusantara region is no exception. In addition, Christianity, Buddhism, Hinduism and other religions also have a certain influence in the local. Religious beliefs have had a profound impact on the living habits, cultural traditions and social values of local residents.

3.2.4. Language proportion analysis

With Malay and Dayak being the official languages and the main tools for local residents to communicate. In addition, languages and dialects of various ethnic groups are also widely used in daily life.

3.2.5. Traffic Analysis

Highway There are a total of 4 roads from Bali to the new capital (East Kalimantan), all of which are toll highways. Most of them have been built and can be used for rapid transportation from the new capital to the airport.

Airport At present, the new capital needs to rely on the two airports of Samarinda and Bali for round-trip transportation, and another government dedicated airport is under construction.

Port Bali is a port city. After the confirmation of the relocation of the new national capital to East Kalimantan, the KSOP of the Bali Port Authority stated that there are six ports in Bali that will support traffic from the archipelago's oceans, facilitating both freight and passenger transportation.

3.3. Campuses Case Analysis

3.3.1. San Jiang University

It is located between two rivers and three mountains. The European-style school buildings are elegant and magnificent, integrated with the green mountains and green waters, with a green rate of 70%.

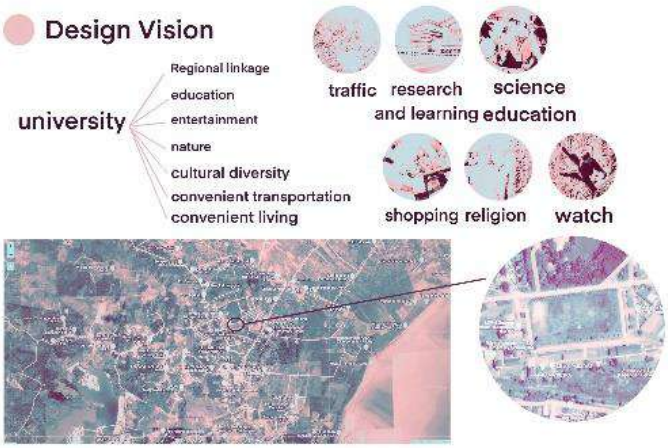
3.3.2. THE CAMPUS FUNCTION IN THE CASE

The layout of the building should fully consider the teaching needs, including the space arrangement of classrooms, laboratories, libraries and other educational facilities, to ensure the efficient conduct of teaching activities. The layout of living facilities such as student dormitories, cafeterias, leisure and sports places should be humanized to meet the daily life and social needs of students. Consider environmentally friendly and energy efficient design, such as the use of green building materials, solar panels, rainwater harvesting systems, etc., to reduce environmental impact. If possible, the campus layout should consider the interaction with the surrounding community, such as open public facilities, shared space, etc., to promote communication and cooperation between the school and the community.

3.4. Analysis of Project Location

3.4.1. Current Land Use Condition

The campus located in residential area. North is the greening project and the other three side is residential facilities. Except for the green space in the north, this area lacks nature and open space.



3.4.2. Climate

Tropical Climate: Indonesia lies along the equator, which contributes to its tropical climate. This results in consistently high temperatures and significant rainfall throughout the year.

Minimal Variation: There is minimal variation in temperature throughout the year due to the proximity to the equator. However, higher altitudes, such as those found in the mountainous regions of Sumatra, Java, and Papua, can experience cooler temperature

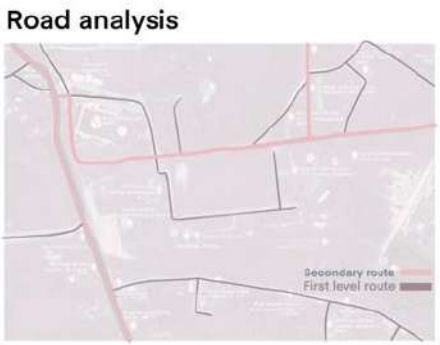
High Annual Rainfall: Annual rainfall varies across the archipelago, with some areas receiving over 4,000 millimeters (157 inches) of rain per year.

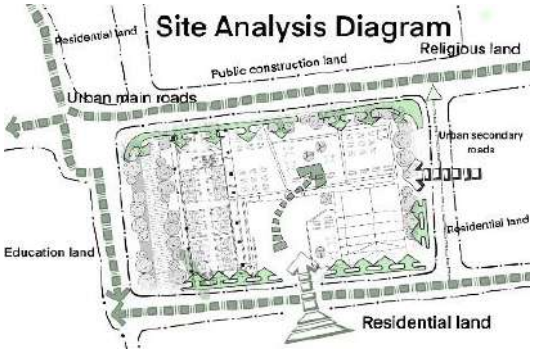
Consistently Warm: Average temperatures typically range from 25℃ to 30℃ (77℉ to 86℉) throughout the year. Coastal areas tend to be slightly cooler due to sea breezes, while inland and mountainous regions can be warmer.

3.4.3. Traffic Analysis

The traffic condition in Nusantara, Indonesia, is characterized by severe congestion, especially in major urban areas, driven by high population density, rapid urbanization, and inadequate infrastructure. Efforts are being made to improve public transportation, expand road networks, and implement traffic management policies, but challenges remain. The future focus will likely be on developing integrated and sustainable transport systems to alleviate congestion and enhance mobility.

There are three main roads in the project area. Also have many small roads near project area.

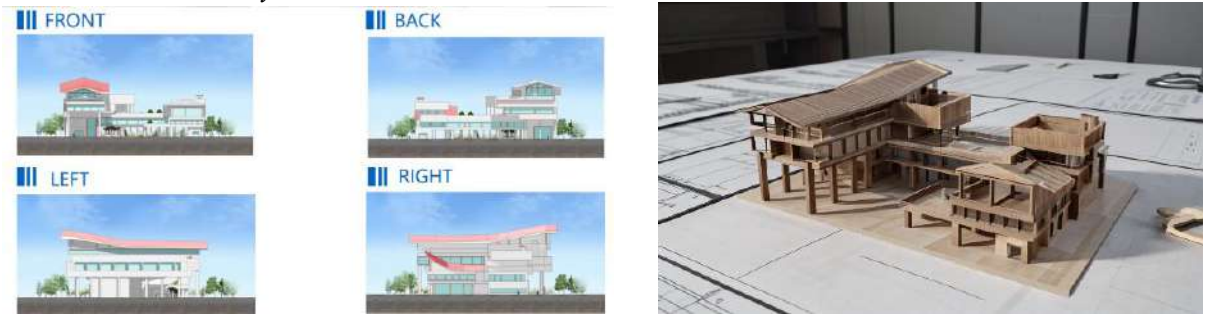




3.5. Concept Generation

Considering the lack of nature and open space in this area, we wanted to create a vibrant hub for the community, not just the university. By simulating the style of traditional Indonesian architecture, we opened up most of the space on the first floor, and at the same time it is open to citizens and students as a public service space. In view of the small space constraints, we made multiple movable balconies to provide students with space for activities. The second floor and above are teaching spaces. We want to build a transportation system that is healthy, efficient and safe. By dividing different functional areas, pillars and walls are used to separate the parking area from the activity area. The design of the campus landscape is mainly reflected in the balcony space, with a selection of plants that are mostly tropical. And the ground floor adopts a modular design concept, allowing for changes in form to serve different activities. The floor height is generous, which can accommodate the need of different teaching subject.

3.6. Architecture Analysis



Material Selection Criteria: Several factors were considered in the selection of construction materials for this project, including strength, durability, aesthetics, cost, sustainability, maintainability, and compliance with local building codes.
Reinforced Concrete: Reinforced concrete was chosen as the primary structural material due to its high strength, durability, and cost-effectiveness. It provides excellent load-bearing capabilities and resistance to environmental factors.
Wood Grain Decoration: The exterior of the building is adorned with wood grain decoration, adding aesthetic value to the structure. While this material requires periodic maintenance to preserve its appearance, it offers a visually appealing and natural look to the building facade.
Waterproofing Technology: Modern waterproofing materials were used to ensure the integrity and longevity of the building. These materials provide effective protection against water penetration, preventing structural damage and maintaining a comfortable indoor environment.
Traditional Indonesian Roofing Materials: The roof of the building features a combination of modern waterproof technology and traditional Indonesian roofing materials. This approach not only honors local cultural heritage but also promotes sustainability and climate adaptability.

4. Design Strategy Research

Developing countries, including Indonesia, face a myriad of challenges such as rapid urbanization, resource constraints, and the need for sustainable development. These challenges often manifest in

overcrowded cities, inadequate infrastructure, and environmental degradation. In this context, architecture serves as a powerful tool to address these issues. Thoughtful architectural design can optimize the use of limited resources, create sustainable and energy-efficient buildings, and provide inclusive spaces that accommodate diverse community needs. And the following are some points that we need to consider in the early stage of Asian university campuses design.

4.1. Cultural Inheritance

The rapid modernization and urbanization of East Asia have posed significant challenges to the preservation of traditional culture. As cities expand and new architectural styles emerge, there is a growing concern about the loss of cultural heritage. They pursue speed and build economically. Modern construction techniques and materials often favor efficiency and cost-effectiveness over traditional methods, which can be more time-consuming and expensive. This has led to the demolition of many historical buildings and the loss of architectural diversity. Additionally, the influx of global architectural trends sometimes results in designs that lack a connection to local cultural identities. East Asia has a long history, and these excellent cultures should not be allowed to gradually be lost. How to better integrate the building into the local culture and not appear isolated, this is what we need to consider in the design.

4.2. Environmental Protection

Southeast Asian countries, mostly developing countries, face problems of economic development and environmental protection, as does Indonesia, including their current capital, Jakarta, which has sunk due to extensive development. Therefore, in the new capital, we hope that university campuses can not only play an educational role, but also protect the environment. This can promote the sustainable and healthy development of the local society, and is also in response to the Indonesia government's request to build a green and environmentally friendly new capital.

4.3. Community Service

Universities need to undertake a part of the task of community service, which is not only the responsibility of the university to the society, but also can maintain the relationship between the university and the society, and at the same time, it can also make students aware of their responsibility to the society and cultivate their sense of social responsibility. In this part, the design needs to consider how to deal with the relationship between community residents and students, community activities and teaching activities, both to create an open space and an intimate teaching space.

5. Conclusion

When designing in Southeast Asian countries, the first thing to do is to protect and pass on their traditional cultures. Second, we should pay attention to the carrying capacity of the environment and not blindly pursue economic benefits. Finally, we should pay attention to the interactive relationship between the design and the surroundings, not to let the building be isolated, but to let people give life to the building to achieve the purpose of emotional design.

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Cultural Landscapes and the Rumah Larik Building Ritual: Understanding Space, Place, and Tradition

Moh. Sanjiva Refi Hasibuan[1], **Yoni Elviandri**[2]

[1] Landscape Architecture Depatrment, Faculty of Engineering, Institute of National Science and Technology, 12630, Indonesia
[2] Yayasan Lentera Muda Kerinci, 37167, Indonesia

Abstract. The study explores the cultural landscape of Sungai Penuh City, focusing on the Rumah Larik, a traditional architectural structure that embodies local values, rituals, and social organization. This research highlights the symbolic significance of Rumah Larik, not just as a physical space, but as a cultural landmark reflecting the cosmological beliefs and social fabric of the Kerinci people. It investigates how the construction rituals, which involve blessings from ancestral spirits and community collaboration, shape the cultural identity of the local population. Additionally, the paper addresses the challenges posed by modernization and urbanization, noting that while building materials and techniques have evolved, the symbolic and ritualistic elements remain largely intact. The study uses ethnographic methods, including direct observation and interviews, and integrates artificial intelligence (AI) to visualize the ritual processes involved in the Rumah Larik construction. The research contributes to a deeper understanding of how space, place, and tradition interact within the cultural landscape of the Kerinci community, offering insights into the role of these rituals in preserving social bonds and cultural continuity amidst contemporary changes.

1. Introduction

1.1. Research Background and Purpose

Cultural landscapes are a reflection of the social, historical, and cultural values of certain communities; they show the intricate relationship between human activities and their surroundings. The "Rumah Larik," a traditional architectural concept found throughout Indonesia, particularly in Sungai Penuh city, Jambi Province, is one example of a rich cultural landscape. The Rumah Larik represents the local community's perception of space, place, and tradition in addition to being a physical building. In addition to using locally sourced materials and performing customary rites, the construction of Rumah Larik is steeped in cultural traditions that serve to connect the community together via deeply symbolic meanings. Although much research has been conducted on the architectural aspects of Rumah Larik, there is still a limited understanding of the relationship between the building rituals and the broader cultural landscape. Previous studies often do not fully explore how the construction processes and accompanying rituals influence the community's perceptions of space and place, nor how these traditions are adapted or preserved in the face of modernization and globalization.

This research aims to fill that gap by further exploring how the building rituals of Rumah Larik contribute to the shaping and preservation of the local community's cultural identity. By understanding these practices, we can evaluate how space and place are transformed into dynamic cultural landscapes and how local traditions confront the challenges of contemporary change. Furthermore, this study will

investigate the role of these rituals in building and strengthening social bonds within the community, providing broader insights into the sustainability of traditions in the modern era. Thus, this research not only seeks to uncover the significance of the Rumah Larik building rituals but also offers a new perspective on how cultural landscapes function as reflections of the social and spiritual values of local communities.

1.2. Literature Review

Landscape is a place. A place can be defined as a location influenced by human experience. This site is unrestricted in terms of size. Place can be viewed in human experiences and goals, as a reality that can be understood from a human perspective and hence lends significance [1]. Cultural landscapes are a manifestation of the combined works of nature and humans that reflect the cultural, social, and historical development of specific communities. Cultural landscapes as areas that represent the "combined works of nature and humans" and that illustrate the evolution of human society and settlement over time [2]. These landscapes are dynamic, continually shaped by the ongoing interactions between people and their environment, reflecting both tangible and intangible cultural elements, including architecture, rituals, social practices, and spiritual beliefs [3]. Space is a broad and undefined concept that refers to the wider world in which one lives or finds oneself, whereas place is a defined, localized, and personalized piece of space to which individuals ascribe meaning based on their own experiences and (self-)projections [4].

Regulations, norms, conventions, environment, culture, and the potential of local materials will all have a direct impact on the shape of the local community's traditional house structures. Traditional houses or buildings built by the community retain the value of the owner's personality while also displaying a physical character that blends in with the surroundings. Among the various traditional architectural works in the archipelago, one has developed in society, particularly the Kerinci people, whose existence is little known and has never been exposed or researched in depth [5]. The Rumah Larik is more than just a physical structure; it represents the embodiment of local traditions, beliefs, and social practices, making it a significant element of the cultural landscape in Kerinci. Rituals play a crucial role in maintaining the continuity of tradition, as they reinforce the social and spiritual fabric of the community and transmit cultural values across generations [6].

In Sungai Penuh city, the concept of "place" is central to the understanding of the Rumah Larik building ritual. The term "place" encompasses more than just a geographic location; it includes the meanings, emotions, and memories attached to it by the community. The construction of Rumah Larik is a powerful act of place-making, where cultural values, social relationships, and historical memories are inscribed onto the physical landscape [7].

As modernization and urbanization advance, the traditional rituals and practices surrounding the Rumah Larik are increasingly confronted with the pressures of change. However, these rituals have shown a remarkable capacity for adaptation. For instance, the use of contemporary materials or techniques in the construction of Rumah Larik may reflect modern influences, yet the symbolic and ritualistic aspects remain largely intact. This adaptability illustrates the dynamic nature of tradition, demonstrating how it is continually negotiated between the past and the present.

2. Research Method

This research will employ ethnographic methods to gather field data, including direct observation, interviews, and analysis of relevant documents. In addition, artificial intelligence (AI) technology will be utilized to generate visual illustrations that capture and depict the various stages of the Rumah Larik building ritual. These AI image generator will serve as a tool for documenting the ritual, offering visual insights into the ceremonial process and helping to preserve this important cultural heritage. The integration of AI in creating these visual representations will enhance the documentation process,

enabling a more dynamic and accessible portrayal of the upacara adat.
The collected data will be analyzed using theories from anthropology and geography to understand the relationship between space, place, and cultural traditions. By combining ethnographic methods with AI-assisted visual documentation, this research aims to provide a deeper, multi-dimensional understanding of how space and place interact within the cultural and traditional context of Indonesian society. Furthermore, this research is expected to contribute significantly to understanding how the Rumah Larik building ritual serves as a profound cultural and spiritual symbol, while also preserving the practice through innovative, technology-driven methods.

3. Result and Discussion

One of the key components of the Kerinci people's traditional home and cultural landscape is Rumah Larik. The reason it is named Rumah Larik is that the way it is arranged creates a long, connected larik that runs between two houses. As a whole, Rumah Larik is a stilt house with two horizontal and three vertical rooms. Rumah Larik is intended for mothers or daughters. When a daughter marries, her parents had to acquire Ninik Mamak's approval before starting to build her a new home. The houses are stacked lengthwise like train cars as a result of this generational cycle of behavior. In South East Asia, longhouses are arguably the most striking example of the possibility of cooperative construction. Even more typical are homes that are built to support multiple nuclear families yet may not be particularly "long." There were living possibilities for multiple families available. Early writers hypothesized that the longhouse would vanish in the more tranquil circumstances that were created, viewing it as an adaption for defensive purposes. A longhouse is not abandoned until significant harm has been done to the traditional social structure [8].

Every unique shape of Rumah Larik has a symbolic value. Every element of the house structure has been modified to fit the customs and lifestyle of the Kerinci tribe. In society, a strong sense of family and unity is symbolized by this dwelling. The house serves as a residence as well as a gathering spot for the Depati and Ninik Mamak, as well as a location to keep family heirlooms.

The land use and ownership rights that have been established by customary laws from generation to generation are inextricably linked to the building of Rumah Larik. Three categories of land divisions are recognized by land ownership rights: state land (forests), group land (containing residential areas), and private property (including rice fields and fields). Customary leaders must approve any change in land use or function, including the construction of a dwelling. The location of the development is usually chosen based on the availability of water sources such as rivers and lakes. Water is very important for the lives of the Kerinci people, not only for daily needs, but also for irrigating fields and rice fields [9]. One of the Kerinci people's now-extinct customs was the house-building ritual. When parents have a daughter, they are required to build a house for her that is connected to their own. This is a ceremonial undertaking. Not only are the parents in charge of building the house, but the group leader is as well.

The Rumah Larik region was formerly a dense jungle covered in enormous trees. This rainforest provided building materials for Rumah Larik during the settlement's establishment. Wood was employed as building material for pillars, walls, roof frames, and other structures. Good-quality wood was selected; often, Surian wood (Toona sureni) was utilized. The first step in building a house was a pawang-led forest search for timber. An expert in selecting appropriate trees for use as building materials is known as a pawang. At this point, the pawang taps the tree trunk to choose a tree in the forest to serve as the old pole. After that, an axe is used to stick the chosen tree.

Figure 1. Surian/Suren (Toona sureni), local material for Rumah Larik construction

The axe that had been driven into the tree trunk the day before was examined to determine whether it had fallen or not. Should the axe fall, it indicates that the tree guardian forbade the tree from being chopped down and that its quality was poor. Concurrently, the house is constructed using the tree that has the axe still embedded in it. The community then cuts down the chosen tree together while the women sing to boost the men's motivation for work. Still singing, the wood is hauled together to the village where it is erected after being cut down.
In order to drive out the wood dwellers who are still carrying it, rice, turmeric, and flowers are sprinkled on the wood as it is being pulled from the forest and brought to the settlement. To make it last longer and prevent the wood from becoming powdery, it is soaked in mud after arriving at the settlement. Six months to a year are spent soaking the wood. This soaked wood has a five to fifteen year shelf life.

A chicken is killed and a little feast is given before construction on a house starts. The inhabitants are given this chicken's blood in the hopes that there won't be any mishaps that result in wounds or bleeding when the house is being built. Since this job is done through mutual collaboration, many members of the community are involved in it. Every Saturday through Wednesday, during the day, there is mutual interaction. People usually take Thursdays off from work and use the day to do things like shave their hair and prepare for Friday prayers the following day.

Expertly crafted carvings are used in Rumah Larik. An iron-tipped pickaxe is used for carving. Before beginning construction on a house, the old pillar's bottom is hollowed down and a little potion made of gold, iron dregs, white tin, and black tin is placed inside. The purpose of the gold is to provide wealth to the home's residents; the iron dregs are meant to protect against lightning; and the tin is meant to keep evildoers from harming the occupants of the home. Furthermore, a number of flora are connected to the ancient pillar, including:

a) A sugar cane stalk symbolizes the understanding that guests will frequent the house frequently and that it should be treated with respect.
b) A single bunch of stone bananas, in order to provide prosperity and good fortune to the occupants of the dwelling.
c) Set up the betel nut in a way that will ensure the house's occupants produce offspring.
d) Nio (coconut) grows, ensuring the health of the occupants of the house at all times.
e) A variety of fruit varieties, so that different fruit plants will be planted all about the house.

Once the old pillar has been constructed, the inner kid or the inner child's mother appears with tools including an old Kerinci money, a keris, and other items. The inner child bows and surrounds the inner pillar with his entourage and a pawang. The pawang rubs his blood on the inner pillar and scratches the keris on the fingertip of the inner child while reciting a mantra. This is done in the hopes that there won't be any disputes in the future that result in violence inside the home. Following the completion of this event, the inner child and his retinue go back to their parents' house to await the completion of the house's construction.

The construction stages of the Rumah Larik which go through the traditional ceremony above are then illustrated in images by utilizing AI technology which is generated from information descriptions based on the results of observations, interviews, and literature studies that have been carried out, resulting in the following picture.

Figure 2. (left) a Pawang leads a search for wood in the forest, (middle) Pawang sticks an axe into a tree trunk to choose the best tree to build a house, (right) The selected tree are cut down together by the people.

Figure 3. (left) people pulling the tree trunk together from the forest to the village, (middle) the women sing while accompanying the male group who are working to keep their spirits up, (right) people perform a ritual of wood being sprinkled with rice, turmeric and flowers with the intention of driving away evil spirits.

Figure 4. (left) tree trunk for house foundation pillars soaked in mud, (middle) People hold small feast as a ritual so that the construction of the house goes smoothly, (right) The construction work of Rumah Larik was carried out by men working together (gotong royong).

Figure 5. (left) The carved ornaments on the Rumah Larik were made by experts (middle) Some agricultural products are tied to the main pillars of the house as symbols of social, fortune, health and descendants, (right) The woman and Pawang surround the main pillar while reciting a spell for safety and well-being.

The images above are still limited to illustrations of activities that can provide a picture of the ritual ceremony of building Rumah Larik. Some details shown in the image need to be ignored because they do not reflect the actual conditions such as conditions and time, clothing and tools used, people's characters, dimensions of objects, and types of properties used. The inaccuracy of the resulting illustration images may occur due to the AI's inability to understand text commands given by the user or conversely the user's ability to instruct the AI program in the form of textual messages may also have an impact [10]. AI technology capabilities are needed that are able to more deeply describe information into a desired image in detail. Especially in visualizing historical conditions or events in the past in order to provide a more accurate understanding of the dimensions of space, place, and tradition for the needs of science in the present and the future.

4. Conclusion

The study's conclusion demonstrates the significance of Rumah Larik in Sungai Penuh City, Jambi, as a representation of the Kerinci community's cultural landscape and the interconnectedness of space, location, and tradition. According to the study, the Rumah Larik building rituals, which entail community cooperation and ancestor blessings, serve to fortify the community's social cohesiveness and cultural identity in addition to helping to physically build a house.

Although modernization and urbanization have introduced new construction materials and methods, the symbolic and ritualistic aspects of *Rumah Larik* remain intact, demonstrating the flexibility and adaptability of tradition in the face of change. The research emphasizes that *Rumah Larik* is more than just a building; it is a manifestation of spiritual and social values passed down through generations.
The study, which uses ethnographic methods and artificial intelligence (AI) to capture ritual activities, reveals profound insights into the necessity of keeping traditions in maintaining the Kerinci community's cultural landscape. Overall, the research suggests that Rumah Larik plays an important role in conserving traditional identity and values while also adapting to modern-day social and technical changes.

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Tumpeng: A Symbolic Representation of Divine-Human-Landscape Interactions in Indonesian Culture

Priambudi Trie Putra

Landscape Architecture Depatrment, Faculty of Engineering, Institute of National Science and Technology, 12630, Indonesia

Abstract. Java is one of the big ethnic groups that inhabit the Indonesian Archipelago. The Javanese are the main ethnic group that inhabit this island. Java is a part of the Java Peninsula, which is surrounded by volcanic ash that is produced by several volcanoes along the central and southern regions of Java Island. The traditional dish tumpeng has become a national dish and symbol of Indonesian culture. It has been used as a symbol of the interconnection between humanity, nature, and spirituality. The purpose of this research is to convey the tumbpeng as an expression of local wisdom that connects the Creator, Humanity, and Nature, reflecting the rich cultural heritage and landscape of Java. It is hoped that this research will help people understand how the interaction of Javanese society with the environment produces cultural products that hold significant value, especially from the perspective of landscape architecture.

1. Introduction

The Javanese are one of the big ethnic groups that inhabit the Indonesian Archipelago. Javanese culture has developed well in terms of architecture, language, customary systems, and also cuisine. The interaction between the Nusantara community and various beliefs and cultures that have entered has resulted in a rich cultural heritage. The landscape character of Java is a volcanic island with a dominance of mountains in the southern central part and vast, fertile lowlands in the northern part. The volcanic ash produced by several volcanoes on this island has a significant impact on enhancing the fertility of the land. Java Island has another name, jawadwipa, which means the island that is prosperous in rice. Until now, Java is still known as one of the main islands in Indonesia that produces rice for the national food supply. Approximately 60 percent of Indonesia's population lives in Java [1]. Java has experienced substantial population growth during the last four decades, resulting in increased human requirements. However, land resources to meet these demands are becoming increasingly scarce [2].

The people of Java have experienced an era of animism-dynamism, Hindu-Buddhism, Islam, and then the colonial period. Fortunately, many cultural heritages, both tangible and intangible, have remained preserved to this day. Javanese culture influences the motivational components of the Javanese community's behaviour. This is due to the values and beliefs of Javanese culture, which have been passed down through centuries among the Javanese people, influencing their behavior in numerous parts of life [3].

Tumpeng is one of the tangible cultural heritage that exists to this day. As a traditional culinary dish, tumpeng holds significant social and cultural values as an expression of the Javanese community's gratitude to the Creator in various social activities. Tumpeng is a cultural heritage that still exists today. The elements and shapes present in the presentation of tumpeng actually symbolize aspects of Javanese culture that can be studied and developed, especially in relation to the characteristics of the Javanese landscape.

The purpose of this research is to convey the tumpeng as a symbol of local wisdom that connects the Creator, Humanity, and Nature. Studying the concept of tumpeng can help someone understand how the interaction of Javanese society with the environment produces cultural products that hold significant value, especially from the perspective of landscape architecture.

2. Result and Discussion

2.1. The Philosophy of Tumpeng and Its Complements

Before Islam arrived on Java, the tumpeng ritual was followed. The tumpeng tradition, which originated in Java and is seen as a communication from ancestors regarding requests to the Almighty, is strongly tied to Javanese philosophy. Tumpeng is provided prior to the celebration in the Javanese custom of *kenduri*. The shape and kind of tumpeng that the Javanese community often makes are determined by the requirements of the rituals that will be carried out.

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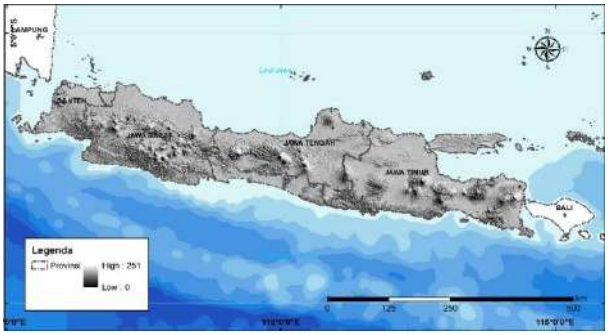

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Figure 1. The shape of the tumpeng represents the volcanoes in Java.

Physically, tumpeng is closely related to Hinduism because of its mountain-like shape (Figure 1). In Hinduism, mountains are symbols of the universe. Therefore, for the Javanese Hindu community, mountains play a very important role. Mountains, symbols of the universe, would be barren without trees around them. Mountains and vegetation have a mutually dependent relationship. It seems to be a natural law: when there is a mountain, there will certainly be many kinds of trees growing around it [4]. The term *gunung* or mount itself in Javanese culture is a combination of two words: "*gu*" which means *Gusti* or God, and "*nunggal*" or "manunggal," which means to unite. It can be interpreted that a mountain is a landscape feature that is considered sacred in Javanese culture [5].

Java has many active volcanoes to this day, including Mount Semeru, Mount Bromo, Mount Merapi, and Mount Kelud. Mount Semeru, the highest volcano in Java, is a sacred mountain in Hindu and Buddhist cosmology. Semeru also regarded as the center of the universe, both physically and metaphysically spiritually [6]. In addition to the Javanese ethnic group, the Balinese ethnic group on Bali Island also has a tumpeng culture that is quite similar to that of Java. Bali Island also has a mountain that is considered sacred, namely Mount AgungThe

conical shape of a mountain represents power or worship to God. This shape can also be interpreted as a symbol of human life and the surrounding nature. Life begins and ends under the power of the Creator. On certain types of tumpeng, red chili and shallots are placed at the tip of the tumpeng as a symbol of a request or prayer [5]. The use of red chili and shallots is becoming less common and has been replaced by cones made from banana leaves.

The mountain shape that resembles a triangle appears frequently in Javanese architecture (Figure 2). Some of them including the roof shape of joglo houses, the conical form of temples like in Prambanan Temple, *gunungan hasil bumi* (the big tumpeng made from harvested crops and traditional cakes) at *Sekaten* ceremony in Yogyakarta and Surakarta Palace, and even the traditional farmer's hat known as caping. The shape of the mountain is also adapted in the architectural concept of the Purna Bhakti Pertiwi Museum located in Taman Mini Indonesia Indah, Jakarta.

Figure 2. Illustrations of architectural works and objects that take the concept of mountain shapes.

Tumpeng crafted from rice fashioned like a mountain, which has lengthy been taken into consideration to symbolize the connection among gods and those, and their interplay with the Javanese cultural landscape. In a religious context, tumpeng is regularly related to the idea of power and braveness to triumph over life's challenges, and the mountain-fashioned rice is taken into consideration an image of power and braveness. Furthermore, tumpeng is likewise an image of solidarity and concord in Javanese society, as it's far regularly served at conventional activities along with ritual ceremonies and weddings. From an anthropological perspective, tumpeng displays the harmonious interplay of humans with their environment, and ingredients along with rice and veggies are herbal merchandise that develop in nature.

The rice, which is frequently served in a cone form, represents the fertile ground and the plenty it offers. This artistic representation emphasizes the idea that nature provides an unending supply of food and sustenance. As side dishes, chicken is typically cooked with coconut milk and turmeric, eggs are boiled and served with their shells, milkfish and catfish are fried, and

anchovies are fried after being blended with rice flour. In the meantime, all of the vegetables are boiled and then combined with *urap*, or spiced and seasoned grated coconut[7].

Tumpeng is frequently offered at important occasions like as weddings and harvest festivals called as *gunungan hasil bumi*, which are inextricably linked to natural cycles. These rituals honor the harvest season and the fertility of the land, connecting the dish to the natural cycles that sustain life. The using of fresh herbs and flowers as garnish adds another depth of symbolism. These decorations not only add to the dish's aesthetic appeal, but also serve as reminders of nature's beauty and fragility. They represent the cyclical nature of life and the interdependence of all living things.

Tumpeng has now become a national dish and symbol of the Indonesian people. The presentation of tumpeng has developed alongside globalization and its huge developments. Some kinds of tumpeng are tumpeng megana, tumpeng kendhit, and tumpeng kapuranto (Figure 3). Tumpeng megana was created for a child's birth celebration. The rice used is also white rice, which represents purity. The green veggies surrounding the tumpeng also represent freshness, ensuring that the youngster remains fresh and robust in all conditions. This tumpeng stands out for its use of eggs and red chili peppers. White rice is used in tumpeng kendhit, while yellow rice is put in a circle in the center. The dynamics of human life are said to be represented by this tumpeng. All things, including happiness, misery, failure, and success, will undoubtedly be conquered one after the other. This tumpeng is an offering to God in appreciation for all that has happened.

The addition of blue rice makes tumpeng kapuranto incredibly special. Antioxidant-rich butterfly pea blooms are the source of the blue hue. In addition, blue is a symbol of sincerity, calm, tranquility, and commitment. The typical usage of this tumpeng is in apology. The sender of this tumpeng must already be aware of their objective, which is to beg for forgiveness for anything they did in the past.

The diversity of side dishes that accompany tumpeng, including vegetables, meats, and spices, symbolize diversity of natural resources. Each dish is carefully chosen to highlight different aspects of nature—vegetables represent the fruits of the land, meats represent the animals that live there, and spices reflect the great biodiversity of flora.

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Figure 3. Tumpeng Megana, Tumpeng Kendhit, and Tumpeng Kapuranto

Tumpeng additionally has a strong connection to Javanese culture. This dish is regularly served at conventional occasions including ceremonies, weddings, and holidays. In those occasions, tumpeng is appeared as an image of togetherness and harmony. Additionally, tumpeng includes a deep non-secular meaning, in which the rice fashioned like a mountain is visible as an image

of energy and braveness in dealing with life`s challenges. Thus, tumpeng isn't always simply meals, however additionally part of the wealthy and numerous cultural identification of Java.

Tumpeng is used as a sacrifice to God in *Selametan* custom. Offering a Tumpeng demonstrates one's understanding of his place in the universe and the fact that it is nothing in comparison to the unseen force that governs the earth, water, wind, and other elements of the environment. Offering a tribute is therefore crucial, according to Javanese beliefs, to preserving the bond between God and humanity. They believe that if God is happy with their offer, He would protect them. It is customary for attendees of the event to pray over the food before sharing it. At the traditional ritual, the community's leader will slice off the top of the Tumpeng and present it to the elderly as a token of appreciation and respect. This suggests that Javanese people have a great deal of regard for their parents and elders [7]. Furthermore, the system of creating tumpeng is regularly completed traditionally, in which the elements are cautiously decided on to make sure that this meal may be loved sparkling and delicious. Thus, tumpeng isn't always only a conventional dish, however additionally part of ongoing sustainability efforts.

2.2. Tumpeng as a Representation of the Landscape

From the discussion above, the presentation of tumpeng is essentially always accompanied by complementary ingredients, namely side dishes and vegetables. If a tumpeng stands alone as just rice without side dishes and vegetables, then it cannot be considered a complete tumpeng. If we draw a connection between this matter and the concept of landscape preservation, then the philosophy of tumpeng as a whole is similar to the necessity of preserving our natural landscapes. The presence of mountains in various cultures is regarded as something sacred, holy, and majestic. Mountains, as major landscape formations, cannot be separated from the existence of the surrounding landscape. The chain of active volcanoes along the central and southern regions of Java Island provides livelihood for humans and shapes the surrounding landscape. Side dishes and vegetables are associated to the area around a mountain as supporting elements of sustainability. Just like a tumpeng, a mountain that is not cared for in terms of the surrounding area's preservation will lose its meaning.

Humans have long interacted with the natural landscapes around them. Natural landscapes have a language that can be sensed and felt by humans. The language of the natural landscape is manifested in natural features such as the presence of the sun, clouds, wind, including the weather, trees, rivers, and even the sounds of birds [8]. Essentially, humans must maintain harmony with the landscape, both the tangible landscape and the intangible one.

The pressure on the sustainability of the landscape in Java is currently increasing. As the most densely populated island in the world, Java is experiencing very high levels of environmental degradation [9]. Not only from an environmental perspective, but the social and cultural aspects of this island are also very dynamic. The current era of globalization is also feared to rapidly erode the noble values of existing cultures. Land use planning policies in Java, especially those aimed at preserving rice paddies and farmland, are important to ensure the sustainability of agricultural practices since about 60 percent of Indonesian farmers live in Java [10]. Rice is the main staple food of the Javanese people and even nationally, so rice production policies play a crucial role in development [11].

From a broader perspective, preserving the landscape must continue in relation to the rampant destruction of natural landscapes. Strict regulations on zoning in development planning are

necessary to ensure the sustainability of natural areas needed to maintain the stability of the region's ecosystem. If an area has suffered damage to its ecosystem, the impacts can affect various aspects such as environmental, economic, social, and cultural aspects.

There are several ways that can be undertaken to preserve the sustainability of the landscapes of Java Island. First, to maintain the resiliency of Java Island in the face of food crop and horticulture challenges, several land conservation strategies can be implemented. Encouraging sustainable agriculture practices such as crop rotation, organic farming, and integrated pest management can help maintain soil fertility and reduce the need for chemical fertilizers and pesticides. Second, promoting agroforestry systems, which integrate trees into agricultural landscapes, can enhance biodiversity, improve soil health, and provide additional income streams through forest products. Third, preserving the genetic diversity of local crops. Implementing integrated land use planning approaches can help balance agricultural activities with other land uses, such as conservation and urban development. Respecting nature is one way that people have a moral obligation to the environment. This obligation is placed on society as a whole as well as on individuals, particularly in societies that have passed down customs about their interaction with the natural world [12].

3. Conclusion

The Javanese culture, represented by the traditional dish tumpeng, serves as a philosophical symbol of the interconnectedness between humanity, nature, and spirituality, reflecting the rich cultural heritage and landscape of Java. The spirit of tumpeng, characterized by its complementary side dishes and vegetables, parallels the importance of preserving natural landscapes, particularly mountains, which are integral to their surrounding environments and cultural significance.

Acknowledgements

Many thanks to Mr. Chun Hyun-jin from ACLA and Mr. Kwag Min-ju from ICF. To Mr. Ray March Syahadat and Mr. Moh. Sanjiva Refi Hasibuan for the inspiration. A special thank you to Rina Dwica Desyana for her assistance in completing this paper.

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ISSN 3058-7158