

Post-Disaster Restoration and Revitalization Concept for the Souraja Traditional House Area, Palu City

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Abstract: The earthquake, tsunami, and liquefaction that struck Palu City, Indonesia, on 28 September 2018 damaged cultural heritage assets, including the Souraja Traditional House in Lere Village. This study aims to formulate an integrated post-disaster restoration and revitalization concept that preserves architectural authenticity and cultural significance. A qualitative approach employed field observations, architectural measurements, semi-structured interviews with traditional leaders, local communities, stakeholders, and document and literature reviews. Spatial, descriptive, and normative analyses evaluated existing conditions and formulated restoration and revitalization strategies. The findings identified three restoration priorities: strengthening the lower structural system while maintaining the original pedestal foundation concept, repairing deteriorated timber flooring, and restoring the roof using materials compatible with the original architectural character. The proposed revitalization strategy improves accessibility, green open spaces, parking management, pedestrian circulation, and community-based commercial activities to strengthen heritage tourism. The integrated framework provides practical guidance for post-disaster management of cultural heritage sites in Indonesia.

Keywords: Cultural heritage; post-disaster restoration; heritage revitalization; heritage tourism; Souraja Traditional House.

Konsep Pemulihan dan Revitalisasi Pasca Bencana untuk Kawasan Rumah Tradisional Souraja, Kota Palu

Abstrak: Gempa bumi, tsunami, dan likuifaksi yang melanda Kota Palu pada 28 September 2018 menyebabkan kerusakan pada aset cagar budaya, termasuk Rumah Adat Souraja di Desa Lere. Penelitian ini bertujuan merumuskan konsep restorasi dan revitalisasi Kawasan Rumah Adat Souraja pascabencana dengan tetap mempertahankan keaslian arsitektur dan nilai budayanya. Penelitian menggunakan pendekatan kualitatif deskriptif-eksploratif melalui observasi lapangan, pengukuran arsitektur, wawancara dengan tokoh adat, masyarakat, dan pemangku kepentingan, serta studi literatur, dokumen, dan peraturan. Analisis spasial, deskriptif, dan normatif digunakan untuk mengevaluasi kondisi eksisting dan menyusun strategi restorasi serta revitalisasi. Hasil penelitian menunjukkan tiga prioritas restorasi, yaitu memperkuat struktur bawah dengan mempertahankan konsep pondasi umpak, memperbaiki lantai kayu yang rusak, dan memulihkan atap menggunakan material yang sesuai dengan karakter arsitektur asli. Konsep revitalisasi meliputi peningkatan aksesibilitas, ruang terbuka hijau, pengelolaan parkir, jalur pejalan kaki, dan kegiatan ekonomi berbasis masyarakat guna mendukung pengembangan wisata warisan budaya yang berkelanjutan di Indonesia.

Kata kunci: Cagar budaya; restorasi pascabencana; revitalisasi; pariwisata; Rumah Adat Souraja.

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1. Introduction

Cultural heritage buildings represent tangible evidence of historical, social, and cultural development that contributes to the identity of cities and communities. Beyond their architectural value, heritage buildings embody collective memory, traditional knowledge, and local identity that must be preserved for future generations [1], [2]. However, increasing disaster events, rapid urbanization, and environmental degradation have significantly threatened the sustainability of cultural heritage worldwide [1], [3]. Consequently, post-disaster conservation has become an important concern in heritage management, emphasizing not only the physical restoration of historic buildings but also the recovery of their cultural, social, and economic functions [1], [3].

The preservation of heritage buildings involves a range of complementary conservation interventions, including preservation, rehabilitation, restoration, conservation, and reconstruction, each serving different objectives depending on the physical condition, historical significance, and intended future use of the heritage asset [3], [4]. Preservation focuses on maintaining the authenticity and integrity of original materials and structures through continuous protection and maintenance. Rehabilitation enables historic buildings to regain functional use while respecting their cultural significance, whereas restoration seeks to recover the building's original appearance by repairing damaged architectural elements. Conservation encompasses broader efforts to protect, manage, and sustainably utilize heritage resources, while reconstruction reproduces lost components based on reliable historical evidence when substantial damage has occurred [2], [4]. These approaches collectively provide the theoretical foundation for post-disaster heritage management, where safeguarding authenticity must be balanced with improving resilience and ensuring the long-term sustainability of heritage sites [1], [2].

Indonesia, located along the Pacific Ring of Fire, is highly vulnerable to earthquakes, tsunamis, volcanic eruptions, and other geological hazards [5], [6]. Many cultural heritage buildings located in disaster-prone regions have experienced varying degrees of structural damage, requiring integrated conservation strategies that balance historical authenticity with disaster resilience [4], [6]. The preservation of cultural heritage in Indonesia is legally supported through Law Number 11 of 2010 concerning Cultural Heritage, which emphasizes the protection, development, and utilization of heritage assets as part of sustainable cultural development [7]. Under this legislation, preservation encompasses dynamic efforts to maintain the significance of cultural heritage through protection, development, and sustainable utilization, ensuring that cultural assets continue to provide educational, historical, scientific, and cultural benefits for future generations [7].

One of the most significant post-disaster heritage conservation challenges in Indonesia is the Souraja Traditional House (Banua Oge) in Lere Village, Palu City [8]. Constructed in 1892 as the royal residence of the former Palu Kingdom during the reign of Raja Yodjokodi (the seventh Magau of Palu), Souraja represents the most important surviving example of traditional Kaili royal architecture, [8]. Beyond its architectural significance, Souraja functions as a living cultural heritage where customary rituals, traditional ceremonies, and ancestral traditions continue to be practiced by the descendants of the Palu Kingdom, reflecting its enduring social and cultural values, [8]. The earthquake, liquefaction, and tsunami that struck Palu on 28 September 2018 caused considerable damage to the building and its surrounding environment, reducing not only its structural integrity but also the quality of the heritage area that once functioned as an important historical tourism destination [4]. Furthermore, the 2018 disaster was not an isolated event, as Palu has experienced repeated destructive earthquakes and tsunamis associated with the active Palu-Koro Fault, highlighting the urgent need for disaster-resilient heritage conservation strategies [5], [9].

Previous studies have discussed various aspects of cultural heritage conservation, including preservation principles, rehabilitation methods, disaster mitigation, and architectural documentation of traditional buildings [3], [4], [10]. Studies related to Souraja have primarily focused on its historical significance, architectural characteristics, and disaster vulnerability [8], [9]. Meanwhile, other studies have examined post-disaster reconstruction or heritage tourism development separately [3], [9]. Although these studies provide valuable knowledge, they generally treat building restoration and area revitalization as independent issues. As a result, limited attention has been given to developing an integrated framework that simultaneously restores the architectural authenticity of heritage buildings while revitalizing their surrounding environment to support sustainable heritage tourism [1], [3], [9].

This limitation represents an important research gap. To date, there has been limited research proposing an integrated post-disaster conservation strategy that combines architectural restoration, spatial revitalization, and community-based heritage tourism for the Souraja Traditional House Area [3], [9]. Most previous studies emphasize physical conservation or disaster mitigation without comprehensively addressing how restoration interventions can be linked to the revitalization of surrounding public spaces, accessibility, green open spaces, visitor facilities, and local economic activities [3], [11]. Consequently, practical guidance for post-disaster heritage area management remains insufficient, particularly for traditional cultural heritage sites in disaster-prone regions [1], [11].

To address this gap, this study proposes an integrated post-disaster restoration and revitalization concept for the Souraja Traditional House Area. The novelty of this research lies in integrating architectural restoration based on authenticity principles with heritage-area revitalization through spatial planning, environmental improvement, and community-based tourism

development within a single conceptual framework [1], [2]. Accordingly, this study addresses the following research questions: (1) What restoration strategy is appropriate for preserving the architectural authenticity of the Souraja Traditional House after the 2018 disaster? (2) What revitalization concept can enhance the surrounding heritage area while maintaining its historical and cultural significance? (3) How can the integration of restoration and area revitalization contribute to sustainable heritage tourism development in Palu City? Therefore, this study aims to formulate an integrated restoration and revitalization concept that supports the long-term preservation and sustainable utilization of the Souraja Traditional House Area as a cultural heritage destination.

2. Metode

2.1 Research Design

This study employed a qualitative case study approach to formulate an integrated concept for the post-disaster restoration and revitalization of the Souraja Traditional House Area in Palu City, Central Sulawesi, Indonesia [12], [13]. A qualitative case study was selected because the research seeks to understand the physical, historical, cultural, and socio-spatial characteristics of a specific cultural heritage site within its real-life context [13]. This approach enables an in-depth exploration of heritage conservation issues while considering the interactions between architectural authenticity, environmental conditions, cultural values, and community perspectives [13], [14].

The research adopted an interpretive approach, emphasizing the understanding of meanings, values, and local knowledge associated with the Souraja Traditional House and its surrounding heritage area [13], [14]. The ultimate objective was not only to assess the physical condition of the heritage building but also to develop a comprehensive restoration and revitalization concept that integrates heritage conservation, spatial planning, and sustainable tourism development.

2.2 Study Area

The study was conducted at the Souraja Traditional House (Banua Oge), located in Lere Village, West Palu District, Palu City, Central Sulawesi, Indonesia. Constructed in 1892 as the royal residence of the former Kingdom of Palu, the Souraja Traditional House is recognized as one of the most significant examples of traditional Kaili architecture and serves as an important symbol of the region's historical and cultural identity.

The study area encompasses not only the main heritage building but also its surrounding environment, including public spaces, circulation networks, green open spaces, supporting facilities, and adjacent residential areas that collectively form the heritage landscape. These components were included because the research aims to develop an integrated restoration and revitalization concept that considers both the conservation of the historic building and the enhancement of its surrounding urban environment.

The Souraja Heritage Area was selected as the study site for three principal reasons. First, the Souraja Traditional House is an officially designated cultural heritage building with significant historical, architectural, and cultural value. Second, the building and its surrounding area sustained substantial damage during the 28 September 2018 earthquake, liquefaction, and tsunami, resulting in the deterioration of both the historic structure and supporting infrastructure. Third, despite the post-disaster decline in the physical quality and functionality of the heritage area, the site retains considerable potential for heritage tourism development and cultural revitalization. These characteristics make the Souraja Heritage Area an appropriate case study for developing an integrated post-disaster conservation and revitalization framework.

2.3 Data Sources

This study utilized both primary and secondary data to obtain a comprehensive understanding of the physical, historical, cultural, and spatial characteristics of the Souraja Heritage Area. Primary data were collected through field observations, semi-structured interviews, photographic documentation, and direct field measurements, which were used to assess the existing physical condition of the Souraja Traditional House and its surrounding environment. These data provided essential information on the building's architectural characteristics, structural condition, supporting facilities, and spatial context.

Secondary data were obtained from various documentary sources, including Law No. 11 of 2010 concerning Cultural Heritage, the Palu City Spatial Plan, historical archives, restoration reports, disaster reports published by the Indonesian National Disaster Management Agency (BNPB), previous studies on the Souraja Traditional House and traditional Kaili architecture, and scientific literature related to heritage conservation, post-disaster restoration, and heritage tourism. The integration of primary and secondary data enabled data triangulation and provided a comprehensive basis for formulating the proposed restoration and revitalization concept for the Souraja Heritage Area.

2.4 Data Collection Techniques

Field observations were conducted to assess the existing physical condition of the Souraja Traditional House and its surrounding heritage area. The observations focused on the structural condition of the building, architectural elements, construction materials, landscape quality, circulation patterns, supporting infrastructure, and tourism facilities. During each site visit, photographic documentation, field sketches, field measurements, and detailed observation notes were systematically recorded to document the physical characteristics and extent of building deterioration.

Semi-structured interviews were conducted to obtain in-depth information regarding the historical significance of the Souraja Traditional House, existing conservation issues, restoration priorities, and revitalization strategies for the heritage area. This interview method was selected because it provides sufficient flexibility to explore participants' experiences, perceptions, and local knowledge

while ensuring that all research objectives and key topics are consistently addressed.

To complement the primary data, document analysis was undertaken to establish the historical background, policy context, and technical information related to the study area. The reviewed documents included historical photographs, restoration reports, government regulations, spatial planning documents, maps, architectural drawings, and previous scientific publications concerning heritage conservation, traditional Kaili architecture, and post-disaster restoration.

2.5 Informant Selection

The interview participants were selected using a purposive sampling technique based on their knowledge, expertise, and direct involvement in the management, conservation, and cultural activities associated with the Souraja Traditional House. The selected informants represented various stakeholder groups, including officials from the Cultural Heritage Preservation Center (BPK Wilayah XVIII), representatives of the Palu City Government, traditional leaders, descendants of the former Palu Kingdom, architects and heritage conservation experts, academics, and local community representatives living around the Souraja Heritage Area. The inclusion of these diverse stakeholders ensured that both the technical aspects of architectural conservation and the socio-cultural values of the heritage site were comprehensively represented. Detailed information regarding the interview participants is presented in Table 1.

Table 1. Interview Information regarding the Souraja Area

Institution/Stakeholder	Position	Purpose of Interview
Central Sulawesi Cultural Heritage Preservation Center (BPK Wilayah XVIII)	Heritage Conservation Expert	Restoration principles and conservation policy
Palu City Culture Office	Government Official	Heritage management and tourism development
Descendant of the Palu Kingdom	Cultural Representative	Historical values and traditional practices
Traditional Leader (Kaili Community)	Community Leader	Local wisdom and cultural authenticity
Architecture Academic	Researcher	Architectural restoration strategy
Local Community Representative	Resident	Existing conditions and community expectations

3. Result

3.1 Identification of Souraja Traditional Areas and Houses

The buildings along the Souraja Heritage Area corridor are predominantly one- and two-storey structures. Most of the surrounding buildings are semi-permanent; however, a considerable number of traditional stilt houses remain, reflecting architectural characteristics similar to those of the Souraja Traditional

House. Stilt houses represent a common architectural typology in coastal settlements, as their elevated floor structure is well adapted to environmental conditions such as flooding and high groundwater levels. Since Kampung Lere is located along the coast of Palu Bay and in close proximity to the Palu River, this traditional building typology continues to dominate the surrounding heritage landscape. The presence of these stilt houses contributes to the historical identity and visual continuity of the Souraja Heritage Area, supporting its cultural significance and reinforcing its potential as a heritage tourism destination.

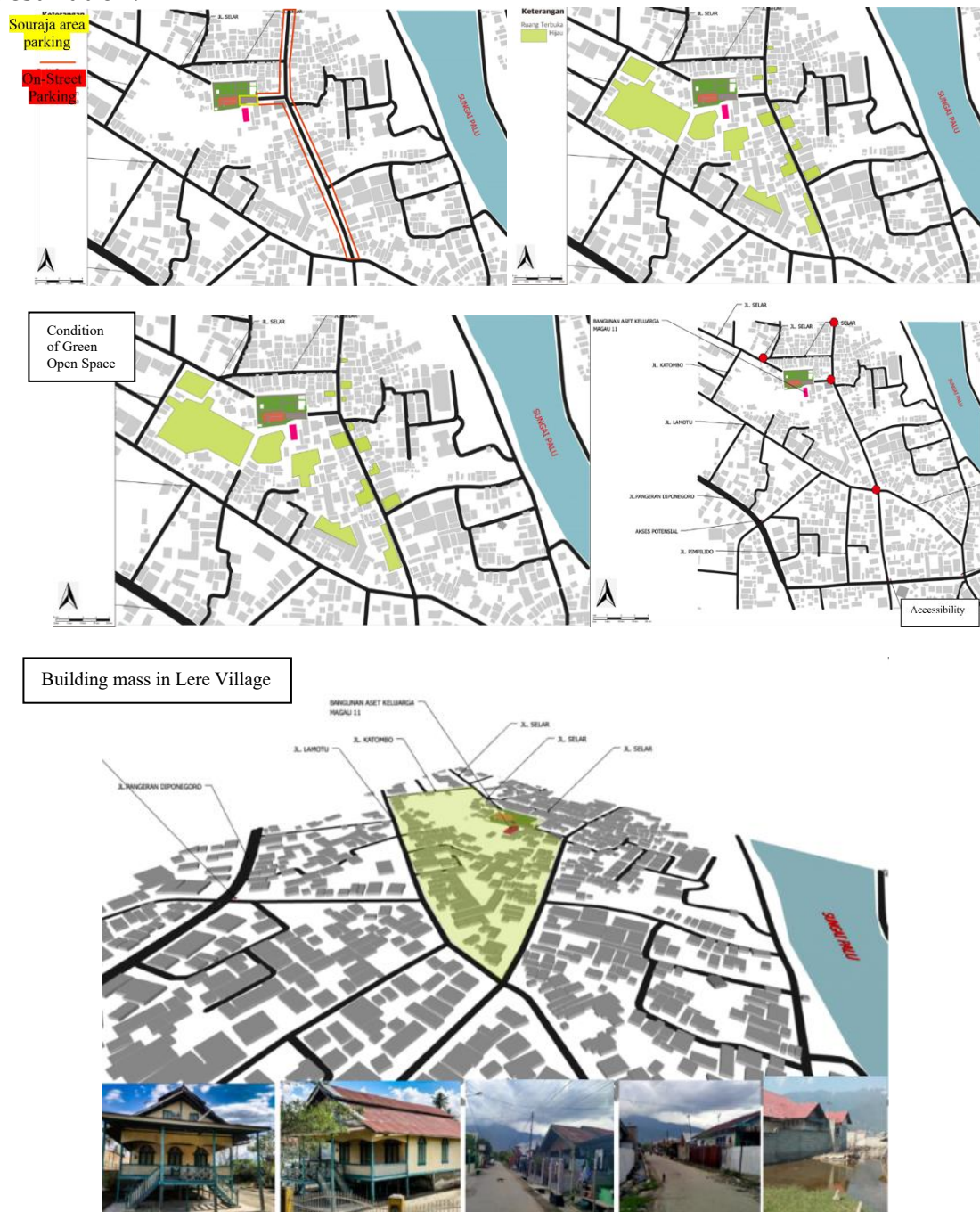


Figure 1. Conditions around the Souraja area corridor in Lere Village

Parking availability is an important component of heritage tourism infrastructure, as it directly influences visitor accessibility and circulation within cultural heritage sites. The existing parking facilities in the Souraja Heritage Area are insufficient to accommodate visitor vehicles, particularly during periods of increased tourist activity. Consequently, visitors frequently park along the roadside, resulting in on-street parking that obstructs traffic circulation. This issue is exacerbated by the limited width of the local road network in Kampung Lere, which ranges from 5 to 6 m, reducing both traffic capacity and pedestrian safety. Green Open Space (GOS) plays a significant role in improving environmental quality and enhancing the visual character of heritage areas. In Kampung Lere, the Souraja Heritage Area represents one of the existing green open spaces that contributes to the environmental quality of the neighborhood. Several vacant parcels surrounding the site have the potential to be developed as public parks or additional parking facilities. However, most of these parcels are privately owned, presenting challenges for future land development and management. Furthermore, residential gardens within the surrounding neighborhood provide additional opportunities to increase urban greenery and strengthen the landscape character of the heritage area. Accessibility to the Souraja Heritage Area is supported by several road connections. The site can be accessed from Jalan Selar, which connects to Bridge IV Palu and Jalan Cumi-Cumi, while the primary entrance to Kampung Lere is located on Jalan Mas Mansyur, marked by the main entrance gate to the heritage area. These accessibility conditions, together with the existing road network, green open spaces, and parking facilities, are illustrated in Figure 1.

The total area of the Souraja heritage site is 3,724 m², based on field measurements verified using architectural documentation provided by the Cultural Heritage Preservation Center (BPK Wilayah XVIII). The heritage complex comprises several supporting facilities in addition to the main Souraja Traditional House, including an art studio, public toilets, perimeter fencing, entrance gates, landscaped gardens, and parking areas that support visitor activities. Another important structure within the complex is the Gampiri, a traditional stilt building used as a rice granary. Architecturally, the Gampiri is characterized by its elongated rectangular form, simple design, and absence of windows, reflecting its primary function as a storage facility for harvested rice. The spatial arrangement of the heritage complex, including the location of the Souraja Traditional House, supporting facilities, and Gampiri, is illustrated in Figure 2.

The field observations identified several deficiencies in the supporting facilities within the Souraja Heritage Area. One of the primary issues is the limited parking capacity, which is insufficient to accommodate visitor vehicles, particularly during cultural events and periods of high tourist activity. In addition, the Banua Oge cultural heritage site is increasingly surrounded by residential development, reducing the spatial integrity and visual prominence of the heritage area. Other supporting facilities requiring improvement include the

clean water supply system, public sanitation facilities, landscape maintenance, and routine site management services. Addressing these deficiencies is essential to improve visitor comfort, strengthen heritage conservation, and support the long-term development of the Souraja Heritage Area as a sustainable cultural tourism destination.



Figure 2. Site Plan of Souraja Cultural Heritage Area.

3.2 Restoration Souraja Traditional House

According to Agustinova (2022), rehabilitation is a series of interventions intended to restore the functionality of damaged heritage buildings while preserving their authenticity. Where necessary, rehabilitation may include structural reinforcement, provided that the original architectural character and cultural values of the building are maintained, [15]. In heritage restoration, authenticity should be considered from four main aspects: (1) authenticity of form, (2) authenticity of materials, (3) authenticity of spatial layout, and (4) authenticity of construction technology. The authenticity of the building form

should be restored based on reliable historical evidence, including archival photographs, historical documents, eyewitness accounts, and technical investigations. Material authenticity requires retaining and reusing original building materials whenever possible. Severely deteriorated or missing components may be replaced; however, replacement materials should be compatible with the original in terms of type, dimensions, appearance, and quality. Similarly, the original spatial layout and architectural elements should be preserved by accurately documenting and reinstating the location of decorative components and structural elements. Construction techniques should also respect traditional building methods while allowing limited technical improvements where required to enhance structural safety without compromising authenticity [12].

Based on these conservation principles and the results of field observations, a three-stage restoration strategy is proposed for the Souraja Traditional House. Stage 1 – Structural Stabilization (Lower Structure).

The first priority focuses on the lower structural system, including the pedestal foundations and timber columns. Field observations indicated that the building has experienced a differential inclination of approximately 10–15 cm, suggesting uneven structural settlement following repeated seismic events. Previous rehabilitation works replaced parts of the original pedestal foundation with cast concrete flooring, reducing the flexibility of the traditional foundation system. Considering the seismic characteristics of the Palu region, it is recommended that the pedestal foundation concept be reinstated to improve structural adaptability during future earthquakes. Additional reinforcement using ironwood supports or steel pipe bracing is proposed to stabilize the existing timber columns while minimizing intervention to the original structure. Stage 2 – Rehabilitation of the Floor Structure.

The second stage addresses deterioration of the timber flooring, particularly in the front terrace and kitchen areas. Prior to dismantling, each timber floor component was systematically numbered to facilitate accurate reinstallation and replacement. Damaged timber elements should be replaced with materials that match the original species, dimensions, and construction techniques in order to preserve the architectural authenticity of the building.

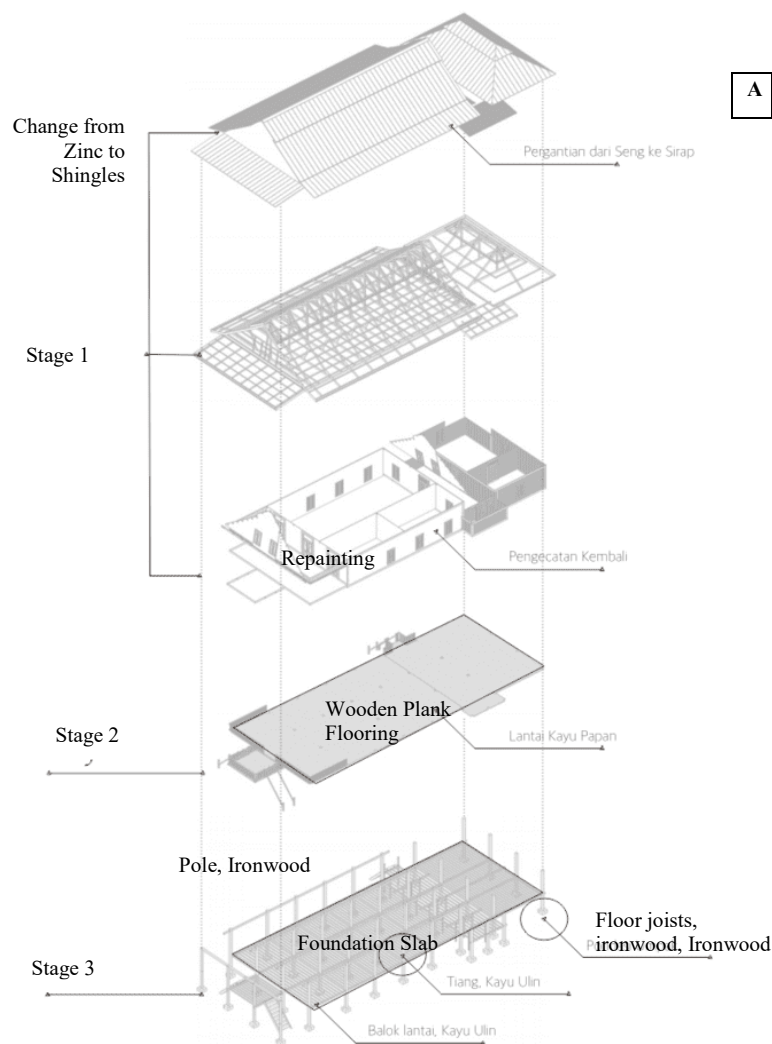
Stage 3 – Roof Rehabilitation.

The third stage focuses on the roof system. Field observations revealed that the primary timber roof structure remains structurally sound; however, approximately 70% of the zinc roofing sheets have deteriorated because of corrosion, weather exposure, and leakage. Consequently, restoration efforts should prioritize replacing the damaged roofing materials with new materials that are compatible with the original roof design while preserving the existing roof structure. This approach minimizes intervention to the historic fabric while improving the building's long-term durability. The identified building damage, proposed restoration materials, and recommended construction methods are summarized in Table 2, based on field surveys conducted in 2020.

Table 2. Summary of Building Damage, Proposed Materials, and Restoration Methods for the Souraja Traditional House

No .	Type of Damage	Location	Existing Material	Proposed Material	Proposed Restoration Method	Quantity / Extent
1	Building inclination (10-15 cm)	Lower primary structural system	Ironwood (<i>Eusideroxylon zwageri</i>)	Ironwood (<i>Eusideroxylon zwageri</i>)	Lift and realign the building using a crane or chain hoist, then reinforce the lower structural system by reinstating the original pedestal foundation (<i>umpak</i>) and installing diagonal timber bracing (wind braces).	Entire lower structural system
2	Deteriorated timber flooring	Front terrace and kitchen area	Ironwood	Ironwood	Remove deteriorated timber floorboards and replace them with new ironwood boards of matching dimensions and quality.	± 46.89 m ²
3	Roof leakage (approximately 70% damaged)	Roof	Corrugated zinc sheets	Wooden shingles (<i>sirap</i>)	Remove the existing zinc roofing, install additional timber battens, and replace the roof covering with traditional wooden shingles (<i>sirap</i>).	± 573.75 m ²
4	Repainting	Entire building	Wood paint	Wood primer, wood filler, and exterior wood paint (Royal Yellow and Green)	Carefully remove deteriorated paint, apply wood primer and wood filler, and repaint using the original color scheme.	Entire building
5	Toilet rehabilitation	Public toilet	–	Paint and plumbing materials	Repair damaged sanitary facilities, clear drainage blockages, and repaint the toilet building.	1 unit
6	Doors and windows	Kitchen, attic, and toilet	Timber	Ironwood	Replace deteriorated door and window leaves with new timber components matching the original design.	2 door leaves; 10 window leaves
7	Decorative ornaments / carvings	Exterior roof ornamentation	Timber	Ironwood	Replace damaged wooden carvings and decorative ornaments using ironwood while	100% damaged

No .	Type of Damage	Location	Existing Material	Proposed Material	Proposed Restoration Method	Quantity / Extent
					maintaining the original design.	
8	Electrical installation	Building interior	Existing electrical system	Existing electrical system	Reorganize and reinstall electrical wiring to improve safety and aesthetics.	Entire electrical installation
9	Utility power cables	Entrance area	Existing utility cables	Existing utility cables	Relocate and organize the PLN power cables to the left side of the building to improve the visual quality of the heritage area.	-
10	Landscape spotlights	Garden area	-	New landscape lighting	Install new landscape spotlights to enhance nighttime visibility and highlight the architectural character of the heritage site.	



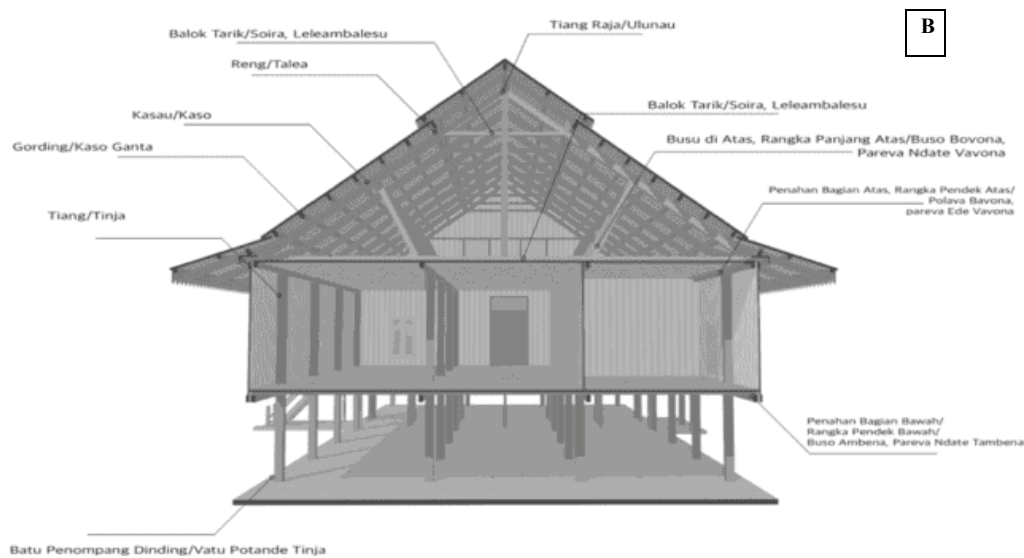


Figure 3. Souraja Restoration Stages (A) and Front elevation of the Souraja Traditional House showing the existing post-earthquake condition during the 2020 field survey (B)

The structural configuration of the Souraja Traditional House was documented through direct field measurements and verified using architectural drawings and technical documentation provided by the Cultural Heritage Preservation Center (BPK Wilayah XVIII). Field measurements indicate that the building has an overall dimension of 32.0 m in length and 11.5 m in width. The lower structural system consists of nine entrance steps, 28 primary timber columns, and eight kitchen-support columns, all identified during the field survey and confirmed through existing architectural documentation. The middle structural system comprises the principal load-bearing columns supporting the main house and front terrace, while the upper structural system is formed by 11 timber roof trusses supporting the roof structure. The detailed structural characteristics and their corresponding data sources are presented in Table 3.

Table 3. Building Structure		
Structural Division	Building Structure Condition	Information
Upper structure		Upper Structure: Number of trusses 11 pieces.

Super structure		Mid Structure: The number of columns for the main house and terrace is 28.
Sub structure		Substructure: Number of steps 9, Number of pillars of the main house 28, Number of pillars of the kitchen house 8 with <i>Umpak</i> foundation.

3.3 Concept of Revitalization Development of Area

The applicable cultural heritage regulations emphasize that the development of heritage buildings should enhance their cultural significance, public value, and sustainable utilization through research, revitalization, and adaptive reuse without compromising the objectives of heritage preservation. Consistent with these principles, the findings of this study indicate that the main corridor of the Souraja Heritage Area offers considerable potential for revitalization as a heritage tourism corridor. The Souraja Traditional House, as the historical landmark of Kampung Lere, can function as the focal point for heritage-based urban revitalization, contributing to cultural preservation, tourism development, and the socio-economic revitalization of the surrounding community.

3.3.1 Main Area Corridor (Souraja Area)

The main corridor leading to the Souraja Traditional House serves as the primary access route and establishes the Souraja Heritage Area as the principal landmark of Kampung Lere. The corridor is predominantly lined with residential buildings, complemented by small retail kiosks, public parks, and souvenir shops that support local economic activities. Given its strategic role as the main gateway to the heritage site, the corridor should be revitalized through an integrated spatial planning approach that enhances streetscape quality, public facilities, pedestrian accessibility, and commercial activities. Such interventions

are expected to strengthen the local economy while improving the visitor experience and supporting the sustainable development of the Souraja Heritage Area as a cultural heritage tourism destination.

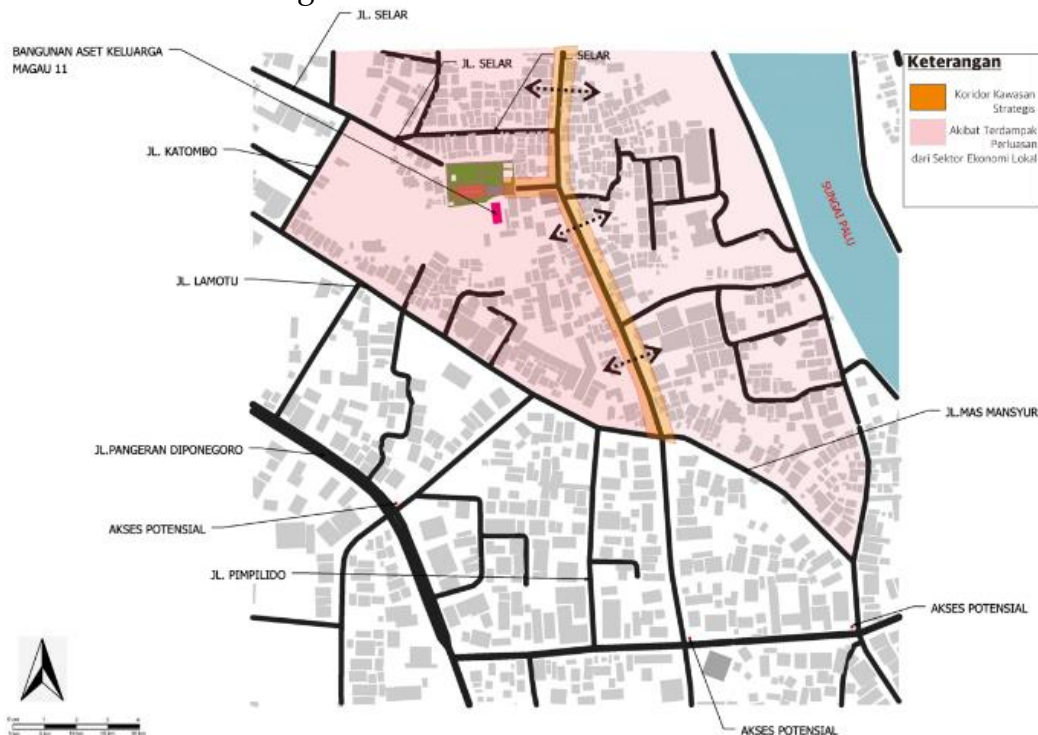


Figure 4. Proposed heritage tourism development framework illustrating the influence of the Souraja Heritage Area corridor on the revitalization of Kampung Lere.

3.3.2 Green Open Space Concept

Green open spaces within the Souraja Heritage Area Corridor are currently limited and are primarily concentrated around the main entrance gate. Several vacant parcels of land owned by local residents are also distributed along the corridor and represent potential areas for future landscape enhancement. Similar conditions are observed near the entrance from Jalan Selar, an area that was severely affected by the 2018 earthquake and tsunami. Following the disaster, this area was designated as a high-risk (red-zone) disaster area, where land subsidence, coastal inundation, and damage to flood protection infrastructure significantly reduced its suitability for residential development. In response, the Palu City Government has adopted a policy promoting the conversion of selected disaster-prone areas into urban green open spaces. This policy provides an important opportunity to expand the green open space network within the Souraja Heritage Area Corridor. Integrating these green spaces into the corridor revitalization plan is expected to improve environmental quality, strengthen disaster resilience, enhance the visual character of the heritage landscape, and support the sustainable development of the Souraja Heritage Area as a cultural heritage tourism destination.

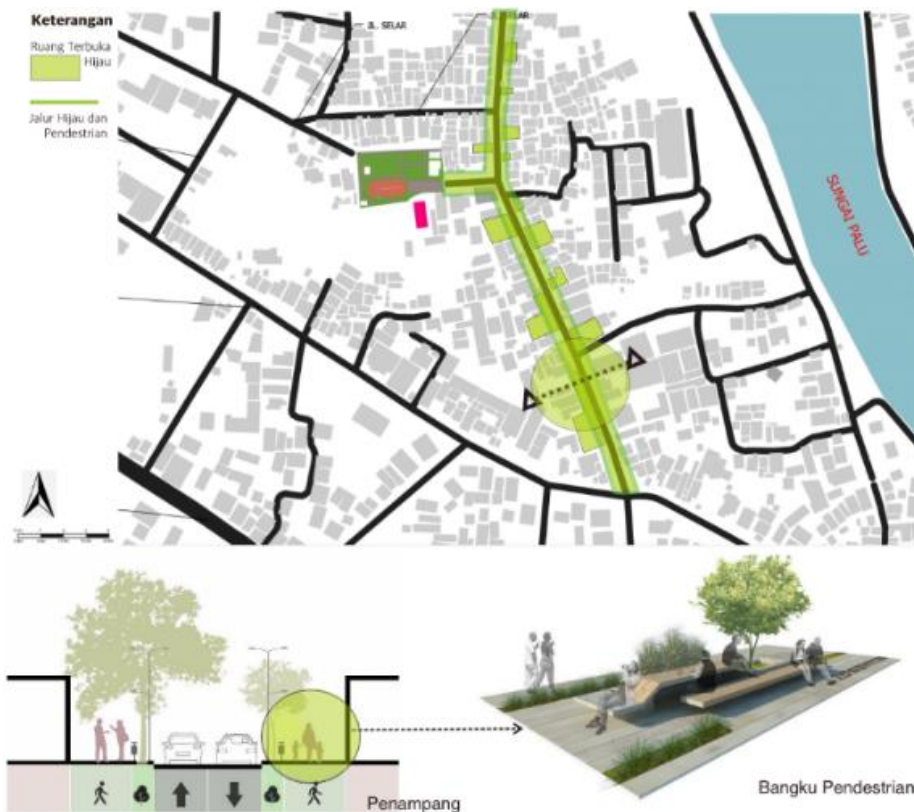


Figure 5. Proposed spatial revitalization plan showing green open spaces and pedestrian networks within the Souraja Heritage Area corridor, Lere Village.

3.3.3 Parking Allocation Concept

One of the major challenges identified in the Souraja Heritage Area is the limited parking capacity, which is insufficient to accommodate visitor vehicles during periods of high tourist activity and cultural events. To address this issue, the study proposes the development of parking pockets on suitable vacant land, community-owned land, or through the shared use of residential yards, subject to agreements with local property owners and the support of the local government. Although the implementation of this strategy requires community participation, public awareness, and collaborative management, it offers a practical solution for reducing on-street parking and improving traffic circulation within the heritage area.

In addition, the growing popularity of cycling and recreational walking in Palu City presents an opportunity to introduce bicycle parking facilities and pedestrian-friendly infrastructure within the Souraja Heritage Area Corridor. Integrating bicycle facilities with pedestrian pathways is expected to improve visitor mobility, reduce dependence on motorized vehicles, and enhance environmental quality. More importantly, encouraging walking and cycling allows visitors to experience the historical character, architectural identity, and cultural landscape of Kampung Lere more closely, thereby enriching the overall heritage tourism experience.

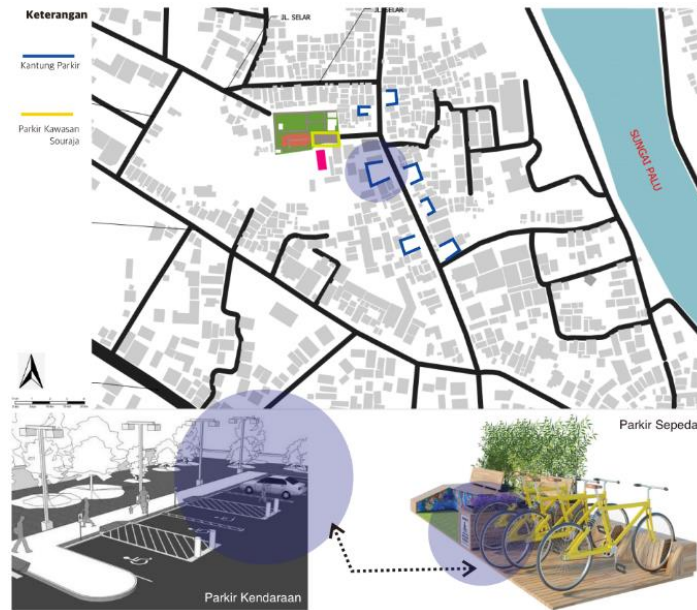


Figure 6. Proposed parking layout for motor vehicles and bicycles within the Souraja Heritage Area corridor, Lere Village.

3.3.4 Building Mass Concept, For Local Retail and Industry

The existing built environment within the Souraja Heritage Area corridor is predominantly characterized by residential buildings that reflect the architectural identity of traditional Kaili houses. Although many of these buildings have been reconstructed using permanent materials on the ground floor, their overall form, massing, and gable roof typology remain compatible with the traditional architectural character of the Souraja Traditional House. In general, the surrounding buildings are limited to one or two storeys, preserving the human scale and visual continuity of the heritage setting.

Based on these existing characteristics, this study proposes an adaptive revitalization concept that encourages the mixed-use utilization of residential buildings without compromising the historical character of the area. Existing houses may accommodate small-scale commercial functions, including souvenir shops, local craft outlets, and retail spaces offering products for daily needs, while maintaining their residential function. This approach is intended to strengthen the local economy while preserving the architectural identity of the heritage corridor.

Furthermore, the development of community-based businesses, such as cafés, traditional food stalls, coffee shops, and cultural retail outlets, is expected to support festivals, traditional ceremonies, and other cultural events held in the Souraja Heritage Area. These activities can enhance visitor experience, promote local products and cultural identity, and increase the attractiveness of the area as a sustainable cultural heritage tourism destination. Consequently, integrating local economic activities into the revitalization strategy contributes not only to heritage conservation but also to the long-term socio-economic sustainability of the surrounding community.

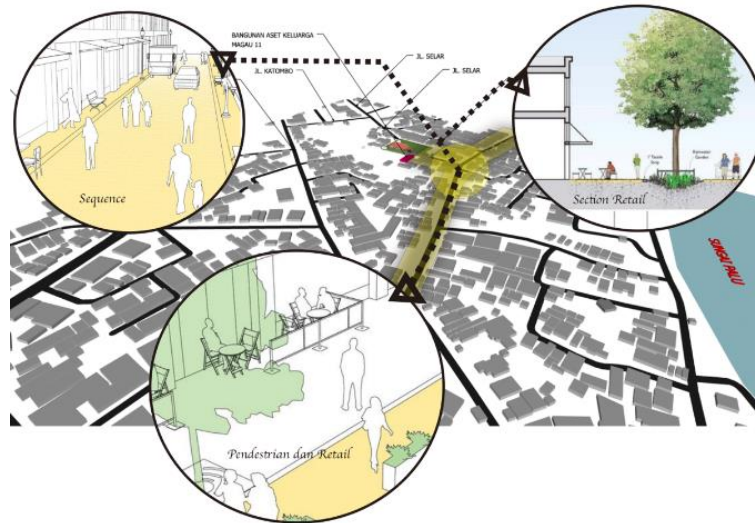


Figure 7. Proposed design of local retail and cultural activity spaces to support heritage tourism in the Souraja Heritage Area.

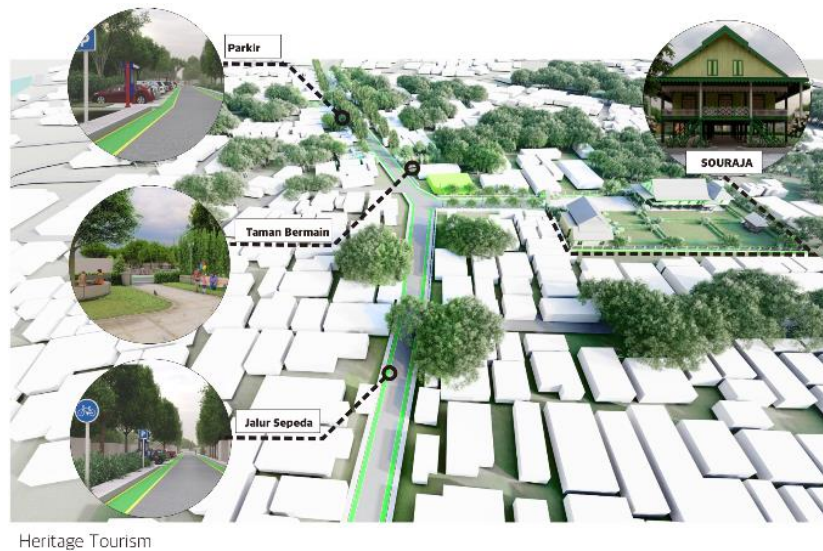


Figure 8. Conceptual visualization of the proposed revitalization of the Souraja Heritage Area corridor

The long-term sustainability of the Souraja Heritage Area depends not only on physical restoration but also on the active participation of local communities and relevant stakeholders. Community involvement in heritage conservation, cultural events, tourism services, and environmental management plays a crucial role in maintaining the authenticity and attractiveness of the heritage area. The findings of this study suggest that strengthening community participation through heritage-based economic activities can improve local livelihoods while enhancing the visitor experience. Furthermore, the development of sustainable heritage tourism is expected to create positive economic impacts by supporting small local businesses, increasing employment opportunities, and contributing

to local government revenue, thereby reinforcing the socio-economic resilience of Kampung Lere.

4. Conclusions

This study developed an integrated post-disaster restoration and revitalization concept for the Souraja Traditional House Area in Palu City by combining architectural conservation principles with heritage-area revitalization. Based on field observations, interviews, and architectural documentation, the study identified that the principal challenges affecting the heritage site include structural damage to the traditional building, deterioration of supporting facilities, limited parking capacity, inadequate public infrastructure, and the declining spatial quality of the surrounding heritage environment.

The findings indicate that restoration of the Souraja Traditional House should prioritize preserving the building's architectural authenticity through appropriate interventions to the lower structural system, timber flooring, roof covering, and other significant architectural elements while respecting traditional construction techniques and material compatibility. In addition to building restoration, revitalization of the surrounding heritage area is necessary to improve accessibility, public open spaces, pedestrian circulation, visitor facilities, landscape quality, and community-based commercial activities. These complementary interventions are expected to strengthen the cultural identity of Kampung Lere while enhancing the attractiveness of the area as a sustainable heritage tourism destination.

The novelty of this study lies in proposing an integrated framework that combines architectural restoration with heritage-area revitalization within a single post-disaster conservation strategy. Unlike previous studies that primarily focused on the physical conservation of the Souraja Traditional House, this research demonstrates that long-term heritage preservation should simultaneously address the building, its surrounding environment, and the socio-economic functions of the heritage area. Therefore, the proposed framework provides practical guidance for post-disaster management of traditional cultural heritage sites in disaster-prone regions and may serve as a reference for similar heritage conservation projects in Indonesia.

Future studies are recommended to evaluate the implementation of the proposed restoration and revitalization framework through stakeholder participation, economic feasibility assessment, and long-term monitoring of heritage tourism development to support sustainable cultural heritage management.

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