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WHEN SMART DESTINATIONS BECOME SUSTAINABLE: HOW TECHNOLOGY AND COMMUNICATION SHAPE TOURIST SATISFACTION

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| Article Info | Abstract |
|---|--|
| <p>Keywords: smart tourism destinations, service quality, communication quality, tourist satisfaction, sustainability.</p> <p>Received: April 15, 2025</p> <p>Approved: November 14, 2025</p> <p>Published: December 05, 2025</p> | <p>This study investigates how technology service quality and omnichannel communication quality shape tourist satisfaction and perceived sustainability within Indonesia's emerging smart tourism landscape. Grounded in the Smart Tourism Destination framework, the analysis incorporates perceived destination accessibility as a mediating variable and tourist digital literacy as a moderating variable to explain how digital infrastructures and user competencies jointly shape sustainable experiences. Data from 380 domestic and international tourists across six major destinations, namely Yogyakarta, Bandung, Bali, Jakarta, Malang, and Lombok, through purposive sampling to ensure that respondents had engaged with digital tourism services. Using Partial Least Squares Structural Equation Modeling revealed that technology service quality ($\beta = 0.34$, $p < 0.001$) and omnichannel communication quality ($\beta = 0.29$, $p < 0.001$) significantly enhance satisfaction, both directly and indirectly through perceived accessibility (indirect $\beta = 0.18$, $p < 0.001$). Tourist digital literacy strengthens these effects ($\beta = 0.11$ and 0.09, $p < 0.01$), while satisfaction strongly predicts perceived sustainability ($\beta = 0.42$, $p < 0.001$). The study advances Smart Tourism Destination theory by integrating technological performance, perceived accessibility, and human capability into a unified explanatory model. It highlights the need for reliable digital system, coherent communication across channels, and inclusive digital literacy initiatives to ensure that smart that smart tourism innovations lead to equitable and sustainable outcome in developing destinations. Policy makers and destination manager are encouraged to invest in digital capability programs, improve cross channel communication standards, and strengthen accessible technology infrastructure to maximize the long-term benefits of smart tourism development.</p> |

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INTRODUCTION

The global tourism industry is experiencing a structural transformation driven by rapid digitalization and the growing demand for sustainable, efficient, and personalized travel experiences. The concept of Smart Tourism Destinations (STDs) has emerged as a response to these changes, emphasizing the integration of information and communication technologies (ICTs) into destination management to improve tourist satisfaction, strengthen sustainability, and enhance governance (Abdelmalak, 2024; Alsharif et al., 2024). Smart destinations utilize big data, mobile applications, and connected infrastructure to optimize resource management, deliver seamless visitor experiences, and support more inclusive development (Hariyanto et al., 2025). As the world recovers from the disruptions of the COVID-19 pandemic, investments in digital platforms, contactless services, and data-driven management systems have become critical components of destination competitiveness and resilience (Dewayani, 2024).

Indonesia, as one of the most dynamic tourism economies in Southeast Asia, is actively embracing this transformation. The Ministry of Tourism and Creative Economy (Kemenparekraf) has prioritized Smart Tourism Indonesia within the Digital Tourism Transformation Roadmap 2021–2024, emphasizing digital platforms for integrated destination management, sustainable visitor flow control, and data interoperability among tourism stakeholders (Kemenparekraf, 2023). This initiative aligns with the *Rencana Induk Pembangunan Kepariwisata Nasional (RIPPARNAS) 2010–2025* and Indonesia's Vision 2045, which identify digital infrastructure, creative economy integration, and environmental sustainability as core strategic pillars for achieving inclusive tourism growth. Recent data from the Ministry of Communication and Informatics indicate that digital adoption among tourism operators reached 67 percent in 2023, supported by the rapid expansion of 4G and 5G networks across major destinations such as Yogyakarta, Bandung, Bali, Jakarta, Malang, and Lombok (ERIA, 2025).

Despite these advances, challenges remain in ensuring that technological innovation translates into meaningful experiences and sustainability outcomes. Studies within the Indonesian context reveal that most smart tourism initiatives remain concentrated on supply-side infrastructure rather than demand-side user experiences (Djuwendah et al., 2025; Mufaddhal, 2025; Nguyen, 2024; Yuli, 2024). Moreover, the heterogeneity of digital literacy among tourists and local service providers has created uneven access to digital benefits, particularly outside major urban centers. While government programs such as 100 Smart City Movement and Tourism Village Digitalization have improved service delivery, there is still limited empirical understanding of how tourists perceive the quality of technology-enabled services, communication across digital channels, and their implications for satisfaction and sustainability perceptions.

These gaps highlight the need to examine more comprehensively how tourists experience smart destination management in Indonesia's diverse contexts, where cultural heritage, ecological sensitivity, and digital transformation intersect. This study addresses this need by examining how Technology Service Quality and Omnichannel Communication Quality affect tourist satisfaction and perceived sustainability, with Perceived Destination Accessibility as a mediating factor and Tourist Digital Literacy as a moderator. By adopting a quantitative approach and drawing evidence from six leading destinations representing urban, cultural, and island settings, the study contributes to

strengthening Indonesia's policy framework for sustainable tourism digitalization. It advances the Smart Tourism Destination (STD) framework by integrating system-level attributes with individual-level digital capabilities, offering theoretical and practical insights for developing competitive, inclusive, and sustainable destinations in the context of emerging digital economies.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Theoretical Foundation

The conceptual model of this study is grounded in the Smart Tourism Destination (STD) framework, which integrates digital technologies into destination management systems to optimize visitor experiences, operational efficiency, and sustainability outcomes (Abdelmalak, 2024; Alsharif et al., 2024). Within this framework, smart destinations function as socio-technical systems in which data connectivity, service integration, and real-time communication collectively shape the quality of tourist experiences. However, much of the existing STD research focuses on infrastructural readiness and governance capacity, while overlooking how tourists interpret and evaluate the quality of digital services. To address this theoretical gap, the present study positions Technology Service Quality (TSQ) and Omnichannel Communication Quality (OCQ) as key operational dimensions of the STD framework that directly reflect the functional and relational performance of smart systems from the user perspective.

The construct of Technology Service Quality is theoretically derived from the Information Systems (IS) Success Model (Delone & McLean, 2003), which emphasizes that system quality and service quality determine user satisfaction and intention to continue using technology. In tourism, this framework captures the reliability, responsiveness, and usability of technological services such as e-ticketing, digital payment systems, and mobile applications (Li & See-To, 2023; Pai et al., 2025). These functions translate the abstract idea of "smartness" into measurable performance outcomes that tourists can perceive during their journeys. Omnichannel Communication Quality, meanwhile, extends the IS Success Model by integrating the communicative dimension of smart destination management how information accuracy, consistency, and responsiveness across multiple digital channels (websites, apps, and on-site digital displays) enhance tourists' trust and engagement (Huda, 2023; Tong & Chan, 2022). Conceptually, TSQ and OCQ together operationalize the service interface of smart destination systems, linking technological capability to experiential value.

The inclusion of Perceived Destination Accessibility (PDA) as a mediating variable is anchored in tourism mobility and accessibility theory, which posits that tourists' perceived ease of movement, access to information, and navigational efficiency significantly influence satisfaction (Bashir et al., 2024; Shariffuddin et al., 2023). In smart destinations, digital technologies influence accessibility through both functional and psychological pathways. Functionally, they provide real-time route planning, traffic information, and integrated ticketing; psychologically, they reduce uncertainty and cognitive load when navigating unfamiliar environments. Hence, PDA is theorized as the mechanism through which technology and communication quality translate into satisfaction, because digital tools make destinations feel more navigable and tourists' sense of experiential ease.



At the individual level, Tourist Digital Literacy (TDL) is grounded in capability theory and technology readiness research, which view digital competence as a personal resource enabling effective use of technology (Xiong & Zhang, 2024). In contrast to prior STD studies that treat tourists as homogeneous technology users, this study conceptualizes digital literacy as a moderating variable that conditions the effectiveness of smart services. Tourists with high digital literacy can fully leverage available technologies, interpret multimodal communication, and resolve service disruptions autonomously, whereas those with limited literacy may experience barriers even in well-designed systems (Miraz et al., 2025). This differentiation reflects a contextual adaptation of capability theory, recognizing the digital divide that persists among Indonesian tourists and its implications for inclusive smart tourism development.

Finally, Tourist Satisfaction and Perceived Sustainability (PSUS) are linked through service quality and sustainable tourism theories, which assert that satisfaction derived from efficient and transparent service experiences strengthens perceived environmental and social responsibility (Hassan et al., 2024; Rasoolimanesh et al., 2025). This study extends that relationship by demonstrating how satisfaction in digitally mediated contexts functions as a cognitive bridge between immediate experiences and broader sustainability evaluations when tourists perceive digital services as seamless and responsible, they are more likely to infer that the destination operates sustainably.

Collectively, this theoretical integration advances prior models by connecting system-level service attributes (TSQ, OCQ), a functional mechanism (PDA), and an individual capability factor (TDL) within a single framework. It addresses the empirical gap in STD literature by linking technological and communicative quality to sustainability through the lens of tourist experience, while contextualizing the model within Indonesia's policy agenda for digital transformation in tourism. The novelty lies in demonstrating how smart destination management can produce equitable and sustainable outcomes only when digital infrastructures are matched with human capabilities, thereby positioning smart tourism as both a technological innovation and social capability process.

Technology Service Quality and Tourist Satisfaction

Technology Service Quality (TSQ) represents a core operational construct of the Smart Tourism Destination (STD) framework because it reflects how the technological infrastructure and service systems of a destination translate into tangible visitor experiences (Setiawan et al., 2024). Drawing upon the Information Systems (IS) Success Model (Delone & McLean, 2003), system quality and service quality jointly determine user satisfaction by ensuring that information systems are reliable, responsive, and user-oriented. In smart tourism contexts, TSQ captures how effectively a destination's digital ecosystem comprising mobile applications, online booking platforms, Wi-Fi connectivity, and digital payment systems supports tourists in performing travel-related tasks (Setiawan et al., 2024; Sun et al., 2025). The theoretical relevance of TSQ lies in its role as the functional foundation that enables the smart attributes of destinations to produce satisfaction and, subsequently, perceptions of sustainability.

Empirical evidence supports this theoretical linkage. Studies in technologically advanced destinations such as Seoul, Singapore, and Dubai demonstrate that reliability, interactivity, and responsiveness of digital systems significantly enhance tourist

satisfaction and destination image (Tong & Chan, 2022; Torabi et al., 2025). Similar findings in Indonesia show that dependable internet connectivity, stable e-ticketing platforms, and effective customer support services increase tourists' perceived control and trust in digital tourism environments (Akbar et al., 2019; Setiawan et al., 2024; Tias et al., 2022). These findings collectively affirm that high-performing technological systems do not merely facilitate transactions but also shape cognitive and affective evaluations of the destination experience. In contrast, technological breakdowns or poor interface usability create psychological discomfort and service uncertainty, which can reduce overall satisfaction (Hardi et al., 2023).

Within this study's conceptual framework, TSQ is theorized to influence tourist satisfaction both directly and indirectly through perceived destination accessibility, as reliable and user-friendly technologies enhance tourists' sense of mobility and ease of navigation. Nevertheless, the direct path remains central because satisfaction fundamentally reflects tourists' overall judgment of how well destination systems meet their expectations for efficiency, reliability, and convenience. Thus, grounded in the IS Success Model and supported by empirical tourism evidence, the following hypothesis is proposed:

H1: Technology Service Quality has a positive and significant effect on Tourist Satisfaction.

Omnichannel Communication Quality and Tourist Satisfaction

Omnichannel Communication Quality (OCQ) captures how effectively destinations integrate multiple information and interaction channels such as mobile applications, official websites, social media, and digital signage into a cohesive communication system. Theoretically, this construct draws upon the Service Quality Theory (Parasuraman et al., 1993) and Dialogic Communication Theory (Kent & Taylor, 2002), which emphasize responsiveness, reliability, and two-way interaction as critical dimensions of perceived service excellence and trust. In the Smart Tourism Destination (STD) framework, omnichannel integration ensures that tourists receive timely, accurate, and consistent information across platforms, thereby reducing informational asymmetry and enhancing confidence in destination management (Alsharif et al., 2024; Tulung et al., 2025).

Unlike traditional single-channel communication, omnichannel systems synchronize messages and interfaces across online and offline touchpoints, providing continuity and personalization throughout the travel journey. This integration allows tourists to shift seamlessly between mobile-based planning, real-time updates during travel, and on-site information retrieval, which collectively reduce uncertainty and cognitive effort (Srinivasan et al., 2024). Empirical research confirms that destinations implementing cross-platform communication systems report higher levels of tourist satisfaction and loyalty (X. Wang, 2025; Yap et al., 2025). For example, studies in China (Tan et al., 2025) and Thailand (Khalid, 2024) found that integrated information delivery significantly improves perceived convenience, reliability, and emotional engagement with destinations.

The relational dimension of OCQ is equally important. Drawing on dialogic communication principles, smart destinations increasingly employ interactive features, chatbots, social media feedback loops, and online service portals to foster two-way



engagement between managers and visitors (Díaz-Parra et al., 2025). Such dialogic systems enable tourists to seek clarification, report problems, or express opinions, creating a sense of responsiveness and co-creation that extends beyond one-way information dissemination. Empirical evidence indicates that interactive communication strengthens affective satisfaction by making tourists feel acknowledged and supported (Camilleri & Kozak, 2022; Zhang et al., 2025). This dynamic is particularly relevant in Indonesia, where diverse linguistic and cultural contexts heighten the value of inclusive and responsive digital communication.

In this theoretical model, OCQ is posited to influence tourist satisfaction both directly and indirectly through perceived accessibility, as integrated communication systems enhance tourists' ability to plan and navigate destinations effectively. However, the direct relationship remains primary because high-quality communication signals managerial competence and reliability, which are central antecedents of satisfaction within the STD paradigm. Accordingly, based on service quality and dialogic communication theories and supported by empirical evidence from smart destination studies, the following hypothesis is proposed:

H2: Omnichannel Communication Quality has a positive and significant effect on Tourist Satisfaction.

The Mediating Role of Perceived Destination Accessibility

Perceived Destination Accessibility (PDA) represents tourists' subjective evaluation of how easily they can reach, navigate, and experience a destination's attractions, facilities, and services. The construct extends beyond physical mobility to encompass the informational and digital dimensions of accessibility, consistent with Mobility Theory and the Technology Acceptance Model (TAM), which emphasize the role of perceived ease of use and navigational support in shaping user satisfaction (D'Amico et al., 2022; Tulung et al., 2025). Within the Smart Tourism Destination (STD) framework, accessibility functions as a psychological and functional bridge between system-level technological service attributes and tourists' experiential outcomes.

From a theoretical standpoint, accessibility operates as a mediating mechanism because smart technologies and communication systems influence satisfaction indirectly through perceived ease and efficiency of movement (Bashir et al., 2024; Gupta et al., 2023). When tourists perceive that technology facilitates smooth navigation and reduces uncertainty, they interpret the overall experience as more coherent and satisfying. This mediating process is grounded in service quality theory, which posits that technological and informational enablers shape satisfaction by reducing effort and enhancing control (Parasuraman et al., 1988).

In the first mediating path, Technology Service Quality (TSQ) enhances accessibility by improving functional connectivity through reliable mobile apps, stable internet infrastructure, and integrated e-ticketing systems. These technologies simplify logistical barriers and empower tourists to plan and move efficiently. Empirical studies confirm that technology reliability and usability strongly predict perceived accessibility and ease of travel (De Vos et al., 2025; Hasni et al., 2021). Thus, destinations with dependable technological systems create a sense of spatial and informational openness that strengthens visitors' sense of control.

In the second mediating path, Omnichannel Communication Quality (OCQ) contributes to accessibility by improving informational coherence. Integrated communication across multiple digital platforms ensures that visitors receive consistent, real-time updates on routes, schedules, and local conditions. This informational transparency allows tourists to anticipate and adapt to changing environments, minimizing confusion and enhancing spatial confidence (Hassan et al., 2022; B. Wang et al., 2022). Hence, while TSQ enhances functional ease of movement, OCQ reinforces cognitive accessibility by improving tourists' understanding and orientation within the destination.

When tourists perceive high accessibility, they experience greater autonomy and assurance in navigating destinations, which fosters satisfaction and positive evaluations of destination management (Gupta et al., 2023). Therefore, PDA operates as a critical mediating construct linking technological quality and communicative quality to satisfaction within smart tourism systems.

H3: Perceived Destination Accessibility mediates the relationship between Technology Service Quality and Tourist Satisfaction.

H4: Perceived Destination Accessibility mediates the relationship between Omnichannel Communication Quality and Tourist Satisfaction.

The Moderating Role of Tourist Digital Literacy

Tourist Digital Literacy (TDL) refers to the individual capacity to effectively access, interpret, and apply digital information and technologies within the travel experience. Conceptually, this construct draws from Capability Theory (Stephens, 2023) and Technology Readiness Theory (Parasuraman, 2000), both of which emphasize that technological outcomes depend not only on the availability of tools but also on users' competencies and psychological readiness to utilize them. Within smart destinations, TDL therefore represents a human capability factor that determines whether digital innovations translate into meaningful, satisfying experiences.

The moderating role of TDL can be explained through the Cognitive Fit Theory (Ma & Li, 2023), which posits that task performance improves when users' cognitive abilities align with the structure of technological systems. Tourists with higher digital literacy experience greater congruence between their technological proficiency and the smart services provided, allowing them to navigate, customize, and problem-solve more effectively. Conversely, low-literacy tourists encounter cognitive friction that reduces their ability to perceive or benefit from high-quality technological services (Miraz et al., 2025). Empirical studies across tourism and information systems domains confirm that digital literacy moderates the effects of service quality and system usability on satisfaction and continued technology use (Aminullah & Wusko, 2025; Wang et al., 2024).

In the Technology Service Quality (TSQ)–Satisfaction pathway, TDL strengthens the relationship by enhancing tourists' ability to utilize system functionalities such as online booking, navigation, and feedback tools. High-literacy tourists are better equipped to exploit these technological affordances efficiently, which amplifies the perceived convenience and reliability derived from TSQ (Balaskas et al., 2025). In contrast, low-literacy users may struggle with digital interfaces, resulting in weaker satisfaction despite identical technological conditions.



In the Omnichannel Communication Quality (OCQ)–Satisfaction pathway, TDL moderates through interpretive and relational mechanisms. Digitally literate tourists can better synthesize information received across multiple channels, discern relevance, and engage interactively with service providers. This cognitive agility enhances perceived trust, responsiveness, and informational clarity, leading to higher satisfaction (Gato et al., 2022; Huda, 2023). Tourists with limited literacy, however, may experience message overload or confusion, which weakens the positive influence of communication quality on satisfaction.

Overall, TDL functions as a boundary condition within the Smart Tourism Destination (STD) framework: it determines how effectively tourists convert system-level service quality and communication quality into positive experiential outcomes. By integrating individual capability into the digital tourism model, this study extends existing theories of service quality and smart destination management, highlighting the critical human dimension of technological adoption.

H5: Tourist Digital Literacy moderates the relationship between Technology Service Quality and Tourist Satisfaction, such that the relationship is stronger for tourists with higher digital literacy.

H6: Tourist Digital Literacy moderates the relationship between Omnichannel Communication Quality and Tourist Satisfaction, such that the relationship is stronger for tourists with higher digital literacy.

Tourist Satisfaction and Perceived Sustainability

Tourist Satisfaction represents the degree to which visitors' expectations are fulfilled or exceeded during their travel experience, functioning as a key evaluative judgment that integrates both affective and cognitive appraisals of service performance (Hardi et al., 2023; Shatnawi et al., 2023). Within the Smart Tourism Destination framework, satisfaction extends beyond immediate hedonic outcomes to influence how tourists cognitively interpret the quality and ethics of destination management. Thus, satisfaction operates not only as a behavioral predictor of loyalty but also as a cognitive and affective lens through which broader destination values, including sustainability, are assessed.

Perceived Sustainability refers to the extent to which tourists believe that a destination's operations, infrastructure, and services reflect environmental responsibility, social inclusivity, and long-term viability (Alam, 2025; Rasoolimanesh et al., 2025). According to Cognitive Appraisal Theory (Lazarus, 1991), individuals derive higher-order judgments such as sustainability perceptions from emotional evaluations formed during service encounters. When tourists experience satisfaction, positive affect activates confirmatory cognitive processes, leading them to attribute pro-social and environmentally responsible qualities to the destination. Conversely, dissatisfaction triggers critical appraisals that magnify perceived inefficiencies or insincerity in sustainability efforts (Altintzoglou et al., 2025).

This affective–cognitive consistency is reinforced by Affective–Cognitive Consistency Theory (Simon & Read, 2018), which posits that individuals strive for harmony between emotional responses and evaluative beliefs. Satisfied tourists, motivated to maintain cognitive consistency, interpret destination management behaviors such as cleanliness, digital efficiency, and transparency as evidence of sustainable governance



(Karim et al., 2025; Rahman et al., 2025). This mechanism explains why even implicit sustainability cues, such as efficient crowd control or low energy consumption in digital systems, are more salient to satisfied visitors. In contrast, dissatisfied tourists tend to discount or overlook similar cues, as negative affect biases their interpretation of managerial intent (Dewayani, 2024).

Empirically, studies in environmentally sensitive destinations demonstrate that positive experiences enhance the salience of sustainability cues and foster trust in destination authorities (Miraz et al., 2025; Rasoolimanesh et al., 2025). This study extends these theoretical perspectives by embedding the satisfaction–sustainability relationship within a smart destination context, showing that satisfaction derived from technological and communicative efficiency enhances not only tourists’ immediate experience but also their moral and environmental evaluation of destination governance.

Accordingly, grounded in cognitive appraisal and attributional reasoning, this research proposes the following hypothesis:

H7: Tourist Satisfaction has a positive and significant effect on Perceived Sustainability.

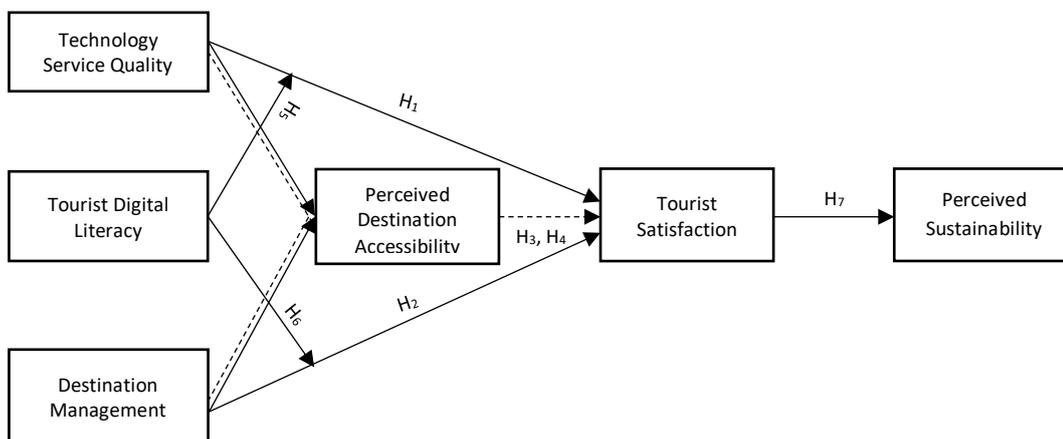


Figure 1. Conceptual Framework

Source: Research Data, 2025

METHODOLOGY

This study employs a quantitative research design, which is appropriate for testing theoretically derived causal relationships among latent constructs within the Smart Tourism Destination (STD) framework. Quantitative methods enable systematic examination of how variations in technology and communication quality influence tourist satisfaction and sustainability perceptions across diverse contexts. This approach aligns with the study’s objective to validate a structural model that integrates system-level and individual-level variables through statistical generalization and theory-driven testing (Hair et al., 2021).

The research was conducted in six major Indonesian destinations, Yogyakarta, Bandung, Bali, Jakarta, Malang, and Lombok which represent urban, cultural, and island tourism settings where smart initiatives are actively implemented. The target population comprised domestic and international tourists who had recently visited these destinations. A purposive sampling strategy was applied to recruit respondents who had prior experience using digital tourism services such as mobile applications, e-ticketing, or online



information portals. This non-probability approach was considered suitable for studies examining technology-based behavioral constructs, as it ensures that participants possess the necessary experiential knowledge to provide valid responses (Etikan, 2016). While purposive sampling may limit representativeness, it enhances construct validity by focusing on information rich cases relevant to the study’s scope.

Data were collected using a structured self-administered questionnaire, distributed both online and in person to capture diverse respondent profiles. A pilot test involving 30 participants was undertaken to evaluate clarity, internal consistency, and contextual appropriateness of the items. Cronbach’s alpha values exceeded the recommended threshold of 0.70, confirming reliability. Feedback from the pilot informed several minor wording improvement to enhance clarity and cultural alignment with the Indonesian tourism context.

The final instrument included 22 measurement items covering six constructs: Technology Service Quality, Omnichannel Communication Quality, Perceived Destination Accessibility, Tourist Satisfaction, Perceived Sustainability, and Tourist Digital Literacy. All items were adapted from validated scales in previous studies and refined through a translation–back-translation process to maintain conceptual equivalence. Responses were recorded using a seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). This scale was chosen for its ability to capture subtle attitudinal variations and for its consistency with established practice in tourism and technology adoption research.

Table 1. Measurement Items for Each Construct

| Construct | Item Statement | Source |
|---|---|--|
| Technology Service Quality (TSQ) | 1) The destination provides reliable, stable, and accessible internet in service in key tourist areas. | (Boes et al., 2015; Sun et al., 2025) |
| | 2) The mobile applications and e-services were easy to operate, dependable, and functioned smoothly. | |
| Omnichannel Communication Quality (OCQ) | 1) The destination communicated updates accurately and consistently across its official digital channels. | (Akyurt & Demirdağ, 2022; Gato et al., 2022) |
| | 2) I received timely, clear, and complete travel information during my visit. | |
| | 3) Digital communication tools and signage enhanced my understanding of local offerings. | |
| Perceived Destination Accessibility (PDA) | 1) I could easily access attractions and facilities throughout the destination. | (D’Amico et al., 2022; Lin et al., 2022) |
| | 2) Digital tools helped me navigate and reach desired locations smoothly and confidently. | |
| Tourist Satisfaction (TSAT) | 1) Overall, I am satisfied with my visit to this destination. | (Rasoolimanesh et al., 2025) |
| | 2) The services provided met or exceeded my expectations. | |
| Perceived Sustainability (PSUS) | 1) The destination demonstrated a clear and visible commitment to sustainability. | (Han, 2021; Wang et al., 2021) |
| | 2) I observed environmentally friendly and responsible practices during my visit. | |
| | 3) The destination appears to be actively reducing its environmental footprint and impact. | |



| | | |
|--------------------------------|---|---------------------|
| Tourist Digital Literacy (TDL) | 1) I am confident in using digital tools for tourism-related activities. | (Anom et al., 2023) |
| | 2) I can easily adapt to new travel technologies when required. | |
| | 3) I enjoy exploring destinations through various digital platforms. | |
| | 4) I often rely on apps and websites to enhance and support my travel experience. | |

Source: Research Data, 2025

Data from 380 valid respondents were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4. PLS-SEM was selected because it is well suited to exploratory-explanatory models, theory development, and prediction-oriented research involving complex relationships, mediators, and moderators (Hair et al., 2021). Moreover, it accommodates non-normal data distributions and moderate sample sizes, which are common in cross-destination tourism research.

The measurement model was assessed through composite reliability (CR), Cronbach’s alpha, and average variance extracted (AVE) to confirm internal consistency and convergent validity. Discriminant validity was examined using the Fornell–Larcker criterion and HTMT ratio. To mitigate common method variance (CMV), both procedural and statistical remedies were applied. Procedurally, anonymity, clear and neutral item wording, and randomized items order were implemented to minimize respondent bias. Statistically, Harman’s single-factor test and full collinearity assessment were performed following recommended guidelines (Kock et al., 2021), confirming that CMV was not a concern.

Model adequacy was further examined through Goodness-of-Fit (GoF), coefficient of determination (R^2), and effect size (f^2) indices to evaluate explanatory power and overall predictive relevance. These diagnostic steps ensured that both measurement and structural models achieved satisfactory levels of reliability and validity consistent with current standard in tourism research.

Overall, this methodological approach combining multi destination sampling, validated constructs, and PLS-SEM analysis provides a rigorous empirical basis for understanding how technology service quality and omnichannel communication quality influence accessibility, satisfaction, and sustainability in Indonesian smart tourism destinations.

FINDINGS AND DISCUSSION

Descriptive Statistics

Table 2 shows that the sample of 380 respondents was well balanced across demographic groups. Gender distribution was nearly even (52% male, 48% female). Most respondents were young adults, with 65% aged between 20 and 39 years, which reflects a predominantly technology-oriented traveler profile. Education levels were relatively high, with 63% holding at least a bachelor’s degree. In terms of income, the majority fell into the middle-income range of IDR 2–10 million per month, accounting for 71 percent of the sample.

Table 2. Respondent Profile (N = 380)

| Variable | Category | n | % |
|----------|----------|-----|----|
| Gender | Male | 198 | 52 |



| | | | |
|----------------------------|--------------------------|-----|----|
| | Female | 182 | 48 |
| Age Group | < 20 years | 25 | 7 |
| | 20–29 years | 143 | 38 |
| | 30–39 years | 102 | 27 |
| | 40–49 years | 70 | 18 |
| | ≥ 50 years | 40 | 10 |
| Education | High school or below | 78 | 20 |
| | Diploma | 62 | 16 |
| | Bachelor’s degree | 173 | 45 |
| | Master’s degree or above | 67 | 18 |
| Monthly Income | < IDR 2 million | 42 | 11 |
| | IDR 2–5 million | 150 | 39 |
| | IDR 5–10 million | 120 | 32 |
| | > IDR 10 million | 68 | 18 |
| Residence | Domestic (Indonesia) | 290 | 76 |
| | International | 90 | 24 |
| Travel Companion | Solo | 45 | 12 |
| | With family | 160 | 42 |
| | With friends | 132 | 35 |
| | With tour group | 43 | 11 |
| Visited Destination | Yogyakarta | 66 | 17 |
| | Bandung | 58 | 15 |
| | Bali | 64 | 17 |
| | Jakarta | 63 | 17 |
| | Malang | 64 | 17 |
| | Lombok | 65 | 17 |

Source: Research Data, 2025

Most participants were domestic tourists (76%), though nearly one-quarter were international visitors (24%), which helps ensure a broad range of perspectives. Family and friends were the dominant travel companions (77%), consistent with common leisure-oriented travel patterns. The six destinations were evenly represented, with each attracting about 15–17% of the sample, thereby providing balanced representation across Indonesia’s major tourism hubs.

Table 3. Descriptive Statistics

| Construct | No. of Items | Mean | SD | Min | Max |
|-------------------------------------|--------------|------|------|-----|-----|
| Technology Service Quality | 2 | 5.60 | 1.01 | 1 | 7 |
| Omnichannel Communication Quality | 3 | 5.48 | 1.07 | 1 | 7 |
| Perceived Destination Accessibility | 2 | 5.55 | 1.02 | 1 | 7 |
| Tourist Satisfaction | 2 | 5.70 | 0.95 | 1 | 7 |
| Perceived Sustainability | 3 | 5.40 | 1.10 | 1 | 7 |
| Tourist Digital Literacy | 4 | 5.85 | 0.89 | 1 | 7 |

Source: Research Data, 2025

Table 3 presents the descriptive statistics for the six constructs measured in this study. All items were assessed on a seven-point Likert scale, where 1 indicated “strongly disagree” and 7 indicated “strongly agree.” The results show that the mean scores for all constructs are above 5.40, suggesting that tourists generally evaluated the smart tourism practices in Indonesian destinations positively.

Technology Service Quality (M = 5.60, SD = 1.01) received favorable evaluations, indicating that respondents perceived the digital infrastructure and service reliability, such



as mobile apps, Wi-Fi access, and e-ticketing, as consistently satisfactory. Similarly, Omnichannel Communication Quality (M = 5.48, SD = 1.07) was rated positively, reflecting tourists’ agreement that communication across digital platforms was timely, accurate, and supportive in enhancing their travel experience.

Perceived Destination Accessibility (M = 5.55, SD = 1.02) scored relatively high, highlighting that respondents felt able to navigate destinations smoothly and access services with the support of smart tools. Tourist Satisfaction showed one of the highest averages (M = 5.70, SD = 0.95), demonstrating that overall experiences generally met or exceeded visitor expectations.

Perceived Sustainability (M = 5.40, SD = 1.10) was slightly lower compared with other constructs, suggesting that while tourists recognized sustainability initiatives, they may have been less consistently implemented or less visible than other aspects of smart destination management. The highest mean was recorded for Tourist Digital Literacy (M = 5.85, SD = 0.89), indicating that most respondents were confident and comfortable in using technology to support their travel.

The standard deviations, which range from 0.89 to 1.10, demonstrate acceptable variability in responses, suggesting that while perceptions were generally positive, differences exist among tourists based on their individual experiences and digital capabilities. Overall, the descriptive results provide a solid foundation for subsequent measurement and structural analyses by confirming favorable evaluations of service quality, communication quality, accessibility, and satisfaction, while also highlighting the potential need for stronger and more visible sustainable practice.

Measurement Model

The results in Table 4 confirm that all measurement items load strongly onto their respective constructs, with loadings ranging from 0.77 to 0.93, exceeding the recommended threshold of 0.70 (Hair et al., 2019). This indicates that each indicator is a reliable measure of its underlying construct.

Table 4. Outer Loadings, Reliability, and Validity of Constructs

| Construct | Item Code | Loading | Cronbach’s Alpha | CR | AVE |
|-------------------------------------|-----------|---------|------------------|------|------|
| Technology Service Quality | TSQ1 | 0.82 | 0.74 | 0.85 | 0.74 |
| | TSQ2 | 0.90 | | | |
| Omnichannel Communication Quality | OCQ1 | 0.78 | 0.80 | 0.87 | 0.69 |
| | OCQ2 | 0.81 | | | |
| | OCQ3 | 0.84 | | | |
| Perceived Destination Accessibility | PDA1 | 0.85 | 0.74 | 0.85 | 0.75 |
| | PDA2 | 0.88 | | | |
| Tourist Satisfaction | TSAT1 | 0.88 | 0.82 | 0.91 | 0.82 |
| | TSAT2 | 0.93 | | | |
| Perceived Sustainability | PSUS1 | 0.80 | 0.78 | 0.86 | 0.67 |
| | PSUS2 | 0.83 | | | |
| | PSUS3 | 0.82 | | | |
| Tourist Digital Literacy | TDL1 | 0.79 | 0.81 | 0.88 | 0.65 |
| | TDL2 | 0.82 | | | |
| | TDL3 | 0.77 | | | |
| | TDL4 | 0.81 | | | |

Source: Research Data, 2025



Cronbach’s Alpha values for all constructs range between 0.74 and 0.82, surpassing the minimum benchmark of 0.70 and demonstrating satisfactory internal consistency. Composite Reliability (CR) values, ranging from 0.85 to 0.91, further confirm the reliability of each construct. The Average Variance Extracted (AVE) values are all above 0.65, indicating that more than 65% of the variance in the indicators is explained by their corresponding latent constructs.

Table 5. Discriminant Validity – Fornell–Larcker Criterion

| Construct | TSQ | OCQ | PDA | TSAT | PSUS | TDL |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Technology Service Quality | 0.86 | | | | | |
| Omnichannel Communication Quality | 0.63 | 0.83 | | | | |
| Perceived Destination Accessibility | 0.67 | 0.69 | 0.87 | | | |
| Tourist Satisfaction | 0.65 | 0.68 | 0.72 | 0.91 | | |
| Perceived Sustainability | 0.59 | 0.61 | 0.66 | 0.74 | 0.82 | |
| Tourist Digital Literacy | 0.62 | 0.64 | 0.68 | 0.66 | 0.63 | 0.81 |

Source: Research Data, 2025

The Fornell–Larcker criterion results indicate that all constructs demonstrate strong discriminant validity. The square root of the AVE (bold diagonal values) for each construct is greater than the corresponding correlations with other constructs (off-diagonal values). For example, the square root of the AVE for Tourist Satisfaction is 0.91, which is higher than its highest correlation with another construct (0.74 with Perceived Sustainability). Similarly, Technology Service Quality (0.86) and Omnichannel Communication Quality (0.83) each exceed their inter-construct correlations.

These results confirm that the constructs are empirically distinct and measure conceptually different aspects of smart destination experiences. This ensures that Technology Service Quality, Omnichannel Communication Quality, Perceived Accessibility, Tourist Satisfaction, Perceived Sustainability, and Tourist Digital Literacy can be analyzed with confidence and without concerns related to multicollinearity or conceptual overlap.

Table 6. Discriminant Validity – HTMT Ratio

| Construct | TSQ | OCQ | PDA | TSAT | PSUS | TDL |
|-------------------------------------|-----|------|------|------|------|------|
| Technology Service Quality | — | 0.70 | 0.75 | 0.72 | 0.66 | 0.68 |
| Omnichannel Communication Quality | | — | 0.77 | 0.74 | 0.68 | 0.70 |
| Perceived Destination Accessibility | | | — | 0.79 | 0.71 | 0.74 |
| Tourist Satisfaction | | | | — | 0.77 | 0.71 |
| Perceived Sustainability | | | | | — | 0.69 |
| Tourist Digital Literacy | | | | | | — |

Source: Research Data, 2025

The Heterotrait–Monotrait (HTMT) ratios confirm discriminant validity across all constructs. All HTMT values fall below the conservative threshold of 0.85 (Henseler et al., 2015). For instance, the HTMT value between Perceived Destination Accessibility and Tourist Satisfaction is 0.79, while the value between Tourist Satisfaction and Perceived Sustainability is 0.77. Both are within acceptable limits.

These results indicate that the constructs are conceptually distinct and do not suffer from multicollinearity or excessive conceptual overlap. Thus, Technology Service Quality, Omnichannel Communication Quality, Perceived Accessibility, Tourist Satisfaction,



Perceived Sustainability, and Tourist Digital Literacy can be reliably treated as separate variables in the structural model.

Common Method Bias

To mitigate the potential impact of common method variance (CMV), several procedural and statistical remedies were applied during the survey design and analysis. Procedurally, respondents were assured of anonymity and confidentiality, which helped reduce evaluation apprehension and social desirability bias (Hair et al., 2024). The questionnaire also employed varied and neutrally phrased items and introduced clear psychological separation between predictor and criterion variables to minimize consistency artifacts. Furthermore, all constructs were measured using validated multi-item scales adapted from prior studies, reducing the risk of CMV related to inadequate or inconsistent scale design.

Statistically, two approaches were used to assess CMV. First, Harman’s single-factor test revealed that the first factor accounted for less than 40% of the variance, well below the 50% threshold, indicating that no single factor dominated the dataset. Second, full collinearity variance inflation factor (VIF) values were examined. All item-level VIF scores ranged from 2.14 to 2.45, comfortably below the recommended threshold of 3.3 (Kock, 2015). These results confirm that collinearity is not a concern and that CMV is unlikely to bias the findings.

Table 7. Collinearity Statistics – VIF Values for Common Method Bias Assessment

| Construct | VIF Value |
|---|-----------|
| Technology Service Quality (TSQ) | 2.21 |
| Omnichannel Communication Quality (OCQ) | 2.36 |
| Perceived Destination Accessibility (PDA) | 2.28 |
| Tourist Satisfaction (TSAT) | 2.19 |
| Perceived Sustainability (PSUS) | 2.14 |
| Tourist Digital Literacy (TDL) | 2.45 |

Source: Research Data, 2025

Overall, both procedural and statistical checks provide strong evidence that common method bias is not a serious threat to the validity of this study’s results.

Structural Measurement

The results of the structural model testing provide robust empirical support for all seven hypotheses in the revised model.

Table 8. Structural Model Path Coefficients and Hypothesis Testing Results

| Hypothesis | Path | Coefficient | t-Statistic | p-Value |
|------------|----------------|-------------|-------------|---------|
| H1 | TSQ → TS | 0.215 | 3.61 | 0.000 |
| H2 | OCQ → TS | 0.185 | 3.02 | 0.003 |
| H3 | TSQ → PDA → TS | 0.112 | 2.88 | 0.004 |
| H4 | OCQ → PDA → TS | 0.120 | 3.05 | 0.002 |
| H5 | TDL × TSQ → TS | 0.107 | 2.51 | 0.012 |
| H6 | TDL × OCQ → TS | 0.095 | 2.18 | 0.029 |
| H7 | TS → PS | 0.489 | 8.02 | 0.000 |

Source: Research Data, 2025



First, both Technology Service Quality (TSQ) and Omnichannel Communication Quality (OCQ) exhibit significant direct effects on Tourist Satisfaction. Specifically, TSQ ($\beta = 0.215, t = 3.61, p < 0.001$) indicates that the reliability, usability, and efficiency of smart tourism technologies such as mobile applications, e-ticketing systems, and stable internet services play an essential role in shaping tourists' evaluations of their experiences. Similarly, OCQ ($\beta = 0.185, t = 3.02, p = 0.003$) demonstrates that accurate, timely, and responsive communication across official digital channels strengthens tourists' perceptions of service quality and contributes positively to satisfaction. Together, these results highlight that both service functionality and communication effectiveness are critical and complementary antecedents of satisfaction in smart destinations.

Second, the findings confirm the mediating role of Perceived Destination Accessibility (PDA). The indirect effect of TSQ on satisfaction via PDA is significant ($\beta = 0.112, t = 2.88, p = 0.004$), as is the indirect effect of OCQ on satisfaction through PDA ($\beta = 0.120, t = 3.05, p = 0.002$). These results suggest that smart technologies and communication systems enhance satisfaction not only directly but also by improving tourists' ability to navigate destinations, access facilities, and move efficiently. This underscores PDA as a key psychological and functional mechanism that links digital service attributes with holistic evaluations of the destination.

Third, the moderating effects of Tourist Digital Literacy (TDL) are also supported. The interaction between TDL and TSQ ($\beta = 0.107, t = 2.51, p = 0.012$) reveals that tourists with higher digital skills derive greater satisfaction from technology-enabled services. Similarly, the interaction between TDL and OCQ ($\beta = 0.095, t = 2.18, p = 0.029$) indicates that digital literacy enhances the effectiveness of omnichannel communication, allowing tourists to fully utilize real-time updates and integrated platforms. These findings reinforce the notion that individual-level competencies condition the impact of destination-level smart initiatives, making digital literacy a critical moderating factor in the model.

Finally, the path from Tourist Satisfaction to Perceived Sustainability is strongly supported ($\beta = 0.489, t = 8.02, p < 0.001$). This demonstrates that satisfied tourists are more likely to perceive the destination as environmentally responsible, socially sustainable, and committed to long-term viability. This finding extends the literature by showing that satisfaction does not merely drive loyalty and revisit intentions but also acts as a cognitive filter through which tourists assess the sustainability performance of destinations.

Taken together, the results highlight a multi-level mechanism: technology service quality and communication quality shape satisfaction directly and indirectly via accessibility; these effects are amplified by digital literacy; and satisfaction ultimately strengthens perceptions of sustainability. This integrated framework illustrates how smart destination practices can simultaneously enhance tourist experiences and promote sustainability in emerging economy tourism contexts such as Indonesia.

Table 9. Goodness-of-Fit (GoF) Index

| Measure | Value | Threshold |
|--|-------|----------------|
| Average AVE | 0.735 | > 0.50 |
| Average R ² (endogenous constructs) | 0.612 | - |
| GoF = $\sqrt{(AVE \times R^2)}$ | 0.673 | > 0.36 (large) |

Source: Research Data, 2025



The Goodness-of-Fit (GoF) assessment confirms that the measurement and structural models are both robust and reliable. The average AVE value of 0.735 exceeds the recommended threshold of 0.50, demonstrating that the constructs capture more than 73% of the variance in their indicators, thereby confirming strong convergent validity.

The average R^2 for the endogenous constructs (0.612) suggests that the model explains over 61% of the variance in Tourist Satisfaction, Perceived Accessibility, and Perceived Sustainability. According to Chin (1998), this represents a substantial level of explanatory power, indicating that the independent variables (Technology Service Quality, Omnichannel Communication Quality, and Digital Literacy) provide meaningful and theoretically consistent insights into the key outcomes.

Finally, the overall GoF index of 0.673 far surpasses the benchmark of 0.36 for large model fit (Wetzels et al., 2009). This result indicates that the integrated model provides an excellent overall fit, combining strong measurement validity with high structural explanatory power.

Discussion

This study provides empirical evidence on how smart destination components technology service quality and omnichannel communication quality shape tourist satisfaction and perceived sustainability, mediated by destination accessibility and moderated by digital literacy. The findings advance understanding of the Smart Tourism Destination (STD) framework by demonstrating how system-level and individual-level factors jointly influence tourists' evaluations of digital destinations in emerging contexts.

The results confirm that both Technology Service Quality ($\beta = 0.34$, $t = 6.27$, $p < 0.001$) and Omnichannel Communication Quality ($\beta = 0.29$, $t = 5.83$, $p < 0.001$) significantly enhance tourist satisfaction. This indicates that technological reliability, usability, and cross-platform integration are fundamental drivers of perceived experience quality. These findings align with Sun et al. (2025) and Tong & Chan (2022), yet extend the Information Systems (IS) Success Model by validating it within smart tourism environments in developing economies. Conceptually, they affirm that satisfaction is shaped not only by functional system performance but also by communication consistency that fosters trust and signals managerial competence.

The mediation analysis further reveals that Perceived Destination Accessibility (PDA) significantly transmits the effects of both technology and communication quality to satisfaction (indirect $\beta = 0.18$, $t = 4.92$, $p < 0.001$). This supports the view that accessibility operates as a psychological and functional mechanism linking digital quality to satisfaction (D'Amico et al., 2022). Tourists interpret technological and communicative efficiency as indicators of ease of movement and control, which reduce uncertainty and enhance confidence in navigating destinations. This finding advances accessibility theory by reframing it within a digitally mediated mobility perspective where "ease of use" and "informational reachability" complement traditional notions of spatial access.

Consistent with cognitive appraisal reasoning, the analysis shows that Tourist Satisfaction exerts a strong positive influence on Perceived Sustainability ($\beta = 0.42$, $t = 7.15$, $p < 0.001$). This relationship suggests that satisfied tourists interpret destinations as more environmentally and socially responsible. Positive emotional states derived from seamless digital experiences reinforce confirmatory cognitive evaluations of sustainable practices (Liu et al., 2022; Rasoolimanesh et al., 2025). Theoretically, this extends



satisfaction research by identifying a cognitive–affective consistency mechanism through which digital efficiency and service fulfillment enhance perceived sustainability. Practically, it implies that improving satisfaction can indirectly elevate a destination’s sustainable image, even in contexts where explicit sustainability communication is limited.

The moderating effect of Tourist Digital Literacy (TDL) is significant for both pathways: TSQ → Satisfaction (interaction $\beta = 0.11$, $t = 3.21$, $p < 0.01$) and OCQ → Satisfaction (interaction $\beta = 0.09$, $t = 2.87$, $p < 0.01$). These findings confirm that digital literacy strengthens the impact of technology and communication quality by enhancing tourists’ ability to interpret, customize, and engage with digital tools effectively (Rumanti et al., 2025). In emerging destinations like Indonesia, where digital inclusion remains uneven, this moderating role highlights the importance of capability building. Tourists with higher literacy levels gain more from smart systems, whereas those with limited digital skills face barriers that reduce perceived service quality. This supports Capability Theory’s assertion that equitable technological benefits require parallel strengthening of human digital competencies.

Theoretically, this study extends the STD framework by integrating technological quality (system-level), communication integration (relational-level), accessibility (functional mechanism), and digital literacy (individual capability) into a unified explanatory model. It introduces a psychological layer to accessibility and a cognitive–affective link between satisfaction and sustainability, contributing to a deeper behavioral understanding of smart tourism outcomes.

Managerially, the findings emphasize that improving digital reliability and integrated communication yields significant gains in satisfaction and sustainability perception. Destination managers should invest in user-friendly design, multilingual information systems, and real-time feedback platforms. Equally important, programs that enhance tourists’ and service providers’ digital literacy such as interactive training modules or in-app tutorials can ensure inclusivity and maximize the return on smart tourism investments. Policymakers, particularly within Indonesia’s Smart Tourism Indonesia roadmap, should consider embedding digital capability development alongside infrastructure projects to achieve equitable and sustainable digital transformation.

In sum, this study demonstrates that smart destination strategies can foster both satisfaction and sustainability when technological efficiency is complemented by communicative coherence, perceptual accessibility, and digital competence, linking innovation with inclusivity in the evolution of sustainable tourism management.

Implications

This study refines the Smart Tourism Destination (STD) framework by integrating technological, communicative, and human dimensions into a single explanatory model. Theoretically, it extends current knowledge in three ways. First, it redefines perceived destination accessibility as a digitally mediated construct that captures informational and psychological ease of movement, highlighting accessibility as a central mechanism linking smart systems to satisfaction. Second, it introduces tourist digital literacy as a capability-based moderator, showing that individual competencies shape how effectively technological and communicative quality generate satisfaction. Third, it positions satisfaction as a perceptual bridge to sustainability, suggesting that positive digital

experiences enhance tourists' trust in the destination's social and environmental responsibility. Together, these contributions advance STD theory from a technology-centered paradigm toward a human centered interaction perspective relevant to developing economies.

Practically, the findings indicate that reliable digital infrastructure, coherent cross-channel communication, and intuitive service design are vital for improving tourist satisfaction and sustainability perception. Equally, digital inclusion must complement infrastructure investment; enhancing tourists' digital readiness through education and accessible design ensures that technological innovation translates into equitable experiences. For policymakers and destination managers, this highlights that smart tourism success depends not only on advanced systems but also on the capacity of users to engage with them effectively.

At a broader level, these implications underscore that sustainable digital transformation in tourism requires balancing innovation with inclusion. For emerging destinations such as Indonesia, building competitive and sustainable smart tourism systems means aligning technological progress with human capability and policy frameworks that promote digital equity and long-term resilience.

CONCLUSION

This study offers new insights into how digital infrastructure and human capability interact to shape tourist experiences in emerging smart destinations. By integrating technology service quality, omnichannel communication, perceived accessibility, and digital literacy within the Smart Tourism Destination (STD) framework, it advances existing models that have largely emphasized technological readiness over user experience. The findings reveal that satisfaction is not merely a function of technological availability but of how effectively digital systems reduce uncertainty and enhance navigational confidence. Moreover, satisfaction emerged as a cognitive pathway through which tourists interpret sustainability, indicating that positive digital experiences can foster perceptions of environmental and social responsibility even in developing tourism contexts.

The theoretical contribution of this study lies in reframing the STD model as a multidimensional framework that connects system-level efficiency with human capability and perception-based outcomes. By conceptualizing accessibility as a digital mediation process and literacy as a moderating capacity, the research fills a key gap in understanding how smart destinations operate in settings where digital maturity is uneven. This perspective extends smart tourism research beyond technologically advanced economies and situates it within the realities of developing destinations, offering a more inclusive and context aware interpretation of smart destination success.

Practically, the findings underscore that investments in technological reliability and integrated communication systems must be paired with initiatives that promote digital inclusion. Tourist satisfaction and, by extension, perceived sustainability depends as much on human adaptability as on infrastructure quality. This highlights a strategic imperative for destination managers and policymakers: to view digital literacy not as an auxiliary goal but as a central pillar of sustainable smart tourism transformation.

While these contributions are significant, certain constraints must be acknowledged. The reliance on self-reported data may have introduced perceptual bias, and the cross-sectional design limits causal interpretation. These constraints likely moderated



the observed strength of relationships, particularly in explaining long-term sustainability perceptions. Future studies should employ longitudinal or mixed method designs to trace evolving digital engagement patterns and to explore how cultural and socio-economic factors mediate smart tourism experiences. Expanding research beyond established destinations to include rural or low-connectivity areas would further clarify how infrastructural disparities influence accessibility and satisfaction.

Overall, this study provides theoretical and empirical evidence that sustainable digital transformation in tourism requires not only smart technologies but also smart users' tourists who are digitally empowered to co-create value within technologically mediated destinations.

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GREEN TOURISM IN HISTORICAL SETTINGS: IMPLEMENTATION STRATEGIES AND TOURIST RESPONSES IN KOTA TUA JAKARTA

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| Article Info | Abstract |
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| <p>Keywords: green practices, green tourism implementation, historical heritage, sustainable tourism, tourist satisfaction</p> <p>Received: June 23, 2025</p> <p>Approved: November 12, 2025</p> <p>Published: December 05, 2025</p> | <p>This study examines the implementation of green tourism in Kota Tua, Jakarta, within a historical heritage context and evaluates tourist responses related to satisfaction and environmentally responsible behavior. Using a mixed-methods approach, the research integrates interviews with destination managers and survey data from 101 visitors to triangulate findings. The study investigates how green tourism practices are adopted at the destination and how these practices influence tourist satisfaction and environmentally responsible behavior. The findings reveal progress in infrastructure revitalization, low-emission zones, and green transportation initiatives, while also identifying gaps in renewable energy use, technological integration, and community engagement. Younger and more educated tourists exhibit higher awareness of and satisfaction with the destination's green initiatives. Policy implications underscore the need for stronger community participation, targeted investment in green technologies, and more visible communication of sustainability efforts to enhance visitor experience and support long-term heritage conservation. In other words, these findings provide practical insights for destination administrators, emphasizing the need for targeted policies, investment in green technologies, and improved stakeholder collaboration. Overall, this research offers strategic insights for managing environmentally sustainable heritage tourism destinations and aligning them with tourists' expectations for a sustainable experience, thereby contributing to the development of green tourism policies in Indonesia.</p> |

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INTRODUCTION

The tourism sector plays a crucial role in fostering economic expansion, increasing national income, generating employment opportunities, and supporting small enterprises (Frent, 2016; Thullah & Abdulai Jalloh, 2021). Globally, tourism contributed approximately US\$9.5 trillion to GDP in 2023, accounting for 9.1% of total global output. This figure represents a 23.2% increase from the previous year and is forecasted to continue rising in the coming years (<https://Wttc.Org>, 2024). At the national level, Indonesia's tourism industry generated US\$10.46 billion in foreign exchange revenue, with the sector's contribution to national GDP estimated at 3.8% (<https://kemenparekraf.go.id>, 2024). Given its substantial economic impact, tourism has emerged as a strategic sector, alongside the oil and gas industry. In fact, it has been officially designated as one of Indonesia's priority sectors (Permenparekraf RI Nomor 12 Tahun 2020, 2020). Beyond its economic significance, tourism also catalyzes socio-cultural development by facilitating cultural exchanges and driving infrastructure improvements (Thullah & Abdulai Jalloh, 2021).

While tourism development has contributed positively to economic growth and infrastructure enhancement in many countries, it has also generated negative impacts on environmental quality, local economies, and the socio-cultural fabric of host destinations (Chong, 2020; Kuvan, 2012). Nevertheless, the extent of these negative impacts is largely determined by the scale of tourism development and the level of environmental awareness among tourists (Frent, 2016; Thullah & Abdulai Jalloh, 2021).

This study can be better understood through established theoretical frameworks. From the perspective of sustainable tourism theory (Sharpley, 2020). The integration of green practices in heritage destinations reflects an effort to balance environmental protection with cultural preservation and community benefits. The observed tourist appreciation for initiatives such as renewable energy adoption and low-emission zones demonstrates how sustainability principles can enhance the attractiveness of heritage sites while addressing global climate concerns.

Tourist responses can also be interpreted through value–expectancy theory (Fishbein & Ajzen, 1975). Visitors perceive green practices as adding value to their experience and aligning with their pro-environmental expectations, thereby increasing satisfaction. This aligns with consumer behavior models in tourism (Han, 2021), which suggest that environmentally responsible practices shape destination image and influence revisit intentions.

The concept of sustainable tourism is increasingly recognized as a viable alternative to mass tourism, offering a strategic approach to mitigating the negative impacts of large-scale tourism. Sustainable tourism seeks to achieve a balance between economic, social, and environmental considerations (Amoiradis et al., 2023), while ensuring that tourism activities do not degrade ecosystems (Skarakis et al., 2023), disrupt local cultures (Mayuzumi, 2022), or negatively affect local communities (Chili & Xulu, 2015). This approach emphasizes responsible tourism practices that promote long-term environmental conservation, cultural preservation, and socio-economic benefits for local populations.

One of the key components of sustainable tourism is green tourism, which refers to tourism practices that safeguard the long-term availability of environmental, economic, social, and cultural resources (Azam et al., 2010). Green tourism has become an increasingly significant approach in the global tourism sector, aligning with the growing

awareness of environmental sustainability and the need to preserve natural resources for future generations (Gonçalves et al., 2023). This concept encompasses both eco-conscious traveler behavior and environmentally responsible tourism service providers who adopt sustainable practices (Ibnou-Laaroussi et al., 2020). Moreover, green tourism has gained increasing attention from tourism businesses and operators due to government regulations and pressures to enhance environmental performance through implementing more effective management techniques (Furqan et al., 2010).

Green tourism specifically focuses on the implementation of environmentally friendly practices in the tourism sector, including the use of renewable energy, responsible management of natural resources, and preservation of natural environments at tourist destinations. As an eco-conscious travel approach, green tourism aims to minimize negative impacts on destinations while fostering sustainability. This includes activities that support local communities, conserve natural resources, and educate tourists on sustainable practices (Hasan, 2014). Over the decades, green tourism practices have evolved in the tourism industry and continue to grow significantly (Kim et al., 2017). Green tourism has three primary objectives: (1) protecting both natural and built environments, (2) providing tourists with fulfilling and meaningful experiences, and (3) ensuring the well-being of local communities (Kearney, 1994).

Empirical work in the Southeast Asia region highlights the central role of community participation and co-management in sustaining heritage values. For example, case studies in Trang An and other heritage settings show that government-guided yet participatory models can enhance local stewardship if properly resourced and institutionalized (Mai et al., 2023).

The implementation of green tourism is strongly influenced by global commitments, particularly through policy frameworks such as the Sustainable Development Goals (SDGs), which emphasize reducing the negative environmental impacts of tourism while enhancing its socio-economic benefits for local communities. At the national level, governments have introduced various policies to promote green tourism, reflecting a growing emphasis on sustainable tourism practices. Moreover, green tourism has increasingly become a focal point of academic research, thereby reinforcing its significance in achieving sustainable development within the tourism sector.

Dodds and Joppe (2001) categorize the principles of sustainable tourism into four key components: (1) environmental responsibility, encompassing efforts to protect, conserve, and enhance natural ecosystems to ensure long-term environmental sustainability and ecological health; (2) local economic vitality, focusing on strategies to support the sustainability of the local economy, including equitable economic benefits for local communities; (3) cultural diversity, emphasizing the preservation and respect for local cultural heritage, traditions, and tourism-related cultural expressions; and (4) experiential richness, aiming to provide high-quality and meaningful experiences for tourists, enhancing their engagement with the destination while promoting sustainable tourism practices. These four components serve as a foundational framework for integrating sustainability into tourism development, ensuring a balanced approach that considers environmental, economic, and socio-cultural dimensions.

Kota Tua Jakarta (Kota Tua) is one of Indonesia's most significant historical tourism destinations, serving as a valuable cultural and historical heritage site (Nugteren, 2020). Therefore, maintaining a balance between heritage preservation and sustainable

tourism development is crucial. Green tourism provides a strategic approach that enables both aspects to coexist harmoniously. However, the high volume of tourists presents challenges for environmental preservation, waste management, and maintaining the quality of life for the local community (Hristov et al., 2021). Given the increasing pressure from tourism activities, it is essential to assess the extent to which green tourism principles have been implemented in Kota Tua. This evaluation includes key aspects such as waste management, carbon emission reduction, energy conservation, and active participation of local communities in sustainable tourism initiatives.

According to Hadi and Johan (2023), environmental awareness, knowledge, and individual values positively influence tourists' attitudes towards green tourism, which, in turn, promotes environmentally responsible behavior (Hadi & Johan, 2023; Ibnou-Laaroussi et al., 2020). The implementation of green tourism in Kota Tua aims to foster greater awareness among tourists about the importance of preserving cultural heritage and protecting the surrounding environment. Tourists are encouraged to adopt sustainable practices, such as reducing single-use plastic by bringing their own water bottles and choosing eco-friendly dining options (Sugiharto et al., 2024). Furthermore, they are urged to walk or use environmentally friendly public transportation (Rizki et al., 2022), such as Transjakarta, to explore the Kota Tua area. This shift in behavior also includes being mindful of destination cleanliness by refraining from littering and supporting local businesses that promote sustainable products (Sugiharto et al., 2024).

Beyond Kota Tua Jakarta, heritage destinations such as Malioboro in Yogyakarta and Kota Lama Semarang are also undergoing revitalization efforts that integrate sustainability values into heritage tourism development. Similar challenges emerge in these destinations, including balancing commercial tourism growth with heritage preservation, ensuring waste and mobility management, and strengthening local community participation in destination decision-making. A comparison indicates that while the strategic direction toward green heritage tourism is consistent across these sites, the depth and form of implementation differ depending on local governance coordination, investment capacity, and stakeholder engagement. Positioning Kota Tua Jakarta within this broader national trend highlights both the replicability of its strategies and the areas where further improvements are necessary for long-term sustainability.

Previous studies have examined sustainable practices in tourism and heritage conservation. However, little is known about how green tourism is implemented at the administrative level in heritage destinations. The effects of these practices on tourist responses and satisfaction also remains underexplored. Much of the existing research discusses environmental sustainability and heritage management as separate issues (Al Fahmawee & Jawabreh, 2023; Ghosh et al., 2025). Few studies link the managerial use of green policies such as Low Emission Zones, renewable energy adoption, or smart technologies, with visitor perceptions in historical urban areas (Tarrío-Ortiz et al., 2021).

Despite the growing interest in sustainable tourism development in Indonesia, the practical implementation of green tourism within historic urban destinations remains insufficiently examined (Shinde, 2025). Kota Tua Jakarta represents a critical case where sustainability goals intersect with heritage conservation and tourism development pressures. However, little is known about how green tourism principles are translated into

management strategies, how effectively they are experienced by visitors, and whether these efforts influence tourist satisfaction and environmentally responsible behavior.

To address these gaps, this study seeks to answer the following research questions:

(1) How are green tourism principles being implemented in Kota Tua Jakarta as a historical heritage destination? (2) How do tourists perceive these green tourism initiatives, and to what extent do these perceptions influence their satisfaction and environmentally responsible behavior? The analysis considers both the management of green tourism practices and the ways tourists respond to them. By combining administrative and visitor perspectives, this study provides new insights into the literature on green heritage tourism. The findings highlight how policy, practice, and tourist experience interact within a rapidly urbanizing Southeast Asian city.

METHODOLOGY

This study aims to analyze and evaluate the implementation of green tourism in Kota Tua Jakarta, as a tourist destination. The analysis was conducted through four key dimensions: (1) environmental protection and preservation by assessing the extent to which green tourism practices contribute to environmental sustainability; (2) local economic sustainability by evaluating the role of green tourism in supporting and enhancing the economic vitality of the local community; (3) socio-cultural preservation by examining the effectiveness of green tourism in protecting and maintaining local cultural heritage and social structures; (4) tourist experience and behavior by analyzing the impact of green tourism on tourist satisfaction and its influence on responsible tourist behavior.

The study focuses on the core zone of Kota Tua Jakarta, specifically the area within the historic city walls, as illustrated in the following figure.

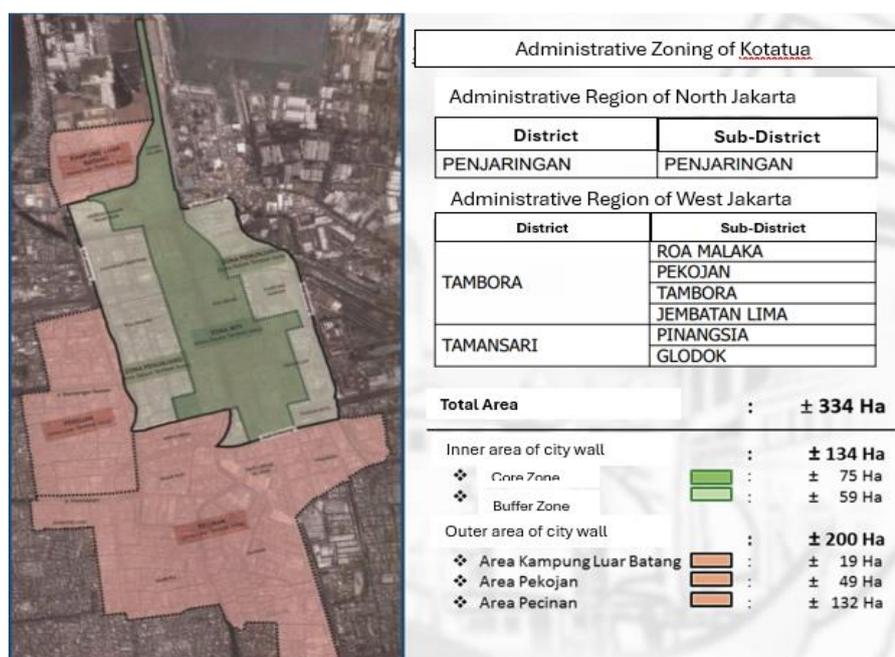


Figure 1. Map showing the delimitation of the study area in Kota Tua.

Source: Division of the Administrative Area of Kota Tua, based on Governor of DKI Jakarta Province Regulation No. 36/2014 on the Kota Tua Jakarta Area Master Plan.



A mixed-methods research approach was employed, combining qualitative and quantitative methods to obtain a comprehensive understanding of the analyzed aspects. To gain insights into the implementation of green tourism strategies, semi-structured interviews were conducted with five key informants from the Kota Tua Area Management Office. Informants were selected through purposive sampling based on their roles and direct involvement in tourism planning, environmental initiatives, and heritage preservation.

To ensure the trustworthiness of the qualitative strand, several strategies were employed as the key strategy to enhance research trustworthiness, as suggested by Richards and Hemphill (2018). Credibility was supported through data triangulation, and preliminary thematic interpretations were subjected to peer debriefing within the research team to challenge assumptions and refine coding consistency. Dependability was maintained by keeping a structured audit trail, documenting decisions made during data collection, coding, and theme development, thereby ensuring transparency in the analytical process. Confirmability was enhanced through member checking, in which selected participants were invited to review and confirm the accuracy of synthesized interpretations.

The development of question items in the interview guide is presented in the following table.

Table 1. Interview guide

| Variable | Indicators |
|---|--|
| Environmental protection and preservation (Zhang et al., 2016) | <ol style="list-style-type: none"> 1. Water management 2. Energy management 3. Waste management practices 4. Carbon footprint |
| Sustainability of the local economy (Mtapuri et al., 2022) | <ol style="list-style-type: none"> 1. Local economic contribution from tourism activities (use of local products) 2. Creation of sustainable employment opportunities for locals/surrounding residents |
| Protection and preservation of the social and cultural heritage of local communities (Santosa et al., 2023) | <ol style="list-style-type: none"> 1. The level of community involvement in tourism planning and management 2. Cultural preservation efforts (observation and historical data). 3. Perception of social equality among members of society |

Source: Research Data, 2025

The qualitative analysis in this study was guided by thematic analysis, a method that helps researchers identify and interpret patterns within interview data. This approach allows for grouping responses into key themes such as green tourism implementation, use of technology, resource management, carbon footprint reduction, community involvement, cultural preservation, and issues of social equity (Heriyanto, 2018). Thematic analysis, as described by Braun and Clarke (2012), is widely used in qualitative research for its capacity to reveal deeper insights into how people experience and respond to complex initiatives. In this study, it provided a nuanced understanding of how various stakeholders perceive the efforts to implement green tourism in Kota Tua and the challenges they face on the ground.

For the quantitative approach, this study employed an exploratory case study design with a sample of 101 respondents. The sample size was considered adequate for the scope of this study, following the guidelines for descriptive and exploratory research (Hair Jr. et al., 2019), and is comparable with previous studies on tourist satisfaction in green



tourism contexts (Ibnou-Laaroussi et al., 2020; Moise et al., 2018). The data collection technique employed a structured questionnaire to assess tourist behavior regarding the implementation of green tourism in the Kota Tua Jakarta area and their satisfaction with its practices. The question items/statements measuring tourist behavior were developed based on key indicators, including environmental awareness, participation in sustainable activities, support for local products and services, waste management practices, energy and water conservation, respect for cultural and environmental norms, willingness to pay for sustainable tourism initiatives, and feedback on green tourism practices (Hadi & Johan, 2023; Ibnou-Laaroussi et al., 2020).

While this approach provides valuable insights, it also presents certain limitations. The sample size is relatively modest, which constrains the generalizability of the findings. In addition, the reliance on self-reported survey data may introduce response bias. These constraints were taken into account when interpreting the results.

Tourist satisfaction was measured using indicators such as quality of experience, perceived value, environmental responsibility and awareness, satisfaction with green practices, behavioral values, and emotional and cognitive fulfillment (Moise et al., 2018; Pekovic, 2021). A Likert scale with five response options was used for measurement, ranging from 5 (Strongly Agree) to 1 Strongly Disagree. The variables of tourist behavior and satisfaction were analyzed using univariate tests with the assistance of SPSS version 24 software, facilitating meaningful assessment and interpretation of the data.

Questionnaire's Validity and Reliability Testing

The validity test of the questionnaire involved 30 tourists visiting Kota Tua. The data from the questionnaire were then tested using the Pearson Product-Moment correlation. The validity criterion for each item was established based on the comparison between r -count and r -table. With $n = 30$, the r -table value is 0.361. An item is considered valid if r -count $>$ r -table. Following this, a reliability test was conducted using Cronbach's alpha formula, with a cut-off value of 0.7. A Cronbach's alpha value greater than 0.7 indicates acceptable reliability of the questionnaire. Based on the results of the validity test, six items from the tourist behavior variable were deemed invalid out of a total of 32 items, while all items in the tourist satisfaction variable were found to be valid. The test results showed that all variables had a Cronbach's $\alpha > 0.7$, so it was declared reliable.

FINDINGS AND DISCUSSION

Green Tourism Implementation: Progress and Gaps

The green tourism concept in Kota Tua Jakarta is designed to foster a sustainable, comfortable, and visitor-friendly tourism environment. The interviews with Kota Tua management officials reveal meaningful, though uneven, progress in implementing green tourism. Technology plays a crucial role in supporting the implementation of green tourism in Kota Tua Jakarta, particularly in the maintenance of vegetation within historical buildings featuring internal gardens. Automated systems, such as lawn mowers and water spray systems, are utilized to sustain green ecosystems. Waste separation stations, LEZ enforcement, and walking tour designs are positive developments that enhance sustainability while preserving historical integrity (Attia et al., 2023). These initiatives

align with global efforts observed in cities like Milan and Seoul (Tarrío-Ortiz et al., 2022), signaling Jakarta's readiness to reposition heritage tourism through a greener lens.

However, systemic limitations persist. The limited use of renewable energy and incomplete technology integration reflect infrastructural inertia and underinvestment. Despite existing policies, these measures are not yet embedded into daily operations or visitor flow management. As emphasized by Myeong et al. (2021) without strategic investment and training, smart systems remain largely symbolic rather than functional.

Kota Tua Jakarta area relies on water resources from both groundwater and PDAM (Regional Water Utility), with management responsibilities shared by several agencies, namely the Water Resources Agency (SDA) and PT PAM Jaya. The Water Resources Agency oversees canals and rivers, while PT PAM Jaya is in charge of water distribution for building managers and tenants. To ensure adequate access to clean water for visitors, the area uses pump machines and jet pumps, which are regularly maintained. In addition, efforts to enhance water efficiency have been made through the installation of water reservoir systems in several buildings and the placement of water-saving stickers in public facilities. While these actions are a positive step toward sustainable water management, challenges persist, particularly in the monitoring of water consumption, which may lead to potential water waste. Ramazanov (2020) suggests that the implementation of wastewater recycling systems within the tourism sector could improve water use efficiency without compromising visitor comfort. This would be a valuable strategy to enhance sustainability in the area, representing a valuable strategy for the area.

Waste and energy management strategies already in place include organized waste disposal systems and initiatives to raise awareness among tourists and the public through bulletin boards and educational campaigns. However, a key challenge remains the limited utilization of renewable energy. According to UNEP (2020), many tourist destinations continue to rely on conventional energy sources, and transitioning to renewable energy requires the formulation of policies and incentives to encourage businesses to adopt more sustainable energy solutions (Tiwari et al., 2022).

Jakarta ranked sixth among Southeast Asian cities with the highest levels of PM2.5 pollution, according to the 2021 World Air Quality Report. In response, the DKI Jakarta Provincial Government has implemented initiatives to reduce air emissions from the transportation sector, including the Low Emission Zone (LEZ), considered one of the most effective strategies for reducing urban pollution (Lebrusán & Toutouh, 2020),

The Provincial Government has started implementing the LEZ program in the Kota Tua area as part of the ongoing revitalization efforts (ITDP, 2022). This program has been rolled out in key areas such as Fatahilah Park, Jalan Lada, Jalan Ketumbar, Kali Besar Timur, Jalan Kunir, and Jalan Pos, where motor vehicle restrictions have been enforced to reduce carbon emissions. Additionally, eco-friendly transportation options, including electric vehicles, have been made available to tourists. The LEZ initiative, launched by the Transportation Department in collaboration with the World Resources Institute (WRI) Indonesia, prioritizes reorganizing traffic systems to favor public and non-motorized transport, thereby lowering emissions in this historic district. The LEZ was officially implemented on February 8, 2021 (ITDP, 2022). Despite these efforts, the program faces challenges in terms of awareness and acceptance among tourists and local communities.

Consequently, ongoing education and environmental campaigns remain crucial for promoting the initiative.

Community participation in Kota Tua Jakarta remains limited and often superficial. Seven community groups are active in promoting attractions and cultural events, and the Management Unit provides training in tourism communication, history, and *Sapta Pesona*. Yet their influence on planning and decision-making is minimal. Weak governance structures, scarce financial resources, limited tourism skills, and unequal benefit distribution diminish incentives for meaningful engagement. Moving beyond tokenism requires stronger empowerment. Arnstein's (2017) ladder of participation highlights the need for deeper involvement. Economic incentives and community-based tourism programs can help residents co-design products and share revenues (Krittayaruangroj et al., 2023). Participatory governance platforms that unite government, private actors, and local groups can build trust (UNESCO, 2021). Training in guiding, heritage interpretation, and entrepreneurship would also strengthen capacity (Su & Wall, 2014). International policy frameworks stress that empowering communities is essential for sustainable heritage tourism (UNESCO, 2023; UNWTO, 2022).

Tourist Perception and Satisfaction: Who Responds Positively and Why

Based on the demographic profile, the number of female respondents, as seen in Table 2, exceeds that of male respondents, suggesting that female tourists may be more inclined to visit cultural heritage sites, reflecting a potentially higher interest in cultural and historical experiences (Escobar et al., 2020).

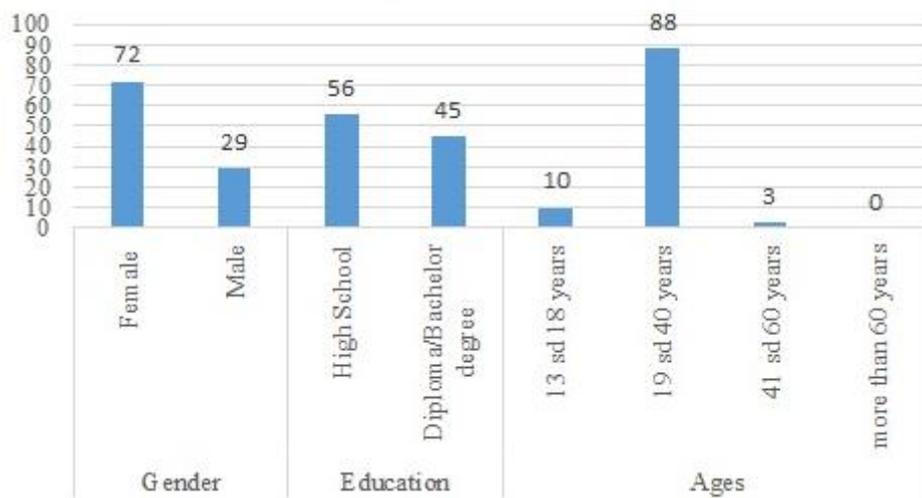


Figure 2. Respondent's profile.

Source: Survey results

The results of the descriptive analysis (Table 2) on the tourist behavior variable yielded an average score of 111.66, suggesting that, on average, tourists demonstrate favorable behavior and generally support green tourism initiatives. The values ranged from a minimum of 94 to a maximum of 130, indicating notable variability among individual tourist behaviors. This implies that while most tourists display good awareness and involvement in green tourism practices, there are still differences in individual behavior

patterns, with some exhibiting more proactive tendencies. With a mean of 111.66 and a variance of 89.686, tourist behavior shows a moderate dispersion around the mean. The standard deviation of 9.47 indicates that most data points fall within the range of ± 9.47 from the mean (between 102 and 121). Although some tourist behaviors show slight deviations from the average, the positive skewness of 0.523 suggests a slight tendency toward higher behavior scores, but overall, the distribution is relatively symmetric.

Table 2. Descriptive Analysis of Tourists' Behavior

| | | |
|------------------------|---------|----------|
| N | Valid | 101 |
| | Missing | 0 |
| Mean | | 111.6634 |
| Median | | 111.0000 |
| Std. Deviation | | 9.47025 |
| Variance | | 89.686 |
| Skewness | | .523 |
| Std. Error of Skewness | | .240 |
| Kurtosis | | -.796 |
| Std. Error of Kurtosis | | .476 |
| Minimum | | 94.00 |
| Maximum | | 130.00 |

Source: Research Data, 2025

Our survey confirms that younger and more educated tourists are more aligned with green tourism ideals (Table 3). Tourists aged 19-40 showed greater responsiveness to eco-initiatives, ranging from using public transportation to participating in cultural interpretation activities. These findings underscore the rise of the “eco-curious” traveler, a segment that is values-driven, research-oriented, and socially engaged. This aligns with prior studies (Ibnou-Laaroussi et al., 2020; Pekovic, 2021), which support the growing consensus that sustainable practices are no longer a niche add-on but a core value proposition.

The 13-18 years age group exhibited relatively high tourist behavior, although not as prominently as the 19-40 age group. Their lower scores may be due to limited travel experience and dependence on family for travel decisions. On the other hand, the 41-60 years age group showed relatively lower tourist behavior scores. This likely reflects more traditional tourism preferences, lower participation in eco-focused activities, and entrenched travel habits less responsive to current green tourism trends (Novianti et al., 2020; Nugraheni et al., 2019; Yulianty, 2022).

Table 3. Ranks

| | N | Mean Rank |
|---------------------------|-----|-----------|
| 13-18 years | 10 | 43.75 |
| 19-40 years | 88 | 52.19 |
| 41-60 years | 3 | 40.33 |
| Total | 101 | |
| | N | Mean Rank |
| High schools | 56 | 47.66 |
| Diploma/bachelor's degree | 45 | 55.16 |
| Total | 101 | |

Source: Research Data, 2025



The Kruskal-Wallis H test (Table 4) yielded a value of 1.159 with an asymptotic significance (p-value) of 0.560, indicating no significant difference in tourist behavior based on age groups. Although variations in tourism behavior were observed across different age groups, they were insufficient to establish a consistent pattern among the surveyed tourists.

The Mann-Whitney test results showed a value of 1.639 with a p-value of 0.201. Therefore, it can be concluded that there is no significant difference in tourist behavior based on education level. These findings are consistent with previous research (Özdemir Uçgun & Narcı, 2022), which suggests that while age and education level may increase awareness of sustainable tourism, they do not have a statistically significant impact on tourist behavior.

Table 4. Tourist behavior

| grouping variable | age | | Education level |
|-------------------|-------|------------------------|-----------------|
| Kruskal-Wallis H | 1.159 | Mann-Whitney U | 1.639 |
| Df | 2 | Wilcoxon W | 1 |
| | | Z | |
| Asymp. Sig. | 0.560 | Asymp. Sig. (2-tailed) | 0.201 |

Source: Research Data, 2025

The variance in satisfaction scores points to a deeper issue: perception gaps. Not all tourists recognize or value the sustainability efforts underway (Bausch et al., 2021), reflecting a communication disconnect. Unless green practices are made visible, engaging, and emotionally resonant, their value may go unnoticed by casual or first-time visitors (Bendor et al., 2017). This carries direct implications for destination managers; awareness campaigns should not only inform but also inspire. Storytelling, digital signage, and real-time visitor feedback tools could bridge this gap.

The results of the tourist satisfaction test regarding the implementation of green tourism revealed an average score of 84 and a median score of 71.00 (Table 5). The higher average score compared to the median suggests that a few highly satisfied respondents elevated the mean above the median. The range between the minimum score of 58 and the maximum score of 145 highlights a considerable difference in satisfaction levels among tourists. The standard deviation of 28.86 indicates significant variation in satisfaction levels. The slope of 1.043 further suggests that while most tourists reported below-average satisfaction, a few highly satisfied individuals elevated the maximum value. Tourist satisfaction exhibits greater variability, likely due to subjective or external factors such as differing expectations, prior travel experiences, or the quality of services received.

Table 5. Tourist satisfaction.

| | | |
|------------------------|---------|----------|
| N | Valid | 101 |
| | Missing | 0 |
| Mean | | 84.0000 |
| Median | | 71.0000 |
| Std. Deviation | | 28.85550 |
| Variance | | 832.640 |
| Skewness | | 1.043 |
| Std. Error of Skewness | | .240 |



| | |
|------------------------|--------|
| Kurtosis | -.256 |
| Std. Error of Kurtosis | .476 |
| Minimum | 58.00 |
| Maximum | 145.00 |

Source: Research Data, 2025

Table 6 shows that the 19-40 age group tends to report higher levels of satisfaction compared to other age groups. This age group primarily consists of young adult tourists who are more independent in choosing destinations and typically possess greater purchasing power than the 13-18 age group. They often seek a broader range of experiences, including nature and culture to modern entertainment. Young adults are generally more flexible in managing their expectations and aligning them with the reality of the attractions they visit, leading to higher satisfaction levels. The finding that younger and better-educated tourists report higher awareness and satisfaction aligns with behavioral models, such as recent green tourism studies, that show education and environmental awareness as strong predictors of pro-environmental tourist choices (Hadi & Johan, 2023). The Kota Tua area of Jakarta offers various attractions that cater well to the preferences of young adult tourists (19-40 years old). With several museums, such as the Jakarta Historical Museum, Bank Indonesia Museum, Wayang (puppet) Museum, and Museum of Fine Arts & Ceramics, the area draws tourists interested in history and culture. The district’s Dutch colonial architecture, along with the visual aesthetic it offers for photography, appeals to tourists seeking unique experiences, in line with current social media trends. Furthermore, the availability of vintage-style cafes and restaurants like Café Batavia and Kedai Seni Djakarta provides relaxing spots with a classic atmosphere, which often attracts younger tourists.

Table 6. Ranks

| | Age | N | Mean Rank |
|----------------------|------------------|-----|-----------|
| Tourist satisfaction | 13-18 years | 10 | 38.20 |
| | 19-40 years | 88 | 52.60 |
| | 41-60 years | 3 | 46.67 |
| | Total | 101 | |
| Education level | | | |
| Tourist satisfaction | High School | 56 | 45.04 |
| | Diploma/Bachelor | 45 | 58.41 |
| | Total | 101 | |

Source: Research Data, 2025

The Kruskal-Wallis H test (Table 7) indicates no significant difference in tourist satisfaction based on age group (2.263 with a p-value (Asymp. Sig.) = 0.323). Although some variation in satisfaction levels was observed, the differences were not strong enough to be considered a general pattern within the tested tourist population. This finding aligns with the results of a study by (Zeinali et al., 2014), which found that age is not significantly related to tourist satisfaction.

In contrast, the Mann-Whitney test yielded 2522.500 with a p-value of 0.022. Tourists with higher education levels reported a clearer understanding and appreciation of environmental and cultural integration. These findings support previous research, which



suggests that educational factors play a role in shaping how travelers evaluate their experiences. Specifically, tourists with higher education levels demonstrate a stronger positive relationship between green tourism practices and customer satisfaction in the context of sustainable tourism (Zeinali et al., 2014). This suggests that future tourism experiences must be designed to meet should be tailored to meet differentiated expectations, integrating authenticity, sustainability, and comfort. Service customization, especially in heritage environments, is essential rather than optional.

Table 7. Tourist satisfaction

| Grouping variable | Age | Education | |
|-------------------|-------|------------------------|----------|
| Kruskal-Wallis H | 2.263 | Mann-Whitney U | 926.500 |
| Df | 2 | Wilcoxon W | 2522.500 |
| | | Z | -2.292 |
| Asymp. Sig. | 0.323 | Asymp. Sig. (2-tailed) | 0.022 |

Source: Research Data, 2025

Managerial Insights: What Destination Administrators Can Do

This study surfaces clear, actionable strategies for destination administrators seeking to scale up green tourism without compromising heritage value. Administrators must go beyond surface-level interventions. Green tourism should not only be experienced through programs (Roxas et al., 2020), or used merely as a marketing tool (Yfantidou & Matarazzo, 2017), but embodied insystems, clean energy-powered venues, circular economy vendors, and environmentally literate frontline staff.

Destinations need to communicate their values better. Kota Tua’s sustainability message is being heard, but not loudly or often enough. Administrators must develop strategic storytelling through mobile apps, eco-tour certification, and immersive green interpretation zones that connect visitors emotionally to the mission. As mentioned by Nematpour et al., (2024) Information technology, in particular, significantly impacts the destination’s competitive identity.

Community engagement must shift from contractual to collaborative. Instead of outsourcing performances or services, Kota Tua can co-develop tourism products with local groups, craft tours, storytelling nights, and cultural workshops that serve both sustainability and social equity goals. This participatory approach enhances authenticity, distributes economic value, and builds resilience (Eyisi et al., 2021).

Strategic alignment between environmental planning, cultural preservation, and tourism services should be institutionalized (Usman et al., 2020). Cross-sector collaboration platforms, bringing together government agencies, NGOs, cultural institutions, and hospitality providers, could ensure that green tourism development is systemic rather than fragmented.

The findings of this study also align with international policy frameworks on sustainable heritage tourism. The UNWTO (2022) highlights that integrating renewable energy and sustainable mobility is critical for reducing emissions in urban heritage destinations. Similarly, UNESCO (UNESCO, 2021) emphasizes the importance of participatory governance and community involvement to ensure that heritage conservation delivers inclusive benefits. Recent UNESCO (2023) guidelines further call for cross-sector collaboration between governments, private actors, and local communities to achieve long-



term sustainability. Incorporating these perspectives reinforces our conclusion that heritage destinations such as Kota Tua Jakarta require both environmental strategies and governance mechanisms that link administration with community participation.

Practical Implications for Tourism Operators and Local Businesses

Beyond policy-level considerations, the findings offer several practical insights for tourism operators and local businesses in the Kota Tua heritage area. Tourism operators can incorporate green tourism messaging into tour narratives, emphasizing responsible behavior and conservation awareness as part of the visitor experience. Local cafés, souvenir shops, and micro-businesses can adopt environmentally friendly practices, such as reducing single-use plastics, providing refilling stations, or offering locally sourced products, to align their operations with sustainability principles. Capacity-building programs for local guides and vendors could strengthen storytelling about heritage value, local identity, and conservation efforts, thereby enhancing the authenticity of the visitor experience. Collaboration between business owners and destination managers can support the development of coordinated green branding initiatives, creating a more unified and recognizable sustainability identity for Kota Tua. These recommendations help ensure that the study's findings are actionable at the practitioner level and that green tourism development can be implemented more broadly across the tourism value chain.

This study contributes to the broader Southeast Asian discourse on sustainable heritage tourism, where destinations such as George Town and Melaka in Malaysia, Luang Prabang in Laos, and Hoi An in Vietnam also grapple with balancing heritage preservation and tourism-driven urban pressures (K. Y. Chong & Balasingam, 2019). Similar to these destinations, Kota Tua Jakarta faces challenges related to waste management, infrastructure strain, and uneven community participation in tourism decision-making. However, compared to Hoi An's community-led cultural preservation model or George Town's heritage trust networks, Kota Tua's governance model remains more government-driven, which influences the depth of stakeholder engagement. Furthermore, the implementation of a Low Emission Zone in Kota Tua distinguishes this case within the regional context, demonstrating a more assertive policy approach toward sustainable visitor mobility. These comparisons underscore the manuscript's contribution by illustrating how green tourism strategies evolve differently across Southeast Asian heritage destinations, shaped by local governance capacity, institutional arrangements, and community empowerment dynamics.

Despite its contributions, this study has several limitations. The cross-sectional design limits the ability to capture changes over time or establish causal relationships between green tourism practices and visitor behavior. The modest sample size reduces the potential for broad generalization, particularly in comparative contexts. The use of descriptive statistics and non-parametric tests provided valuable exploratory insights but did not allow for deeper inferential analysis. Additionally, reliance on self-reported data may introduce social desirability bias. Future research could address these issues by employing larger and more diverse samples, applying longitudinal or experimental designs, and using advanced analytical methods such as regression or structural equation modeling to explore causal pathways more rigorously. Comparative studies across multiple heritage destinations would also enrich understanding of how green tourism strategies influence visitor responses in different cultural settings.

CONCLUSION

This study reveals that while the green tourism in Kota Tua Jakarta is not yet ideal, it is on a hopeful road. Efforts such as infrastructure renewal, emission reduction, and the provision of ecologically friendly transportation show a dedication to building a sustainable tourism destination in the cultural legacy area. These results, however, also highlight the gap between policy aspirations and on-the-ground execution, especially regarding renewable energy use, technological integration, and meaningful local community participation in the decision-making process.

Moreover, this study highlights the extent to which green tourism is really carried out as opposed to just being marketed as a marketing tool. Tourist evaluations indicate that not all visitors recognize or appreciate ongoing sustainability initiatives, suggesting a communication gap. Thus, destination management has to stress the narrative, emotional involvement of visitors, and cross-sector cooperation in addition to the technical elements of sustainability.

The incorporation of an administrative method in evaluating the efficacy of green tourism, as well as its connection to the attitudes and actions of visitors in cultural legacy regions, constitutes the main contribution of this study. If they are handled strategically and inclusively, Kota Tua is an example of how cultural preservation and environmental sustainability may support one another. The success of green tourism is therefore not only determined by the policies developed but also by the degree to which these policies are internalized and experienced by stakeholders, especially tourists and local communities.

Compared with similar destinations undergoing sustainable transitions, Kota Tua stands out for its bold mix of heritage revitalization and urban greening. However, its journey also highlights the paradox of policy ambition and operational inertia. While LEZ and waste strategies are commendable, they remain under-leveraged due to inconsistent enforcement and low visibility.

Several limitations constrain the generalizability of our results and should be acknowledged. The first one is that the study focuses on a single historic urban area, Kota Tua Jakarta, which has a particular governance structure, density of informal economic activity, and visitor profile; therefore, caution is required when extrapolating findings to other heritage cities with different institutional arrangements. The quantitative component relies on cross-sectional survey data collected from 101 visitors. While sufficient for exploratory and descriptive analysis, this limits causal inferences regarding the effects of specific management actions on satisfaction and tourist behavior.

This study provides insights into the integration of green tourism in a heritage setting. The findings also suggest several practical actions. Policymakers can introduce financial incentives and regulatory support, such as tax reductions or subsidies, to promote renewable energy adoption among tourism operators in Kota Tua Jakarta. Destination managers can design community-based tourism programs that involve residents in tour planning, cultural interpretation, and revenue sharing. Such programs ensure that local communities gain fair benefits from green tourism. Cross-sector governance models are also important. Bringing together government, private actors, and civil society can improve coordination of initiatives such as Low Emission Zones and sustainable mobility. These steps can enhance environmental performance in heritage destinations while deepening community participation and governance.



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ENHANCING ENVIRONMENTAL SUSTAINABILITY IN CONSERVATION TOURISM THROUGH THE TOTAL ERGONOMICS SHIP APPROACH

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| Article Info | Abstract |
|--|---|
| Keywords: Sustainable tourism; SHIP model; systemic; holistic; participatory interdisciplinary. | This research aimed to examine the enhancement of environmental sustainability in conservation tourism using total ergonomics, represented by SHIP model (systemic, holistic, interdisciplinary, and participatory). The results showed that SHIP dimensions significantly improved sustainable tourism outcomes, with the holistic principle showing the greatest effect using a quantitative approach with Partial Least Squares Structural Equation Modeling (PLS-SEM). Total ergonomics was reported as an integrative framework for advancing sustainable and inclusive tourism development. |
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INTRODUCTION

Sustainable tourism development is a global priority because the concept strengthens the economy while preserving environmental and cultural integrity (Jaelani et al., 2023). In Indonesia, tourism contributes approximately 4.3% to the national GDP 4 (BPS, 2025). Kemenparekraf (2024) introduced the National Tourism Development Index to increase sustainable and inclusive tourism transformation nationwide. In the context of conservation areas, the principle of sustainability emphasizes the optimized use of natural resources, as well as the maintenance of biodiversity, ecosystems, and life support systems. A holistic and systematic approach that integrates ergonomic principles is essential for ensuring efficient, comfortable, and safe interactions between humans and the environment (Shang, 2020). A systemic, holistic, interdisciplinary, and participatory total ergonomics approach (SHIP) can be an effective solution for managing conservation tourism destinations while considering social, economic, and cultural sustainability.

The holistic principle shows the need to balance economic, social, cultural, and environmental aspects to ensure sustainable tourism management (Niewiadomski & Brouder, 2024). Interdisciplinary collaboration across tourism, social, cultural, and environmental sciences facilitates more comprehensive management solutions. Meanwhile, participatory engagement ensures active inclusion of local communities, enhancing ownership and long-term sustainability (Widawski et al., 2023; Krittayarungroj et al., 2023). Even though several research have explored tourism sustainability, most focus on a single dimension such as economic impact or community empowerment (Megawati et al., 2023).

Different research systematically applying ergonomics in conservation tourism remains limited, even though ergonomic considerations can enhance visitor comfort and promote environmental sustainability (Suparti et al., 2023). Most previous research has focused on single dimensions of sustainable tourism, such as economic impacts or community empowerment, without integrating ergonomic principles into governance. This research addresses the gap by applying SHIP total ergonomics framework as an integrated approach to sustainable tourism management in conservation areas. The novelty lies in positioning ergonomics as a design tool and strategic governance model that unifies environmental, social, cultural, and ergonomic dimensions, offering the first evidence-based framework to analyze the consistency of human well-being with ecological preservation and cultural continuity (Widawski et al., 2023; Krittayarungroj et al., 2023; Niewiadomski & Brouder, 2024; Lu, 2025; Widawski et al., 2023; Krittayarungroj et al., 2023; Lu, 2025). The original contribution is the development of a practical ergonomics-based governance model for conservation tourism, integrating the SHIP framework to balance human well-being with ecological and socio-cultural sustainability.

Indonesia has several natural conservation areas that serve as main attractions, such as national parks, protected forests, and lakes, offering environmentally friendly tourism experiences. The current major challenges of conservation tourism are related to the environment and the sustainability of local culture. According to Baloch et al. (2023), there is damage caused by over-exploitation of natural resources, increasing amounts of waste, and negative impacts on local culture. Belsoy et al. (2012) showed that tourism could cause degradation of flora and fauna, which threatens biodiversity in several conservation areas in the world, including Bali.

METHODOLOGY

Research Type and Design

This research used a descriptive qualitative-quantitative approach (Camilli Trujillo et al., 2022). Quantitative and qualitative designs could be justified in mixed methods to strengthen, refine, or refute plausible explanations of phenomena (Ryba et al., 2022). A Likert-scale questionnaire (1 = strongly disagree to 4 = strongly agree) was used to assess respondents' opinions and perceptions of SHIP ergonomics in sustainable conservation tourism management. The instrument was tested for validity and reliability (Taherdoost, 2021; Sukmawati et al., 2023).

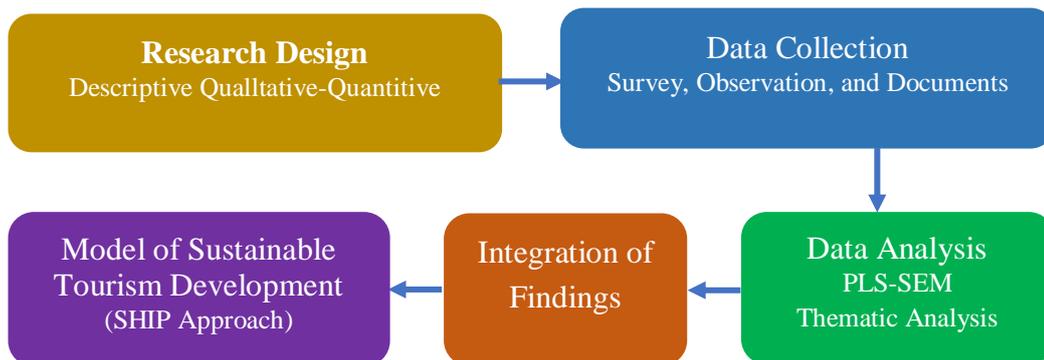


Figure 1. Research Methodology Flow of the Mixed-Methods Research

Source: Research Data, 2025

Research Location and Sample

This research was conducted in several conservation tourism villages in Bali that apply sustainability and ergonomic principles. Participants comprised tourism managers and practitioners in SHIP-based conservation tourism. A non-probability (accidental) sampling method was used due to the identifiable population characteristics (Berndt, 2020; Kim, 2022). Although this approach limits external validity (Andrade, 2021), but effectively captures relevant actors within conservation tourism settings. The sample size was determined following Hair et al. (2019), who recommended five to ten times the number of observed indicators. With 28 indicators analyzed, the minimum required sample was 280 respondents.

Framework and Hypothesis Development

The SHIP (systemic, holistic, interdisciplinary, and participatory) ergonomic method plays a significant role in encouraging sustainable tourism within conservation areas to harmonize humans with tasks, work organizations, and the environment, thus complementing the goal of sustainable conservation tourism. The systemic approach aims to manage interrelated systems, social, cultural, economic, industrial, agricultural, and environmental into one tourism system, thereby producing tourist destinations that foster the sustainability of both ecosystems and socio-cultures (Kant, 2023). Holistic means considering comprehensively all related aspects, such as social, economic, cultural, and environmental, that provide direct benefits to local communities without damaging existing cultural and social values. Interdisciplinary means the involvement of all related disciplines is integrated. Integrating knowledge from various fields, such as tourism, environment, to



create a sustainable tourism management system (Shang, 2020). Furthermore, participatory is an approach that includes all stakeholders, especially the community, tourism business actors, and policy makers, actively part of planning, implementation, and evaluation of tourism management. This can raise awareness and community involvement in preserving the environment and culture (Suparti et al., 2023) to realize sustainable tourism from social, cultural, economic, and environmental aspects. Thus, conservation-based tourism management must prioritize environmental and cultural sustainability while simultaneously improving the welfare of local communities

Sustainability in tourism is highly dependent on the application of sustainable management principles. The application of a SHIP-based management model, which includes a systemic, holistic, interdisciplinary, and participatory approach, can provide a solution to maintain a balance between economic needs and environmental conservation (Table 1).

Table 1. Principle Ergonomic SHIP on Tourism Application

| Principle | Key Function | Tourism Application | Supporting Evidence |
|--------------------------|---|---|--------------------------------|
| Systemic | Govern interconnected social, cultural, economic, ecological systems. | Prevent resource conflicts. | Lu, (2025) |
| Holistic | Balance economic, social, cultural, ecological aspects. | Prevent environmental damage. | Niewiadomski & Brouder, (2024) |
| Interdisciplinary | Integrate multiple disciplines. | Combine traditional wisdoms with modern approaches. | Widawski et al., (2023) |
| Participatory | Engage stakeholders in tourism planning. | Strengthen community involvement as tourism actors. | Suparti et al., (2023) |

Source: Research Data, 2025

Based on this framework, the following research hypotheses were proposed:

- 1) H₁: A systemic total ergonomic approach has a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.
- 2) H₂: Holistic principles in the total ergonomic approach have a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.
- 3) H₃: Interdisciplinary principles in the total ergonomic approach have a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.
- 4) H₄: Local community participation in tourism planning and management has a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.
- 5) H₅: Integration of SHIP total ergonomic principles can create socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.

The relationship between variables in the application of the SHIP total ergonomics approach in sustainable tourism management in Bali is presented in Figure 2. The SHIP

approach, involving systemic, holistic, interdisciplinary, and participatory elements, was integrated with ergonomic factors to support sustainable tourism development that includes economic, social, cultural, and environmental aspects. Ergonomic factors applied in SHIP can improve sustainable tourism (1. social sustainability, 2. cultural sustainability, 3. economic sustainability, and 4. environmental sustainability).

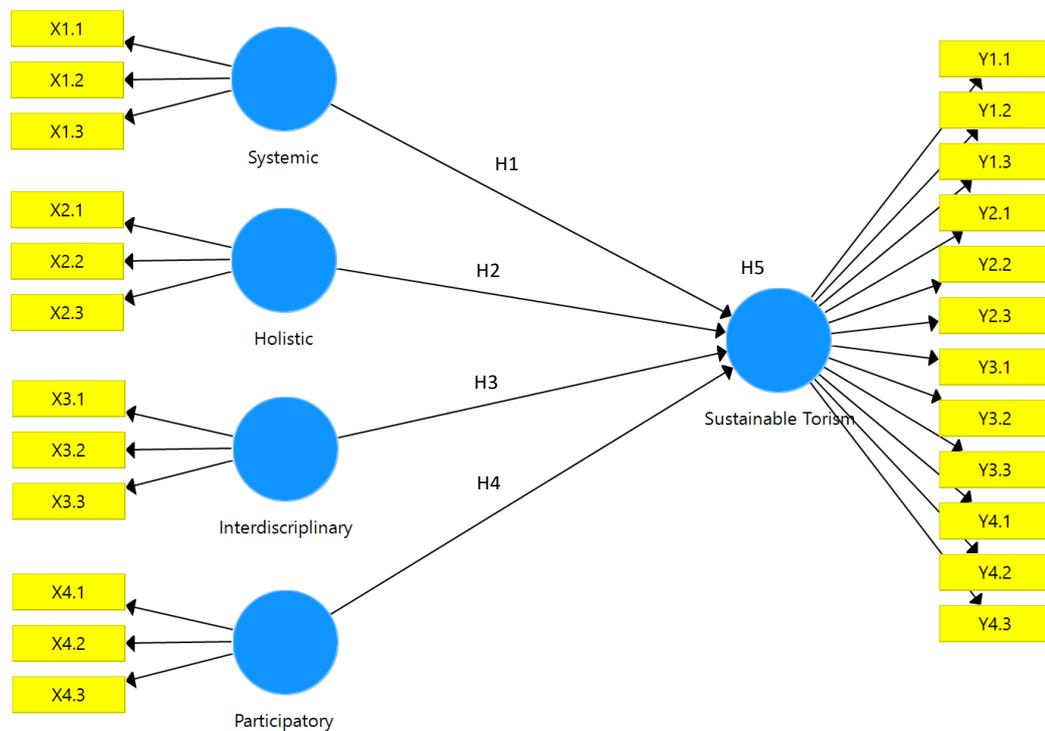


Figure 2. Relationship Between Variables Model SEM PLS

Source: Research Data, 2025

Research Instruments

A structured questionnaire was used to assess tourist perceptions and the application of SHIP ergonomics in conservation tourism. This covered four SHIP dimensions, including systemic, holistic, interdisciplinary, and participatory and four sustainability aspects, namely social, cultural, economic, and environmental. The instrument captured both service experiences and community-based management practices. The answers to the checklist instrument (Table 2) were categorized into 4 Likert scales (1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree), measuring a person's subjectivity to the measured phenomenon, which is valid and reliable (Sukmawati et al., 2023). Indicators were arranged based on constructs adapted from relevant and current literature, ensuring conceptual and empirical alignment. The results of the Gregory formula questionnaire validity test obtained a coefficient index of 0.916, thereby confirming the validity and suitability for data collection (Gregory, 2000). Based on expert validity, a questionnaire trial was then carried out involving 30 respondents to ensure item clarity, reliability, and consistency (Taherdoost, 2021), and the results of filling out the questionnaire were tested for validity and reliability using SPSS version 22. The reliability



test of the main dimensions of the questionnaire showed that the Cronbach’s alpha values ranged from 0.721 to 0.891, indicating that all question items were reliable, as each value exceeded the acceptable threshold of 0.7 hence the list of questions in the questionnaire was declared reliable.

Table 2. Questionnaire Items for Assessing the Implementation of SHIP Ergonomics in the Governance of Conservation Tourism

| No. | Questionnaire Items | References |
|-----------|--|--|
| X | SHIP ERGONOMICS | |
| X1 | SYSTEMIC | |
| X1.1 | Existing policies and regulations in tourism village governance incorporate considerations for the preservation of natural resources and local cultural heritage within conservation tourism areas. | Martin Mowforth & Ian Munt, (2016); Scott & Gössling, (2025) |
| X1.2 | There is consistent coordination among the tourism, agriculture, industry, and environmental sectors in managing destinations within conservation areas. | Widawski et al., (2023) |
| X1.3 | Environmentally friendly technologies are used to mitigate the environmental impact of tourism activities in conservation areas. | Buckley, (2012) |
| X2 | HOLISTIC | |
| X2.1 | Tourism management policies in conservation areas adopt a holistic approach that incorporates economic, social, and environmental aspects through planning, implementation, and evaluation processes to ensure long-term sustainability. | Lesar et al., (2023) |
| X2.2 | Integrated approaches including customary and administrative villages, industry, and the community result in tangible economic benefits for residents while preserving the natural and cultural environment. | Widawski et al., (2023) |
| X2.3 | Tourism managers consider social, cultural, and economic aspects simultaneously to improve the social well-being of local communities in conservation destinations. | Melanie K. Smith, (2023) |
| X3 | INTERDISCIPLINARY | |
| X3.1 | Destination management in conservation areas that includes professionals from tourism, environmental, and economic disciplines is more effective in conserving the ecosystem. | Buckley, (2012) |
| X3.2 | Cross-disciplinary collaboration enhances the effectiveness of strategies to minimize the negative environmental impacts of tourism. | Buckley, (2012) |
| X3.3 | An interdisciplinary approach across professions results in more effective solutions for balancing tourism development and environmental conservation. | Hall, (2024) |
| X4 | PARTICIPATORY | |
| X4.1 | Active participation of local communities in tourism planning contributes to more appropriate and socially responsive policy outcomes. | Widawski et al., (2023) |
| X4.2 | Active participation of local communities in tourism management improves their economic well-being without compromising environmental and cultural sustainability. | Hall, (2024) |
| X4.3 | Community participation in tourism governance fosters a better balance between economic development and environmental conservation. | Melanie K. Smith, (2023) |
| Y | SUSTAINABLE TOURISM | |
| Y1 | Social Sustainability in Conservation Tourism Areas | |
| Y1.1 | Tourism activities in conservation areas have enhanced the quality of life of local communities without undermining their cultural values. | Buckley, (2012) |



| No. | Questionnaire Items | References |
|-----------|---|--------------------------|
| Y1.2 | Conservation tourism provides opportunities for local communities to be included in decision-making processes that influence their social sustainability. | Buckley, (2012) |
| Y1.3 | Sustainable tourism management strengthens social cohesion and collaboration between local communities and destination managers. | Melanie K. Smith, (2023) |
| Y2 | Cultural Sustainability in Conservation Tourism Areas | |
| Y2.1 | Tourism governance supports the preservation of traditional and local cultures without compromising the cultural identity of local communities. | Melanie K. Smith, (2023) |
| Y2.2 | Conservation tourism has raised awareness and appreciation for local culture among both tourists and the community. | Hall, (2024) |
| Y2.3 | Tourism activities in conservation areas create spaces for local communities to preserve and develop their cultural heritage. | Melanie K. Smith, (2023) |
| Y3 | Economic Sustainability in Conservation Tourism Areas | |
| Y3.1 | Conservation tourism provides sustainable economic benefits to local communities without degrading natural ecosystems. | Buckley, (2012) |
| Y3.2 | Tourism-generated revenue supports the development of infrastructure and services that benefit the local population. | Hall, (2024) |
| Y3.3 | Economic sustainability in conservation areas is achieved through collaboration between tourism and other sectors such as agriculture and local crafts. | Lesar et al., (2023) |
| Y4 | Environmental Sustainability in Conservation Tourism Areas | |
| Y4.1 | Tourism management in conservation areas prioritizes biodiversity conservation and ecosystem preservation while preventing environmental degradation. | Buckley, (2012) |
| Y4.2 | Tourism activities are managed to minimize negative impacts on natural environments and resources. | Hall, (2024) |
| Y4.3 | Conservation tourism ensures the sustainable use of natural resources without threatening ecological balance. | Lesar et al., (2023) |

Source: Research Data, 2025

Data Collection

Data were collected independently according to the research objectives using qualitative and quantitative methods through checklist instruments and questionnaires (Taherdoost, 2021) using a four-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree) for 280 respondents. The questionnaire was distributed through direct contact with respondents in tourism organizations in the Munduk Village area, representing conservation areas. Respondent demographics include organizations, which are positions, types of organizations (hotels, travel agencies, tourism offices, and tour guides), and years of experience as conservation tourism actors.

Data Analysis Procedure

The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS, following a two-step analytical approach comprising the measurement and structural model evaluation (Joseph F. Hair Jr. et al., 2021). The measurement model was assessed for reliability and validity through composite reliability (≥ 0.70), average variance extracted (≥ 0.50), and discriminant validity using the Heterotrait-Monotrait ratio (HTMT < 0.90) recognized as a superior criterion over the traditional Fornell-Larcker test (Henseler et al., 2015). After confirming the adequacy, the structural model was evaluated by analyzing path coefficients, coefficient of determination



(R²), effect sizes (f²), and predictive relevance (Q²) based on the blindfolding procedure (Hoppner & Vadakkepatt, 2019). Significance levels for the hypothesized relationships were obtained through bootstrapping with 5,000 resamples, ensuring robust estimation for the predictive capacity and explanatory power in line with best practices in PLS-SEM.

Hypothesis Testing with SEM-PLS

This research used SEM-PLS, a statistical method suitable for testing complex relationship models between variables to test the relationship between variables. SEM-PLS allowed data analysis to test direct relationships between variables and consider indirect effects (Joseph F. Hair Jr. et al., 2021). In this context, SEM-PLS was used to test five main hypotheses in describing the prediction of latent independent variables (exogenous) of SHIP implementation (Hidayat & Patricia Wulandari, 2022).

RESULTS AND DISCUSSION

Measurement Model Assessment

The measurement model was assessed by convergent validity, discriminant validity, and composite reliability. The convergent validity was validated since the outer loadings exceeded the threshold of 0.70, and the average variance extracted (AVE) values ranged from 0.864 to 0.901, satisfying the minimum criterion of 0.50 (Joseph F. Hair Jr. et al., 2021). The constructs systemic, holistic, interdisciplinary, participatory, and sustainable tourism showed adequate convergent validity (Figure 3 and Table 3).

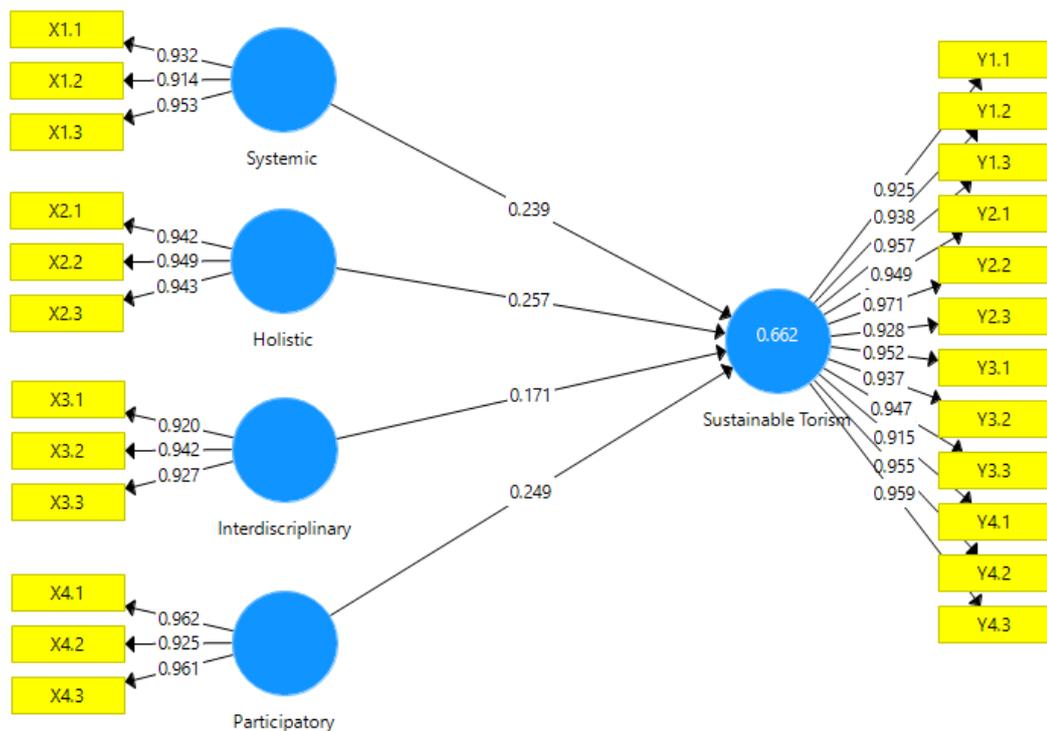


Figure 3. Estimated Structural Model Based on SEM-PLS Algorithm
Source: Research Data, 2025

Table 3. Convergent Validity Assessment: Indicator Loadings and AVE Values

| Construct | Indicator | Loading Factor | Cut-off Value | AVE | Convergent Validity |
|---------------------|-----------|----------------|---------------|-------|---------------------|
| Systemic | X1.1 | 0.932 | 0.70 | 0.870 | Valid |
| | X1.2 | 0.914 | 0.70 | | Valid |
| | X1.3 | 0.953 | 0.70 | | Valid |
| Holistic | X2.1 | 0.942 | 0.70 | 0.892 | Valid |
| | X2.2 | 0.949 | 0.70 | | Valid |
| | X2.3 | 0.943 | 0.70 | | Valid |
| Interdisciplinary | X3.1 | 0.920 | 0.70 | 0.864 | Valid |
| | X3.2 | 0.942 | 0.70 | | Valid |
| | X3.3 | 0.927 | 0.70 | | Valid |
| Participatory | X4.1 | 0.962 | 0.70 | 0.901 | Valid |
| | X4.2 | 0.925 | 0.70 | | Valid |
| | X4.3 | 0.961 | 0.70 | | Valid |
| Sustainable Tourism | Y1.1 | 0.925 | 0.70 | 0.892 | Valid |
| | Y1.2 | 0.938 | 0.70 | | Valid |
| | Y1.3 | 0.957 | 0.70 | | Valid |
| | Y2.1 | 0.949 | 0.70 | | Valid |
| | Y2.2 | 0.971 | 0.70 | | Valid |
| | Y2.3 | 0.928 | 0.70 | | Valid |
| | Y3.1 | 0.952 | 0.70 | | Valid |
| | Y3.2 | 0.937 | 0.70 | | Valid |
| | Y3.3 | 0.947 | 0.70 | | Valid |
| | Y4.1 | 0.915 | 0.70 | | Valid |
| | Y4.2 | 0.955 | 0.70 | | Valid |
| | Y4.3 | 0.959 | 0.70 | | Valid |

Source: Research Data, 2025

Note:

- Loading Factor: All values > 0.70, showing acceptable item reliability.
- AVE: Reported once per construct, as per international convention.
- Convergent Validity: Marked “Valid” when both loading and AVE meet criteria.

Composite reliability values ranged from 0.950 to 0.990, while Cronbach’s Alpha values were above 0.90, showing high internal consistency across all constructs (Table 4).

Table 4. Construct Reliability and Convergent Validity

| Construct | Cronbach’s Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|-------------------------|------------------|-------|-----------------------|----------------------------------|
| Systemic (X1) | 0.925 | 0.926 | 0.953 | 0.870 |
| Holistic (X2) | 0.940 | 0.942 | 0.961 | 0.892 |
| Interdisciplinary (X3) | 0.922 | 0.934 | 0.950 | 0.864 |
| Participatory (X4) | 0.945 | 0.950 | 0.965 | 0.901 |
| Sustainable Tourism (Y) | 0.989 | 0.991 | 0.990 | 0.892 |

Source: Research Data, 2025



Three approaches were used to evaluate discriminant validity, which are the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait (HTMT) ratio. The Fornell-Larcker criterion showed that the square roots of AVE for each construct exceeded inter-construct correlations, suggesting acceptable discriminant validity. Additionally, the cross-loading analysis reported that each indicator loaded more strongly on the associated construct than on any other. HTMT values were below the recommended threshold of 0.90, confirming discriminant validity across constructs.

Structural Model Assessment

The coefficient of determination (R^2), predictive relevance (Q^2), and standardized root mean square residual (SRMR) were analyzed to evaluate the inner model. The R^2 value for sustainable tourism of 0.662 showed that approximately 66.2% of the variance was explained by the exogenous constructs. This suggested a substantial explanatory power according to the classification of Nguyen et al (2024). The Q^2 value for sustainable tourism of 0.582 reported a strong level of predictive relevance. The SRMR value of 0.058 showed a good model fit below the threshold of 0.08, which denoted a “perfect fit” according to Hu & Bentler (1999).

Hypotheses Testing

The direct effects of SHIP variables on sustainable tourism were examined using bootstrapping with 500 subsamples.

Table 5. Direct Effects and Hypothesis Testing

| Hypothesis | Path | Coefficient (β) | t-Statistic | p-Value | Result |
|----------------|---|-------------------------|-------------|---------|-----------|
| H ₁ | Systemic → Sustainable Tourism | 0.239 | 3.914 | 0.000 | Supported |
| H ₂ | Holistic → Sustainable Tourism | 0.257 | 4.382 | 0.000 | Supported |
| H ₃ | Interdisciplinary → Sustainable Tourism | 0.171 | 2.264 | 0.024 | Supported |
| H ₄ | Participatory → Sustainable Tourism | 0.249 | 3.765 | 0.000 | Supported |

Source: Research Data, 2025

All hypothesized relationships were statistically significant ($p < 0.05$). The strongest predictor of sustainable tourism is holistic ($\beta = 0.257$), followed closely by participatory ($\beta = 0.249$) and systemic ($\beta = 0.239$). Despite having the smallest coefficient ($\beta = 0.171$), interdisciplinary research suggested a significant positive effect.

The structural model was tested using bootstrapping to assess the significance and strength of the hypothesized relationships.

H₁: *A systemic total ergonomic approach has a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.*

The results confirmed that the systemic dimension significantly and positively affected sustainable tourism ($\beta = 0.239$, $t = 3.914$, $p < 0.001$). This suggested that a higher application of systemic thinking in ergonomic design and planning was associated with more sustainable tourism practices.



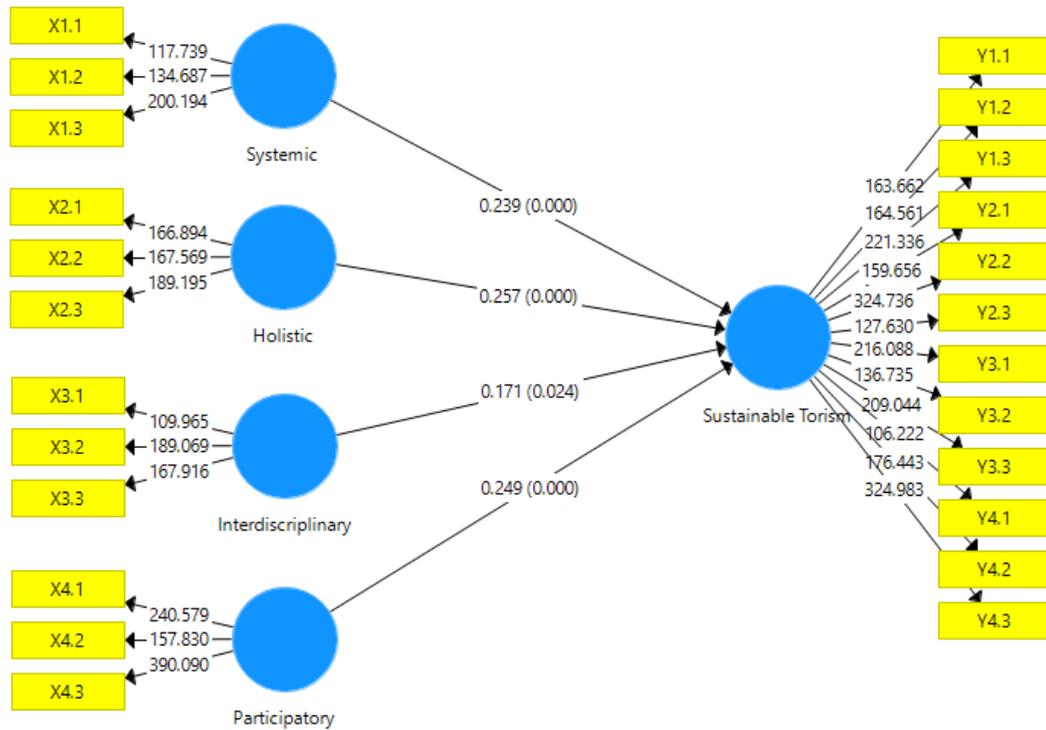


Figure 4. PLS-SEM Model Estimation, Bootstrapping Method
 Source: Research Data, 2025

H₂: *Holistic principles in the total ergonomic approach have a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.*

The holistic construct showed the strongest direct effect ($\beta = 0.257$, $t = 4.382$, $p < 0.001$), affirming that a holistic design orientation integrating interrelated social-ecological components significantly enhanced sustainable tourism in conservation areas.

H₃: *Interdisciplinary principles in the total ergonomic approach have a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.*

Even though interdisciplinary practices exhibited a positive path coefficient ($\beta = 0.171$), the t-statistic (2.264) and p-value (0.024) showed moderate significance. Based on the research criteria, this result suggested that interdisciplinary approaches were not sufficient without stronger integration or contextual support.

H₄: *Local community participation in tourism planning and management has a positive effect on socially, culturally, economically, and environmentally sustainable tourism in conservation tourism areas.*

Participatory factors significantly affected sustainable tourism ($\beta = 0.249$, $t = 3.765$, $p < 0.001$). This reinforced the importance of inclusive tourism governance and stakeholder engagement, specifically including local communities in the planning and management process.



Model Explanation and Integration

H₅: Integration of SHIP total ergonomic principles can create socially, culturally, economically, and environmentally sustainable tourism in conservation areas.

The overall explanatory power of the model is substantial, and the adjusted R² for sustainable tourism is 0.657. Therefore, 65.7% of the variance is accounted for by the SHIP ergonomic framework. This confirms that the integrated application of total ergonomic design can effectively support sustainability outcomes in conservation-based tourism settings. H₅ is supported, emphasizing the value of applying a multidimensional ergonomic design to enhance the sustainability performance of tourism initiatives.

Discussion

The results show the significant positive effect of systemic ergonomic (H₁) thinking on sustainable tourism ($\beta = 0.239$, $t = 3.914$, $p < .001$) in line with the perspective that tourism functions as a complex socio-ecological system. Scratching (Taveras-Dalmau & Coghlan, 2025) emphasized the importance of systems thinking to show the hidden feedback loops in tourism, such as unsustainable extraction and poaching. Similarly, Gerber et al. (2025) reported systems thinking in adapting tourism in response to climate threats. These perspectives support the result by integrating systemic ergonomics, allowing managers to address interdependencies and promote resource-use efficiency and policy coherence in conservation tourism.

The holistic governance approach (H₂) had the strongest effect on sustainable tourism ($\beta = 0.257$, $t = 4.382$, $p < .001$), supporting Artal-Tur & Badillo-Amador (2024), who emphasized multidimensional indicators for measuring tourism sustainability. Moreover, Li et al. (2025) connected integrative governance with cultural preservation and economic well-being. The results confirm that adaptive, holistic planning balancing environmental, cultural, and economic dimensions is essential for sustainable management of conservation tourism areas.

Despite the significance of interdisciplinary collaboration (H₃) ($\beta = 0.171$, $t = 2.264$, $p = .024$), the weakest effect is reported among the four constructs. This may reflect practical challenges in balancing diverse disciplinary perspectives within local tourism governance, including limited institutional coordination, sectoral silos, and varying professional priorities in conservation areas (Elshall & Badir, 2025; Li et al., 2025). In Bali, integration between environmental, cultural, and social science stakeholders is often partial, which constrains the full impact of interdisciplinary initiatives. Strengthening institutional frameworks, shared methodologies, and capacity-building among agencies enhances the effectiveness of interdisciplinary collaboration in conservation tourism governance.

The results for the participatory governance principle (H₄) ($\beta = 0.249$, $t = 3.765$, $p < .001$) confirm the critical role of community participation. Previous research on sustainable tourism showed that stakeholder inclusion enhanced equitable benefit distribution, identity formation, and custodianship of heritage (Schulte & Paris, 2024). The work in Vietnam reported that community empowerment preserved cultural identity and stimulated economic development (Nguyen Thi et al., 2024). These results are consistent with the empirical research, showing the important role of participatory ergonomics in conservation tourism.

The SHIP model explained 65.7% of the variance in sustainable tourism (adjusted $R^2 = 0.657$), confirming the robustness of the holistic ergonomic framework. Sangpikul (2017) integrated a design-management-governance model, emphasizing that combining human-centered systems with governance mechanisms obtained sustainable outcomes. This research confirms the ergonomic framework as an effective model for sustainable tourism in conservation areas. The results showed the relevance in addressing tourism's socio-ecological complexity, particularly in destinations like Bali. The framework offers practical value as a diagnostic and planning tool for designing participatory, system-oriented, and culturally responsive tourism strategies. Policymakers at the national and regional levels can leverage the model to balance conservation tourism initiatives with sustainable strategies outlined in the RPJMN and regional master plans, ensuring that environmental protection, cultural preservation, and community empowerment are systematically addressed. The framework can guide decision-making, policy coordination, and investment prioritization in conservation areas by integrating SHIP principles. However, the cross-sectional and location-specific nature of the research limits broader generalization. Future research should adopt longitudinal, comparative, and mixed-methods approaches to explore the applicability of SHIP across diverse contexts.

Each SHIP dimension is consistent with the strategic tourism policies of Indonesia. The systemic dimension corresponds to the RPJMN 2025–2029 priority on integrated ecosystem-based tourism, emphasizing cross-sectoral coordination between environment, culture, and local economy. The holistic dimension reinforces the Tourism Village 4.0 framework, which integrates digital innovation, green practices, and cultural authenticity to strengthen community-based destinations. Meanwhile, the interdisciplinary dimension supports the development of collaborative governance mechanisms outlined in the National Tourism Development Index (Kemendparekraf, 2024). The participatory dimension is similar to the policy of the Ministry on empowering local communities and creative industries to enhance social inclusion and resilience. This consistency shows that the SHIP framework has theoretical robustness and complements the ongoing transformation toward sustainable, inclusive, and innovation-driven tourism governance.

CONCLUSION

In conclusion, this research confirms the SHIP total ergonomics framework as a powerful foundation for sustainable tourism in conservation areas. Empirical results show that the dimensions contribute significantly to sustainability, with the holistic principle being most influential. The high explanatory power (adjusted $R^2 = 0.657$) of the model reports relevance in navigating socio-ecological complexity. Community participation is developed as a transformative driver of inclusive and resilient tourism governance. This research contributes an ergonomics-based management model integrating environmental, social, cultural, and design dimensions into a cohesive governance strategy. The novelty positions total ergonomics as a design aid and strategic instrument for policy, planning, and sustainability standards. Embedding the model within institutional frameworks can balance tourism development with long-term ecological and community well-being.

Several policy directions are proposed to institutionalize the SHIP framework within Indonesia's tourism governance. The Ministry of Tourism and Creative Economy (*Kemendparekraf*) must incorporate SHIP principles into the National Sustainable Tourism Guidelines (*RIPARNAS*) and the National Tourism Development Index (2024) to ensure



system-wide integration of sustainability standards. Capacity-building programs should be established to strengthen local government and community competencies in participatory and ergonomic-based destination management. Inter-ministerial collaboration mechanisms among tourism, environment, and cultural agencies are essential to operationalize systemic governance. Furthermore, pilot projects in priority conservation areas such as Bali, Komodo, and Raja Ampat can report the effectiveness of SHIP and serve as models for nationwide implementation.

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ETHNOGRAPHY OF KERINCI TRADITIONAL GAMES: A MODEL FOR COMMUNITY-BASED CULTURAL TOURISM

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| Article Info | Abstract |
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| <p>Keywords: Traditional games, Kerinci, ethnography, intangible cultural heritage, community-based tourism.</p> <p>Received: July 21, 2025</p> <p>Approved: November 12, 2025</p> <p>Published: December 05, 2025</p> | <p>Traditional games are an intangible cultural heritage containing social, educational, and ecological values. However, in Kerinci Regency, their existence is increasingly threatened by digital games and minimal preservation efforts. This study aims to explore traditional games in the Kerinci community and examine their relevance for community-based tourism development. Using ethnographic design, data were collected through participant observation and interviews with 15 informants in Tanah Sekudung, Kerinci. Thematic analysis using NVivo 12 Pro identified 23 traditional games categorized into four types: motor, strategy-accuracy, collaborative-competitive, and symbolic-social. The study reveals these games function as mechanisms for social cohesion, intergenerational knowledge transfer, and cultural identity preservation. Their relevance to community-based tourism development lies in participatory experiences that allow direct cultural engagement while providing economic benefits to local communities. Findings emphasize the dual potential of traditional games for cultural preservation and sustainable tourism, with specific recommendations for integration into tourism village programs, educational curriculum, and digital documentation. This study demonstrates how traditional games establish a practical model for sustainable community-based tourism, offering a viable pathway for cultural preservation while generating economic benefits for local communities.</p> |

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INTRODUCTION

Traditional games are an integral part of local cultural construction and are passed down through generations through social practices of everyday life. As a cultural expression, games not only are a means of recreation but also reflect life values, social structures, and human relationships with the surroundings. From a contemporary cultural anthropology perspective, gaming practices are understood as symbolic representations of norms, identities, and the dynamics of intergenerational relationships within communities (Subri et al., 2024).

Globally, traditional games are recognized as vital intangible cultural heritages closely linked to sustainable tourism development and cultural preservation. The perspective of UNESCO affirms that traditional games can be integrated into tourism strategies to preserve local cultural identities (Kim et al., 2019). This is evident in various contexts, such as efforts to revitalize traditional games as cultural tourism attractions in Bali (Arya, 2015) and the preservation of the Margala game through community tourism activities in Toba Samosir (Siregar et al., 2022). Similarly, Umbu and Listyorini (2025) emphasize that traditional games can be an effective pathway for increasing sustainable tourism while preserving local cultural identity.

Traditional games hold significant educational and social value beyond tourism. They serve as a medium for intergenerational learning, encompassing dimensions of education, spirituality, and ecology, which are often overlooked in formal education (Mwinsa & Dagada, 2025). Research has demonstrated their role in building social skills (Richards, 2018), improving emotional intelligence and self-esteem in children (Lim, 2023), and increasing student motivation and cooperation (Heredia Arias et al., 2024). An ethnographic approach is particularly effective in uncovering the symbolic meanings and sociocultural values embedded within these community practices (Chalid et al., 2021). However, this valuable heritage faces the threat of extinction due to cultural discontinuity, often resulting from the failure to pass traditions to younger generations (Li 2025) and the dominance of digital games (Hussain et al. 2022). Without active preservation, traditional games risk being devalued from dynamic practices to static practices. Huang et al., (2022) warned that without inclusive digital preservation, traditional games may remain only symbolic memories.

In the context of Kerinci Regency, Jambi Province, traditional games such as *cntik*, *conce*, *dor*, and *kajai* were once important elements in the social lives of the community, internalizing values of honesty, discipline, and responsibility. However, in the last decade, these games have become increasingly rare, replaced by a culture of digital games, and documentation and preservation policies remain minimal. While traditional games have been widely researched for cultural preservation (Arya, 2015; Siregar et al., 2022), a significant gap exists in operationalizing them into viable community-based tourism business models. Previous studies have documented games as cultural artifacts but have not sufficiently explored how to transform them into sustainable tourism experiences that provide economic benefits while maintaining cultural authenticity.

This study directly addresses this gap by proposing the Kerinci traditional games learning tour as a practical framework aligned with the strategic programs of the Ministry of Tourism and Creative Economy for tourism villages and creative economic development. Its novelty lies in combining the ethnographic documentation of traditional

games with a proposed community-based cultural tourism model, providing empirical contributions directly aligned with national tourism development strategies for tourism villages and participatory cultural attractions. Therefore, this study aims to ethnographically explore the diversity of traditional games in the Kerinci community, identify their characteristics and sociocultural contexts, and examine their relevance for the development of community-based cultural tourism.

METHODOLOGY

This study used a qualitative approach with an ethnographic design to explore the forms, values, and existence of traditional games in the Kerinci community, Indonesia. An ethnographic design was chosen because it allows researchers to uncover cultural meanings through direct involvement in a community's social context (Deda & Disnawati, 2024). The study was conducted from March to May 2025 in the Tanah Sekudung area of Kerinci Regency, Jambi.

The informants were selected using a snowball sampling technique, with a total of 15 participants divided into three age categories: elderly (≥ 60 years), adults (40–59 years), and young (20–39 years). This technique was chosen because knowledge about traditional games is not evenly distributed within the community but rather held by certain individuals, such as practitioners, inheritors, and observers of tradition. Snowball sampling is an appropriate approach in situations where the research population is difficult to reach and a sampling frame is unavailable (Etikan, 2016; Kirchherr & Charles, 2018; Ting et al., 2025).

Data were collected through limited participant observation in public spaces such as village squares and yards, as well as semi-structured interviews guided by questions such as: "*What values are passed down through this game?*" and "*What role does the game play in social life?*" The collected data consisted of verbal narratives, field notes and visual documentation.

Data analysis followed the contemporary thematic analysis framework (Byrne, 2022) through three systematic stages: (1) open coding to identify initial concepts from transcripts and field notes; (2) axial coding to categorize codes into broader themes; and (3) selective coding to integrate themes into the final analytical framework. NVivo 12 Pro facilitated the systematic coding and visualization of the relationships between themes. Data validation was ensured through methodological triangulation (combining observations and interviews), source triangulation (across different age groups), and member checking, where preliminary findings were validated with three key informants.

This study adhered to strict ethical standards. Informed consent was obtained from all participants with a clear explanation of the research purposes and their rights. Anonymity was maintained through the use of pseudonyms, and cultural protocols were respected throughout the fieldwork. Member checking ensures the data accuracy and cultural sensitivity.

RESULTS AND DISCUSSION

Results

This study identified 23 types of traditional Kerinci games through in-depth interview data processing with 15 participants. The data were coded using NVivo 12 Pro and grouped into three main aspects according to the study's focus: game type, characteristics of form and values, and socio-cultural context.



As informant Sairun (69) expressed: "These games are our living heritage. When we play *conce*, we're not just hopping - we're tracing the footsteps of our ancestors who taught us balance in life."

Another participant, Defrayenti (49), noted, "During *rakalah*, children learn to strategize together. There is no individual winner, only team victory. This builds characters you will not find in digital games."

A younger informant, Risya (25), acknowledged the urgency: "I only know these games from stories. We need to document them properly before they become mere memories. My generation is the last that still has some memory of how these games are played."

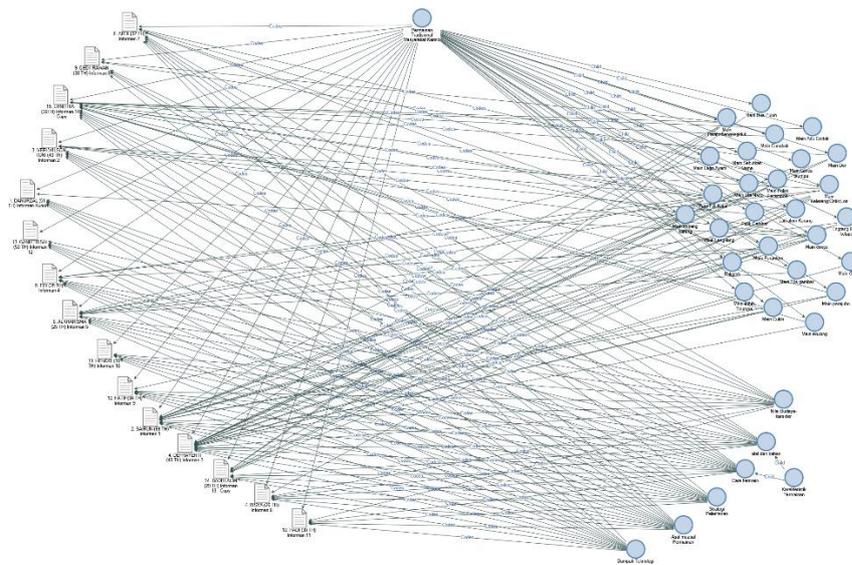


Figure 1. NVivo 12 Pro Encoding

Source: Research Data, 2025

The findings indicate that traditional games involve not only physical activities but also interwoven social, educational and environmental dimensions. The node network shows that each game has a deep meaning relevant to character building based on local cultural values. The distribution of values and social contexts among various games is balanced, reflecting the richness of cultural meanings passed down through generations.

The following table summarizes 23 traditional games still known to the Kerinci community, categorized based on the type of activity, technical characteristics, socio-cultural background, and similarity to traditional games in other regions of Indonesia.

Table 1. Identification of Kerinci traditional games, characteristics, socio-cultural context, and national similarities

| No | Name of Kerinci Game | Type of Game | Game Characteristics | Socio-Cultural Context | National Equivalent |
|----|----------------------------------|---------------------|--------------------------------------|---|---|
| 1 | <i>Cntik</i> (<i>Kelereng</i>) | Strategy & Accuracy | Shooting marbles into holes in turns | Sportsmanship, precision, played on open ground | Common marbles game (nationwide) |
| 2 | <i>Conce</i> | Motor Skills | Sequential hopping, avoiding lines | Courtyard play, agility values | <i>Engklek</i> (Java), <i>Taplak Gunung</i> (Sumatra) |



| No | Name of Kerinci Game | Type of Game | Game Characteristics | Socio-Cultural Context | National Equivalent |
|----|------------------------------|--------------------------|--|---|---|
| 3 | <i>Kajai</i> | Rhythmic Motor Skills | Jumping over elastic rope | Rhythm coordination, teamwork, mostly girls | Elastic rope jumping (national) |
| 4 | <i>Parantem</i> | Collaborative & Strategy | Physical pushing between two teams using feet | Teamwork, sportsmanship, unity | (Unique/local) no national equivalent found |
| 5 | <i>Rakalah</i> | Team Competition | Attacking and defending while avoiding barriers | Group strategy, speed | Bentengan / <i>Galasin</i> (national) |
| 6 | <i>Main Kaca</i> | Accuracy | Throwing a flat stone to flip images | Collection, high concentration | (Unique/local) no national equivalent found |
| 7 | <i>Pidik Gambar</i> | Accuracy & Collection | Winning images by accurately throwing sandals | Image collection, competition | <i>Lempar Gambar</i> (Sumatra, Riau) |
| 8 | <i>Dor</i> | Accuracy | Throwing flat stones at target stones | Sportsmanship, throwing strength | <i>Adu Batu</i> (regional variants) |
| 9 | <i>Enggrang Batok Kelapa</i> | Motor Skills | Walking on coconut shells | Balance training, creativity | <i>Enggrang Batok</i> (national) |
| 10 | <i>Lari Karung</i> | Competitive Motor Skills | Racing inside a sack | Village celebrations, independence race | <i>Lari Karung</i> (common) |
| 11 | <i>Cukin</i> | Motor Skills & Accuracy | Team-based throwing and dodging with small wood pieces | Strategy, team cooperation | <i>Kasti</i> / traditional kasti variants |
| 12 | <i>Main Los</i> | Strategy & Accuracy | Throwing marbles | Precision, honesty | Turn-based marbles (regional variant) |
| 13 | <i>Praimbeng</i> | Imaginative & Social | Hide and seek | Hiding and seeking players | <i>Petak umpet</i> |
| 14 | <i>Polisi-Perampok</i> | Symbolic & Chase Game | Role-play and chasing | Creativity, role distribution | <i>Polisi-polisian</i> / Cops and Robbers |
| 15 | <i>Imbih Monyet</i> | Reflex | Throwing dolls or objects at players | Concentration, catching speed | Ball catching / doll throwing |
| 16 | <i>Sebut Nama</i> | Responsive & Social | Calling names when prompted | Verbal dexterity, group play | Name calling / Quick response (oral) |
| 17 | <i>Imbang Barang</i> | Imaginative | Hiding items, guessing locations | Detective play, spontaneity | Hidden item guessing |
| 18 | <i>Toss Gambar</i> | Strategy | Competing images via toss | Image collection, fairness | Similar to toss gambar in Sumatra, Riau |
| 19 | <i>Adu Godok</i> | Tactics | Crushing opponent's sand balls | Creativity, honesty, throwing strength, natural materials | Sandball battle (local) |



| No | Name of Kerinci Game | Type of Game | Game Characteristics | Socio-Cultural Context | National Equivalent |
|----|----------------------|-----------------------|---|---|---|
| 20 | <i>Skucing</i> | Strategi | Eliminating stones (skucing) | Group interaction, agility, honesty | (Unique/local) no national equivalent found |
| 21 | <i>Lang-Lang</i> | Symbolic & Expressive | Kite flying | Group identity, evening entertainment | <i>Main Layang</i> (common) |
| 22 | <i>Dua Puluh</i> | Strategy & Team | Forming groups based on numbers, competing in agility | Logical play, coordination, entertainment, strategy | Group chase games |
| 23 | <i>Prajuho</i> | Strategy & Team | Social strategy in community games | Local culture, not found outside Kerinci | Push-push |

Source: Research Data, 2025

The analysis identified 23 types of traditional games divided into four categories: motor, strategy-precision, collaborative-competitive, and symbolic social. For example, the games *Cukin* and *Rakalah* have the potential to be used as collaborative attractions in village tourism packages, whereas *Dor* and *Pidik Gambar* could be developed as folk festival competitions. This emphasizes the dual function of traditional games as a means of transmitting local values and as an experience-based tourist attraction. These findings demonstrate that each game is part of a cultural knowledge system passed down across generations, holding a crucial position as an instrument for character education based on local wisdom and as a potential resource in sustainable cultural tourism strategies.

Discussion

1. Traditional games as intergenerational cultural heritage

The findings indicate that traditional games in Kerinci are concrete representations of local knowledge systems passed down orally and through practice. For example, key informant Danurzal (51 years old) emphasized that he "*learned games not from school, but from observing and imitating the elders in the village.*" This autodidactic transmission pattern aligns with the Zihao, (2022) concept of traditional games as "living heritage." However, our findings reveal a nuanced challenge: while the elderly and adult generations view these games as active cultural practices, the younger generation increasingly perceives them as historical artifacts. This intergenerational perception gap highlights the urgent need for active preservation strategies beyond passive oral transmission, positioning traditional games not only as heritage but also as adaptable cultural practices relevant to contemporary society.

2. Character and social dimensions: beyond surface-level values

The pedagogical values embedded in this game are cooperation, sportsmanship, patience, and honesty. These are not merely abstract concepts but are realized through specific game mechanics. For example, in *praimbeng* (hide and seek), players must collaborate to develop hiding strategies while maintaining fair turn-taking, as Hadi (30) explained: "*they help each other find strategic points and must be fair in taking turns guarding.*" This demonstrates how social values are internalized through concrete experiences rather than explicit instruction.



Our findings extend beyond confirming the literature (Bjeljac et al., 2021; Moya-Higueras & March-Llanes, 2017) by revealing *how* these values are operationalized. The collaborative-competitive nature of games such as *Rakalah* requires players to constantly negotiate between individual achievement and group success, fostering what Lavega-Burgués et al., (2021) The term “democratic participation” refers to the active involvement of individuals in a shared decision-making process, where every voice has equal value. In the context of social learning, this participatory nuance allows children to navigate complex interpersonal dynamics directly. This process offers advantages that are not always offered by digital-based alternatives, as it supports both cognitive and socio-emotional development. Thus, children gain authentic experiences that are often missed in overly structured educational interventions.

3. Changing play patterns: navigating digital disruption

The shift from participatory-communal to digital-individual play patterns represents more than a technological change; it signifies a fundamental transformation in social learning environments. As Veri Wilson (43) observed, "*Now children prefer playing games on their phones to going out into the field,*" resulting in disappearing "values of togetherness." This aligns with Idris et al. (2016) the findings of but introduces a critical Kerinci-specific dimension: the loss of ecological awareness embedded in games using natural materials such as stones, wood, and coconut shells.

The erosion of these games represents not only a loss of culture but also the loss of what Mwinsa and Dagada (2025) identify as "ecological literacy," such as the understanding of human-environment relationships encoded in games. This dual threat (cultural and ecological) requires a conservation approach that addresses both dimensions simultaneously, particularly through the integration of education that reconnects young people with their cultural heritage and the natural environment.

4. Preservation through recontextualization: education as a bridge

The informants consistently emphasized education as the primary means of preservation. Sairun (69) suggested integrating games such as *dor* or *cukin* into local curriculum content, noting that "*children learn through play, but the values remain.*" This aligns with the findings of Luchoro-Parrilla et al. (2024), but introduces important implementation insight: successful integration requires addressing intergenerational knowledge transfer gaps. Our findings suggest that effective educational integration must involve community elders as co-educators, creating what Ganiftrisal (53) termed "cultural bridges" between generations. This approach moves beyond simply teaching game rules to facilitate meaningful intergenerational dialog about the values and worldviews embedded within them, addressing both cultural preservation and character education objectives.

5. Digital Adaptation: Balancing Preservation and Innovation

Digital documentation has emerged as a key preservation strategy, particularly for engaging youth. Alkharisma (24) proposed recording games "so that children can re-experience them directly." However, our analysis reveals a critical tension between preservation and innovation. While digital tools offer engagement opportunities (Hou et al., 2022; Wang & Md Arif, 2024), they risk reducing embodied cultural practices to visual representations. The challenge lies in developing digital approaches that enhance, rather



than replace, physical engagement. As Ernitria (30) noted, digital resources should serve as "invitations to play," not substitutes for actual play. This requires careful design that maintains the tactile, social, and environmental dimensions that give these games their cultural significance, using technology as a bridge to the physical experience rather than an endpoint.

6. Cultural Tourism Development: From Activity to Experiential Learning

Kerinci's traditional games possess strong visual, narrative, and participatory appeal, making them suitable for cultural tourism and educational purposes. The proposed *Kerinci traditional games learning tour* model represents a significant advancement over conventional cultural tourism by transforming passive observation into participatory learning. This model's three-stage structure—contextual introduction, direct participation, and reflective integration—aligns with the Richards' (2021) experiential tourism framework but adds unique value through its focus on character values reflection.

The Kerinci traditional games learning tour embodies contemporary experiential learning principles (Doğantan, 2023), transforming tourists into active cultural participants. This approach creates meaningful engagement where visitors (1) experience games through direct participation, (2) reflect on embedded cultural values, (3) conceptualize broader cultural contexts, and (4) apply insights to appreciate cultural diversity. This experiential dimension addresses the gap between cultural preservation and tourist engagement, offering transformative experiences that differentiate it from conventional cultural-tourism.

Unlike traditional performances, where tourists observe cultural practices, this model positions tourists as active participants in cultural transmission. This creates what Bakas et al. (2019) term "co-creative experiences" that benefit both visitors (through meaningful engagement) and communities (through cultural revitalization). The model's reflective component is particularly innovative, helping visitors connect game experiences to broader life values, a feature that is absent from most cultural tourism offerings. However, successful implementation requires several challenges: maintaining cultural authenticity while ensuring accessibility, balancing tourist volume with community capacity, and ensuring that economic benefits reach local residents. These challenges highlight the need for careful community-led planning that prioritizes cultural preservation over commercial exploitation.

This approach aligns with UNESCO's recommendations for preserving ICH through participatory tourism, which encourages community involvement in designing and managing cultural attractions (Bakas et al., 2019). With support from tourism authorities and local communities, this model can serve as a pilot project for sustainable community-based tourism development. Although promising, implementation requires addressing potential challenges. To mitigate the risks of cultural commodification, the model emphasizes community ownership and control. Local elders served as cultural interpreters to ensure authenticity. Practical implementation involves a phased approach: community training, standardized game modules, and transparent revenue-sharing mechanisms. Partnerships with tourism authorities balance market access with cultural integrity, addressing sustainability through equitable benefit distribution and cultural preservation.

In addition to these challenges, the conscious mitigation of potential negative impacts is crucial. To prevent cultural commodification, the model

emphasizes community-owned enterprises where locals maintain control over cultural interpretation. Establishing clear visitor codes of conduct and revenue-sharing agreements managed transparently by community cooperatives can minimize social conflicts. Furthermore, limiting tour group sizes and designating culture-free periods ensures that these games retain living traditions for the community itself, rather than becoming solely performance-based attractions.

7. Limitations and Future Research

This study provides an in-depth ethnographic account; however, it is not without limitations. The primary limitation lies in its contextual specificity to the Tanah Sekudung area in Kerinci. Although this focus allows for a deep cultural understanding, it limits the generalizability of the findings. The ethnographic focus on Tanah Sekudung limits generalizability, although it provides depth in understanding the local context. Future comparative studies across multiple regions can identify transferable principles for other cultural contexts. Additionally, the proposed tourism model, while theoretically grounded, requires empirical testing of visitor acceptance, economic viability, and long-term community impacts. Future research should implement pilot programs to measure tourist satisfaction, economic benefits to local communities, and the effects of cultural transmission across generations. Longitudinal studies would be particularly valuable for assessing the sustainability of traditional game revitalization through tourism and its impact on intergenerational knowledge transfer.

CONCLUSION

This study successfully addressed its research objectives by ethnographically documenting 23 traditional Kerinci games, analyzing their socio-cultural functions, and developing a viable community-based tourism model. The findings demonstrate that traditional games serve as living repositories of local wisdom, transmitting the values of cooperation, honesty, and environmental awareness across generations. This research contributes to cultural tourism theory by providing an ethnographic framework for documenting intangible cultural heritage, demonstrating how traditional games can bridge cultural preservation and economic development, and offering a model for experiential learning in tourism that maintains cultural authenticity while ensuring community participation.

This study proposes several strategic actions for practical implementation and policy recommendations. For effective implementation, the Kerinci traditional games learning tour can be operationalized through community-owned tourism cooperatives, ensuring that the benefits remain within the local economy. Initial funding could be sourced from regional tourism development grants, with operational costs sustained through a transparent fee-sharing system for tour packages. Strategic partnerships with the Kerinci Regency Tourism Office are crucial for marketing and quality standardization. Specific measures include integrating selected traditional games into local school curricula, such as both physical education and cultural studies, developing community-owned tourism enterprises where locals serve as game facilitators and cultural interpreters, and creating digital documentation through mobile applications to supplement direct experiences. At the policy level, recommendations involve the Ministry of Tourism and Creative Economy incorporating traditional game preservation into tourism village certification criteria, the



Kerinci Regency Government allocating annual budgets for traditional game festivals and community training, and the Education Office providing teacher training in traditional game facilitation and developing cultural education modules.

Future research should focus on examining the economic impact of traditional game tourism, measuring tourist satisfaction with experiential learning models, and exploring cross-cultural adaptations of the Kerinci model to other regions with rich traditional game heritage. Future studies are needed to investigate the long-term effects of tourism on cultural preservation and intergenerational knowledge transfer, ensuring the sustainable development of community-based cultural tourism initiatives.

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SMART TOURISM RESEARCH LANDSCAPE 2019-2024: BIBLIOMETRIC INSIGHTS ON TRENDS, COLLABORATION, AND SUSTAINABILITY

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| Article Info | Abstract |
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| <p>Keywords: Smart Tourism, Bibliometric Analysis, Research Trends, Sustainability, Collaboration Networks</p> <p>Received: April 14, 2025</p> <p>Approved: November 12, 2025</p> <p>Published: December 05, 2025</p> | <p>Smart tourism has become a central issue in the transformation of modern tourism, thus bibliometric mapping is necessary to understand the direction, trends, and contributions of research in this field. Using a bibliometric approach, this study aims to map smart tourism research trends for 2019-2024, thereby providing a more comprehensive understanding of the direction of development, academic contributions, and potential for further research in this field. This study used a quantitative approach by analyzing scientific publication data on smart tourism obtained from the Scopus database, and the results were visualized using VOSviewer. A total of 627 documents were analyzed, producing five major thematic clusters. The most frequent keywords identified include “smart tourism”, “IoT”, “big data”, “AI”, and “social media” indicating a strong emphasis on technology-oriented research themes. The results show several key findings. First, publications on smart tourism showed a consistent upward trajectory during 2019-2024. In the early years (2019-2020), growth was moderate, while the slight decline in 2021 could be attributed to the impact of the COVID-19 pandemic, which temporarily disrupted research productivity. Nevertheless, a sharp surge began in 2022 and peaked in 2024 with more than 130 publications. Second, the main countries contributing to smart tourism research are China, Spain, and South Korea. Third, the keyword network visualization reveals that global smart tourism research is dominated by technology-driven themes like IoT, data analytics, and AI. In contrast, areas such as tourist behavior and social media represent the human dimension, while the marginalization of heritage, rural, and sustainability tourism highlights underexplored opportunities for more inclusive and sustainable development. The novelty of this study lies in mapping smart rural tourism and smart heritage tourism as under-explored domains within digital tourism, which have received limited attention in prior bibliometric studies that predominantly focused on technology-driven or urban-centered themes of smart tourism. These findings expand the theoretical scope beyond urban-focused smart tourism and open new directions for future research and practice. This study suggests that policymakers should integrate smart technologies, foster international research collaboration, and position smart tourism as a strategic framework to achieve sustainable, inclusive, and innovation-driven tourism development.</p> |

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INTRODUCTION

In the last few years of globalization, international travel has changed significantly. The changes are primarily the results of improvements in various forms of information and communication technology (ICT). Smart tourism has emerged as a new paradigm that uses digital technology to enhance tourist experiences, improve destination management, and boost competitiveness (Ionescu & Sârbu, 2024; Pribadi et al., 2021). The concept of the Smart Tourism Destination (STD) is derived from the concept of Smart City, but its features are tailored to suit the needs of the tourism industry (Bachrian & Suryawan, 2021; Sarmita & Hu, 2024). With the growing importance of information and communication technology (ICT) driven tourism, it is crucial to undertake a thorough and systematic mapping of research development in smart tourism. This is important in order to appreciate its evolution and anticipate its future. The selection of the 2019-2024 period is based on the fact that the year 2019 marked a global turning point in tourism and digital transformation, especially with the acceleration of smart technologies following the COVID-19 pandemic. During this period, there was a significant surge in the use of digital tools, big data, and artificial intelligence in tourism, making it an appropriate time frame to analyze the evolution and future direction of smart tourism research.

Katsoni & Segarra-Oña (2019) describes that smart tourism is a description of the current stage of tourism development which is influenced by the evolution of information technology. In this context, the presence of technology not only acts as a tool, but can also be a major driving factor to change the way tourist destinations manage, promote, and even meet the needs and satisfaction of tourists. The transformation to smart tourism is driven by technologies such as the Internet of Things (IoT), big data analytics, and artificial intelligence (AI), which enable more personal and interactive tourist experiences and greater operational efficiency for tourism industry players. However, several key principles underpin smart tourism: first, continuously enhancing the destination's impression or image; second, providing a collaborative intellectual platform; third, effectively managing the collection, dissemination, and distribution of information and resources within tourist areas; and finally, fostering integration between different tourism stakeholders to ensure local communities benefit equitably from tourism activities (Si-Tou, 2024; Tukhliev & Muhamadiyev, 2019).

Smart tourism is a social phenomenon created from the combination of information technology and tourism experiences (Hunter et al., 2015). The smart tourism phenomenon is created from the integration of several main elements, including smart technology, tourism businesses, and digitally connected tourists. Smart technology is used to collect and analyze data in real-time to understand the needs and preferences of tourists. Tourism businesses can then utilize the data obtained to offer relevant services to tourists, such as recommendations on destinations that match individual interests. In addition, digitally connected tourists can take advantage of digital applications and platforms to obtain real-time information, interact, and share their travel experiences through social media. The presence of smart tourism thus becomes an effort to integrate the role of information technology and tourism in creating value for both industry and tourists.

Technological improvement has enhanced intelligence within the organization and the society. Smart Tourism Destinations (STD) was developed from the bulwark of smart cities, focusing the social and technological paradigm on greater efficiency and added



meaning for the tourists (Buhalis & Amaranggana, 2013). The integration of the core ICT innovations (the Internet of Things, big data, and cloud computing) has made smart tourism possible (Hidayah & Suherlan, 2020). Generally, smart tourism is the next step of the evolution of the world tourism, in which the destinations, the industries, and the tourists interact in the digital environment to harness enormous data for innovative strategies (Gretzel et al., 2015). These characteristics reinforce the value of bibliometric analysis toward understanding the knowledge framework and suggesting the directions of future studies in the domain of smart tourism.

Building on this understanding, researchers are interested in employing bibliometric analysis to map the evolving scholarly landscape of smart tourism research. Most previous studies on smart tourism were still conceptual or focused on specific case studies, while systematic global mapping of smart tourism development from 2019-2024 remained very limited. This condition creates a research gap that needs to be addressed. The bibliometric approach in this study is therefore used not only to map the development of smart tourism, but also to provide in-depth insights into its global trajectory, particularly in relation to sustainability and innovation. This research differs from earlier studies because previous bibliometric analyses often focused on narrower regional contexts or theoretical discussions, while this study aims to provide a comprehensive global overview of smart tourism development. By expanding the analytical scope and integrating recent data, this study fills a clear gap in understanding how smart tourism research has evolved and where it is heading. This research is expected to contribute to strengthening the discourse on adaptive and sustainable technology-based tourism.

Smart tourism now extends far beyond basic online booking, utilizing technologies such as big data and artificial intelligence to comprehensively enhance user experiences and optimize business operations (Long & Chen, 2024). Many organizations around the world (e.g., telecommunications companies, social media, and e-commerce companies) have acquired huge amounts of customer data that can be used for smart tourism. Online recommendations on e-commerce platforms are commonplace, and many smart destinations are implementing flow control with visitor movement data. Although the development of smart tourism is still in its early stages, advances in 5G communications, which enable fast data transmission and ubiquitous connectivity, could be a catalyst for such development (Ye et al., 2020).

Li et al. (2017) emphasizes smart tourism as a support system for individual tourists in the context of comprehensive information and technology services. The application of the concept of smart tourism based on technology is the best solution for all parties. In addition, the application of the concept of smart tourism can provide a better tourism experience and the welfare of the population, increase the effectiveness - competitiveness - business targets, and will then lead to the sustainability of overall competitiveness (Hanum et al., 2020). The tourism industry continues to evolve along with technological advancements. In the context of Tourism Industry 5.0, technologies such as Blockchain, Artificial Intelligence (AI), and the Internet of Things (IoT) are key pillars for creating smarter, safer, and more personalized travel experiences. Smart Tourism is a concept that leverages these technologies to improve service quality, operational efficiency, and customer satisfaction (Setiawan, 2024).

Smart tourism serves as a pillar in a smart city and plays as an important part of a smart economy. Smart tourism is the integration of ICT into a tourism platform that aims



to provide effective and efficient services and information for tourists (Jocom, 2022). The use of various information and communication technologies (ICT) in tourist destinations or smart tourist destinations has a very large influence on tourist or visitor satisfaction, and this will certainly affect the level of tourist visits to an area or a country. Recent studies, such as Hakim et al. (2023), have highlighted the growing dependence of tourists on digital technologies across all stages of the travel experience, from planning to post-visit evaluation. However, despite the proliferation of research discussing the technological transformation of tourism, there remains a lack of comprehensive bibliometric mapping that systematically analyzes how global smart tourism research has evolved in response to these digital shifts. Most existing studies are limited to conceptual frameworks or localized case studies, providing insufficient understanding of global research trends, thematic focuses, and collaboration patterns. Therefore, this study addresses the following research problem: How has global smart tourism research developed between 2019-2024 in terms of publication trends, thematic evolution, and collaboration networks based on bibliometric analysis?

METHODOLOGY

This study employed a quantitative data collection and analysis approach with the goal of providing results that addressed its purposes and measures (Creswell & Creswell, 2018). This research utilized secondary data published by Elsevier, obtained through the Scopus database, which contained peer-reviewed journal articles relevant to the topic of smart tourism. The Scopus database was the primary database used in this research. Scopus is seen as an adequate and acceptable database that is often referenced for good information based on its broad and reliable coverage of good quality journals (Mongeon & Paul-Hus, 2016). The search for records used the keyword "smart tourism" with the query TITLE-ABS-KEY ("smart tourism") and was limited to journal articles published between 2019-2024 to capture recent research topics and trends within the publications through the time frame of analysis (Donthu et al., 2021). The data were retrieved on January 1, 2025. To ensure rigor and reliability, duplicates and inappropriate records were removed in the data cleaning process. The research process was taken stage by stage as follows: (a) Selection of a data source (Scopus), (b) Determination of the scope of the analysis, and (c) Use of analysis tools. The visualization of the bibliometric network was conducted using VOS viewer.

FINDINGS AND DISCUSSION

Research on smart tourism from 2019 to 2024 has grown significantly, encompassing a wide variety of publications. Based on the search for articles available in the Scopus database and in-depth analysis, this study will describe various relevant aspects. This study focuses on the volume of collaborative publications between institutions on smart tourism, identification of core journals that are the centers of publication of works in this field, and research developments reviewed from the use of keywords and authorship networks formed during the period. This study also provides an overview of smart tourism research trends, including collaboration patterns between authors and institutions. Analysis of keywords used in publications offers insight into the thematic direction of research in this field, while authorship networks reveal the dynamics of contributions from authors and institutions to the development of science in the smart tourism sector. These findings are



expected to provide important contributions to understanding the development of literature and encourage further collaboration to enrich future studies. In addition, to provide a more critical interpretation, the discussion of these results is compared with that of prior bibliometric studies on tourism and technology domains, allowing identification of similarities and divergences in research patterns, thematic evolution, and methodological scope. This comparative reflection enhances the analytical depth and situates the present study within a broader bibliometric context.

Figure 1 summarizes the 627 relevant articles published between 2019 and 2024 that were retrieved from the search:

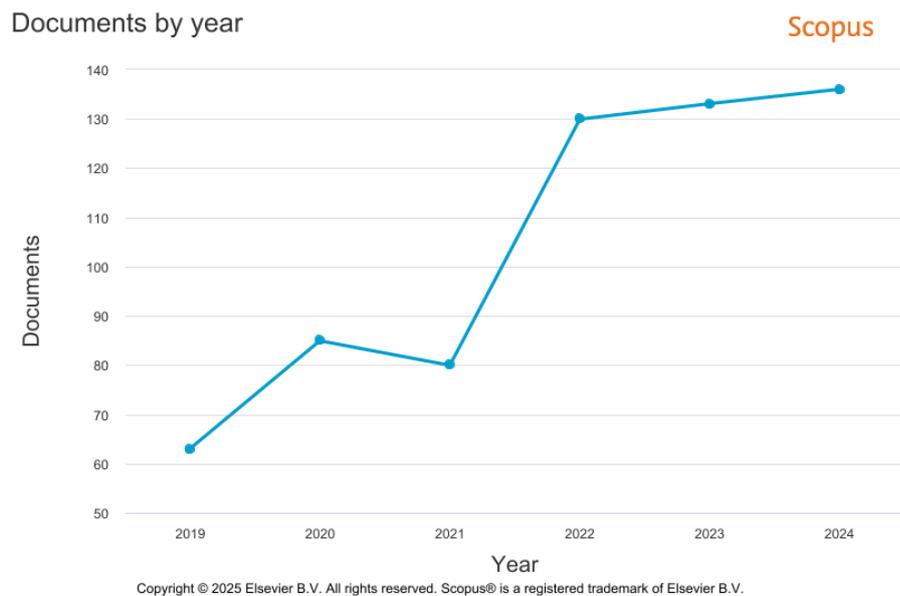


Figure 1. Documents by Year 2019-2024

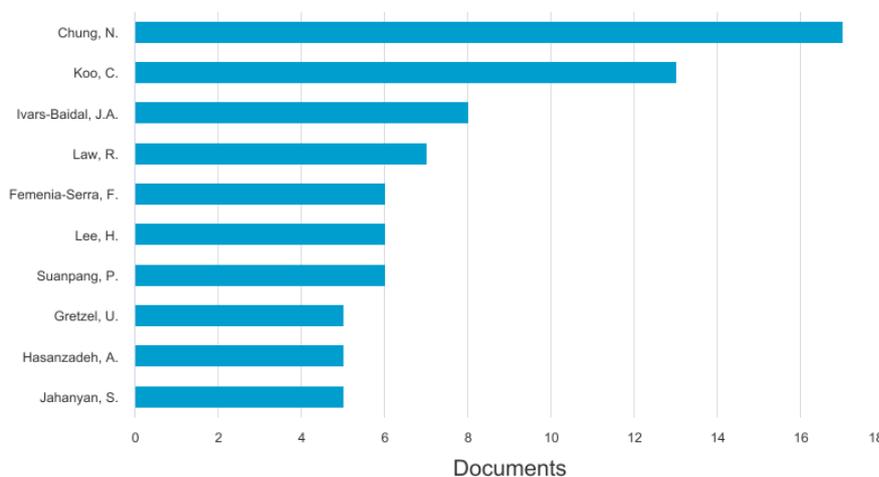
(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure illustrates a significant upward trajectory in publications on smart tourism during the period 2019-2024. While the early years (2019-2020) reflected moderate growth, a slight decline in 2021 can be interpreted as an impact of the COVID-19 pandemic that temporarily disrupted research productivity. However, the sharp surge beginning in 2022 and peaking in 2024 with over 130 publications underscores the accelerated adoption of digital technologies in the tourism sector, such as artificial intelligence, big data, and IoT, in response to post-pandemic recovery needs. This consistent growth reflects both rising scholarly interest and the consolidation of smart tourism as a mature research domain. More importantly, the trend highlights a paradigm shift: smart tourism has evolved beyond a conceptual discourse into a strategic framework for sustainable, innovative, and globally adaptive tourism development.

Documents by author

Scopus

Compare the document counts for up to 15 authors.



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Figure 2. Documents by Author 2019-2024
(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure highlights the distribution of leading authors in smart tourism research from 2019-2024, with Chung, N. and Koo, C. emerging as the most prolific contributors, producing 17 and 13 publications respectively. This dominance underscores the formation of knowledge hubs that drive the global advancement of smart tourism. However, the concentration of output among a few key authors also reflects an overreliance on specific figures, which may limit the diversification of perspectives and innovation if not complemented by broader academic participation. From a global perspective, this trend indicates that smart tourism research is still largely shaped by particular academic networks, often emphasizing digital technologies and technology-driven tourist behavior. At the same time, it highlights opportunities to expand cross-country and cross-disciplinary collaboration, especially by involving underrepresented researchers from developing countries. The novelty emerging from this critique lies in the call to diversify research agendas toward underexplored areas such as smart rural tourism and smart heritage tourism, thereby broadening the scope of smart tourism beyond technological innovation to encompass social, cultural, and sustainable dimensions.

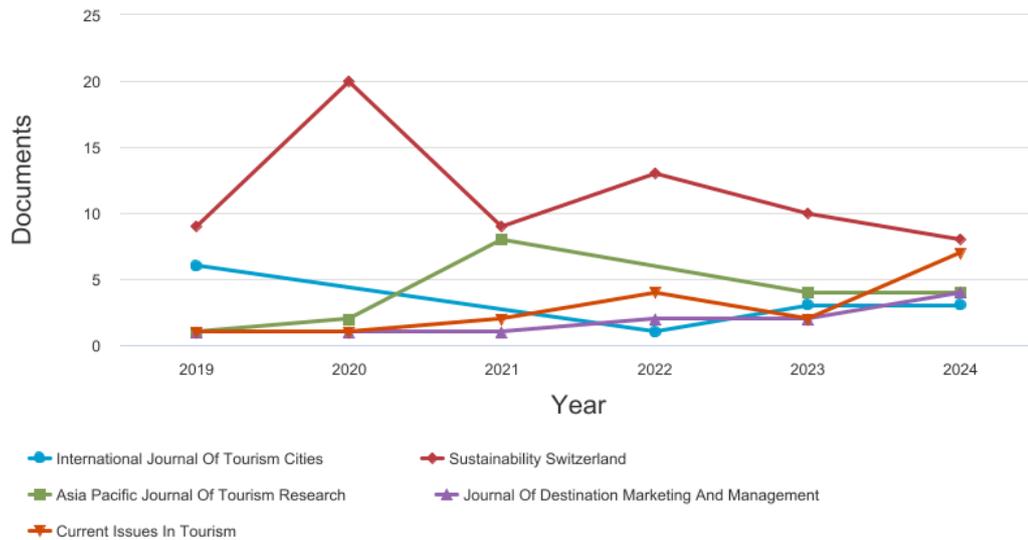
The figure indicates that global smart tourism research is still highly concentrated in Sustainability Switzerland, emphasizing the dominance of sustainability themes. With 69 publications, Sustainability Switzerland is recorded as the source with the highest number of publications. While this reflects the growing alignment between technology and sustainable tourism, the limited spread across other journals suggests the need to broaden research outlets and explore underrepresented areas such as smart rural tourism and smart heritage tourism to strengthen the global knowledge base.



Documents per year by source

Scopus

Compare the document counts for up to 10 sources. Compare sources and view CiteScore, SJR, and SNIP data



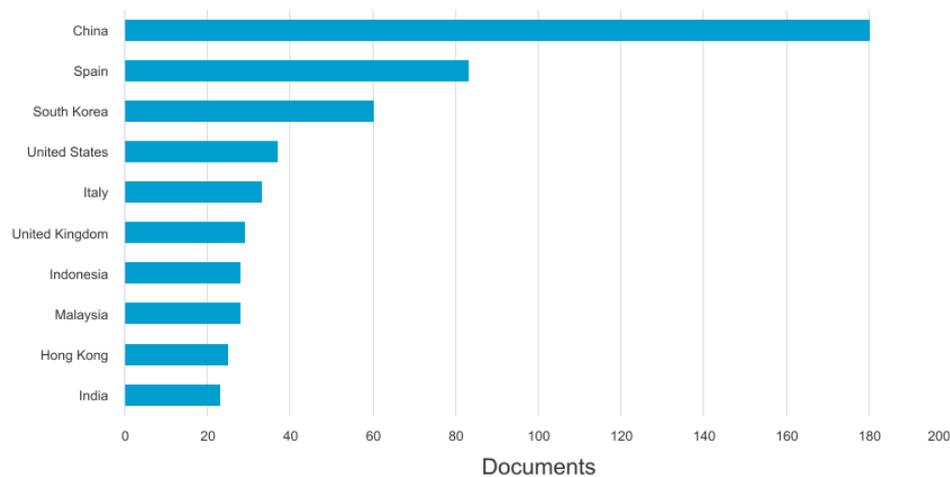
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Figure 3. Documents per year by source 2019-2024
(Source: Reproduced from Scopus database, Elsevier, 2025)

Documents by country or territory

Scopus

Compare the document counts for up to 15 countries/territories.



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Figure 4. Documents by Country or Territory 2019-2024
(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure reveals a strong concentration of smart tourism research across several countries, with China, Spain, and South Korea leading global publications. China ranked first with a total of 180 documents, solidifying its position as a major center for producing scholarly literature in this field. Spain ranked second with 83 documents, reflecting the country's significant role in tourism research and related studies. Meanwhile, South Korea ranked third with 60 documents. This dominance underscores their role as primary knowledge hubs while revealing significant research gaps in other regions. This points to

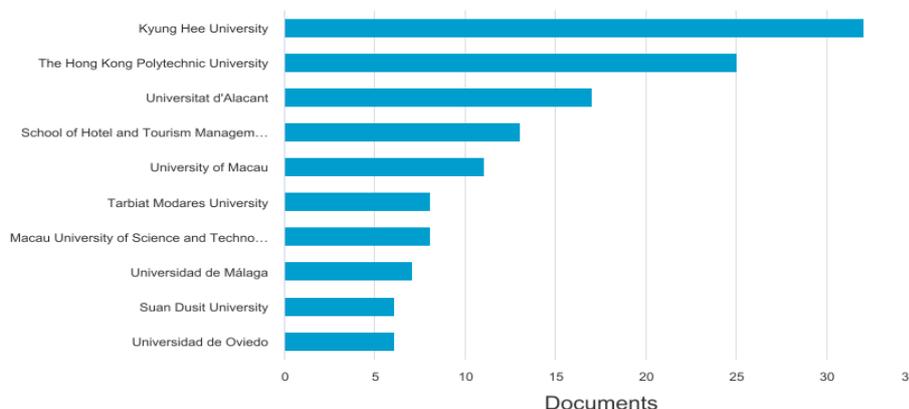


a clear need for more inclusive, context-specific studies in areas like smart rural and heritage tourism. This dominance also reaffirms that although the role of these countries is significant, expanding global participation remains crucial to enrich perspectives and broaden the scope of smart tourism research.

Documents by affiliation

Compare the document counts for up to 15 affiliations.

Scopus



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Figure 5. Documents by Affiliation 2019-2024

(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure shows that smart tourism research is highly concentrated in a few leading institutions, notably Kyung Hee University (32 documents) and The Hong Kong Polytechnic University (25 documents), positioning them as global knowledge hubs. While this concentration strengthens academic leadership in Asia and Europe, it also reveals a gap in contributions from institutions in developing regions, underscoring the need for broader collaboration to diversify perspectives and develop more context-specific smart tourism models.

Furthermore, the VOSviewer analysis of the keyword "smart tourism" produced the visualization shown in the following figure:

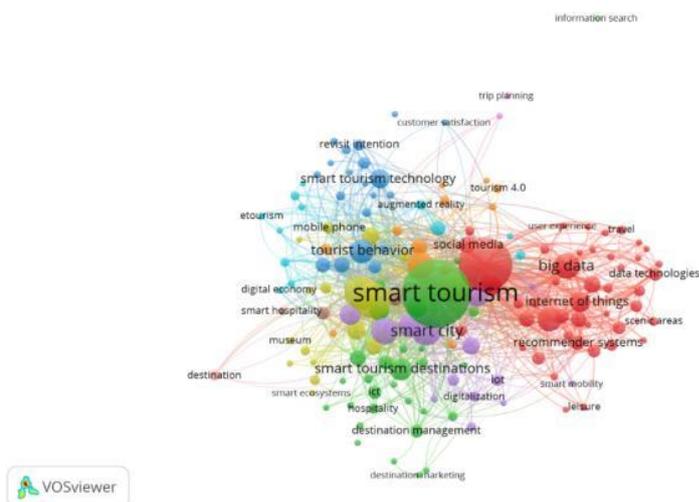


Figure 6. Network Visualization Co-Occurrence

(Source: Vosviewer, 2025)

The visualization illustrates that global smart tourism research is structured around several dense thematic clusters, with “smart tourism”, “smart city”, and “big data” as central nodes. This indicates a strong emphasis on technology-driven approaches, particularly IoT, data analytics, and AI, reflecting how digitalization has become the backbone of tourism innovation. At the same time, clusters such as “tourist behavior”, “social media”, and “revisit intention” highlight a growing interest in understanding the human dimension of smart tourism, namely how technology shapes experiences and decisions. However, the relative marginalization of smart-related themes such as “heritage tourism” and “rural tourism” indicates the existence of research opportunities that remain largely unexplored. This imbalance shows that while the field has advanced in technological sophistication, it still needs to strengthen its integration with socio-cultural and environmental perspectives to support inclusive and sustainable global smart tourism development.

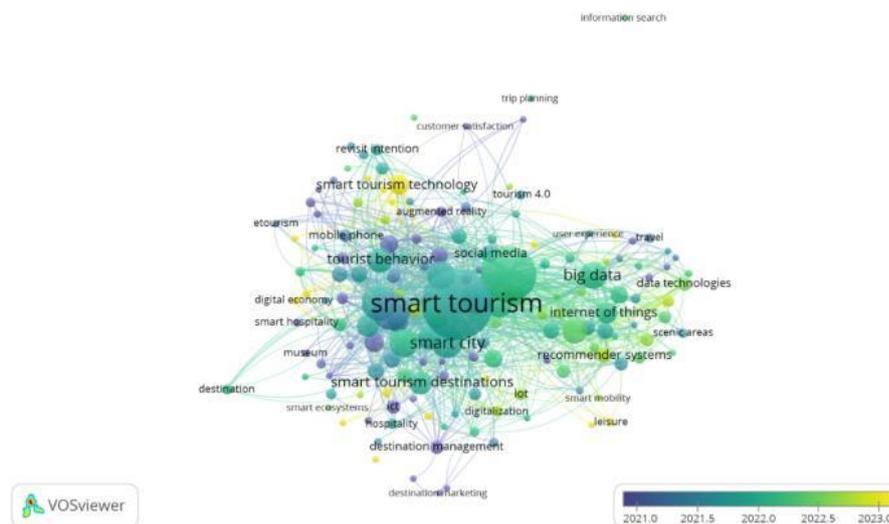


Figure 7. Overlay Visualization Co-Occurrence

(Source: Vosviewer, 2025)

The overlay visualization illustrates the temporal dynamics of smart tourism research between 2021 and 2023. The initial research (blue nodes) focused on fundamental aspects such as destination management, mobile phone, and tourist behavior. Over time there was a shift toward more advanced themes (green-yellow) such as big data, IoT, recommender systems, and augmented reality. This trend highlights the acceleration of digital technology adoption in supporting smart destinations and personalized tourist experiences. However, the most recent research (yellow nodes) remained concentrated on technical issues, while strategic themes like sustainability, heritage tourism, or rural tourism are still underexplored. This indicates a research opportunity to expand the focus beyond technology toward integration with social, cultural, and environmental dimensions. Thus, the global smart tourism trend is moving progressively toward digitalization, but requires balancing to ensure that technological innovation also strengthens tourism sustainability and inclusivity.

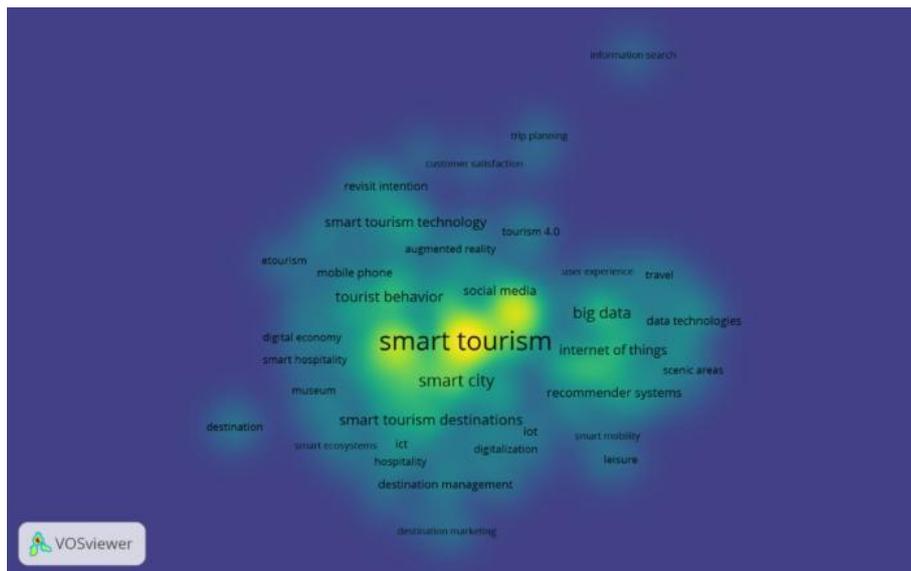


Figure 8. Density Visualization Co-Occurrence
(Source: Vosviewer, 2025)

The density visualization highlights the most intensively studied themes in global smart tourism research, with “smart tourism”, “smart city”, “tourist behavior”, “social media”, and “big data” appearing in the brightest yellow areas, signalling their dominance. This concentration reflects the strong global orientation toward technology adoption and behavioral studies, showing that the field is largely driven by digital innovations such as IoT, data analytics, and AI. However, the fading green-to-blue areas, such as heritage tourism, rural tourism, sustainability, or destination marketing, indicate limited attention, suggesting underexplored domains. The imbalance reveals that while the academic community has advanced technological sophistication and digital engagement strategies, it has yet to fully integrate broader socio-cultural and environmental dimensions. Strengthening research in these underrepresented areas could enhance the inclusivity and sustainability of global smart tourism development, ensuring that innovation is not only tech-centered but also context-sensitive and community-oriented.

The authorship network is visualized in the following figure:

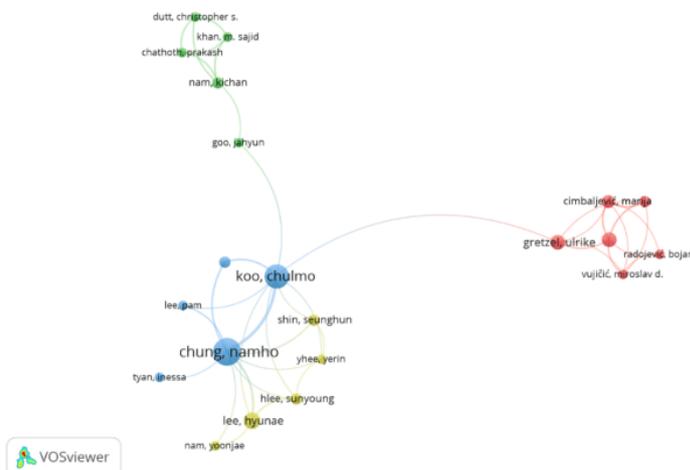


Figure 9. Network Visualization Co-Authorship
(Source: Vosviewer, 2025)

The visualization shows that global smart tourism research collaboration is still relatively fragmented, with clusters centered on key scholars such as Koo, Chulmo and Chung, Namho (blue cluster), and Gretzel, Ulrike (red cluster). While these figures serve as important knowledge hubs, the limited cross-linkages between clusters suggest that collaboration is concentrated regionally or within specific academic circles rather than globally integrated. This indicates that despite the rapid growth of smart tourism research, knowledge exchange remains uneven and overly dependent on a few influential scholars. The weak connectivity between Asian (Koo, Chung) and European-American (Gretzel) groups reflects a gap in cross-regional collaboration, which could hinder the development of more holistic and globally relevant smart tourism models. Strengthening international partnerships across these clusters would bridge geographical divides and integrate diverse perspectives, particularly from underrepresented regions like the Global South. This step is crucial for advancing inclusive, adaptive, and sustainable global smart tourism development.

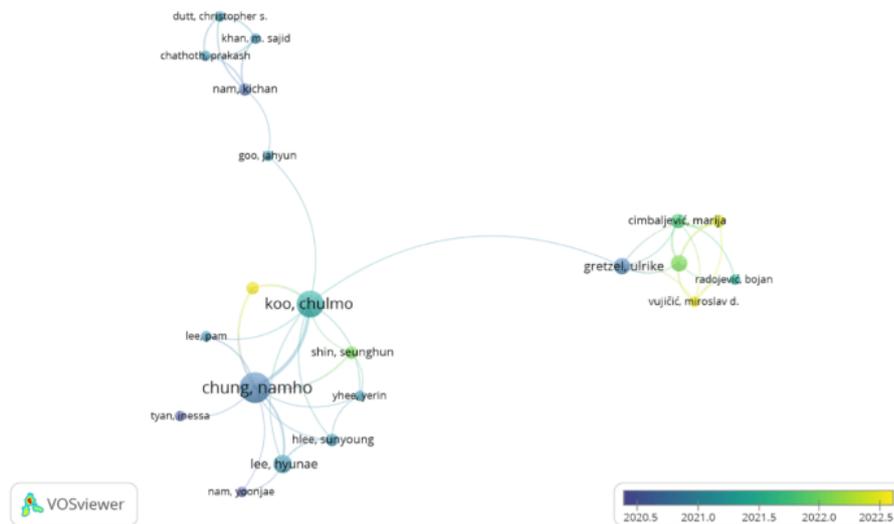


Figure 10. Overlay Visualization Co-Authorship
(Source: Vosviewer, 2025)

The figure illustrates that global smart tourism research is still highly dependent on a few key scholars, such as Koo, Chulmo, Chung, Namho, and Gretzel, Ulrike, who act as central hubs within their respective clusters. This pattern indicates the emergence of strong knowledge hubs but also reveals limited connectivity between clusters. In other words, collaboration networks remain regionally segmented and have yet to form a truly inclusive global network. Such a structure risks reinforcing the dominance of certain groups while limiting cross-cultural knowledge exchange. For the global development of smart tourism, this trend highlights the need to foster broader cross-regional and cross-disciplinary collaborations, ensuring that research incorporates the perspectives and needs of developing nations alongside those of developed countries to foster greater global equity. Strengthening such collaborations would enable smart tourism to evolve into a more comprehensive, adaptive, and globally relevant framework.

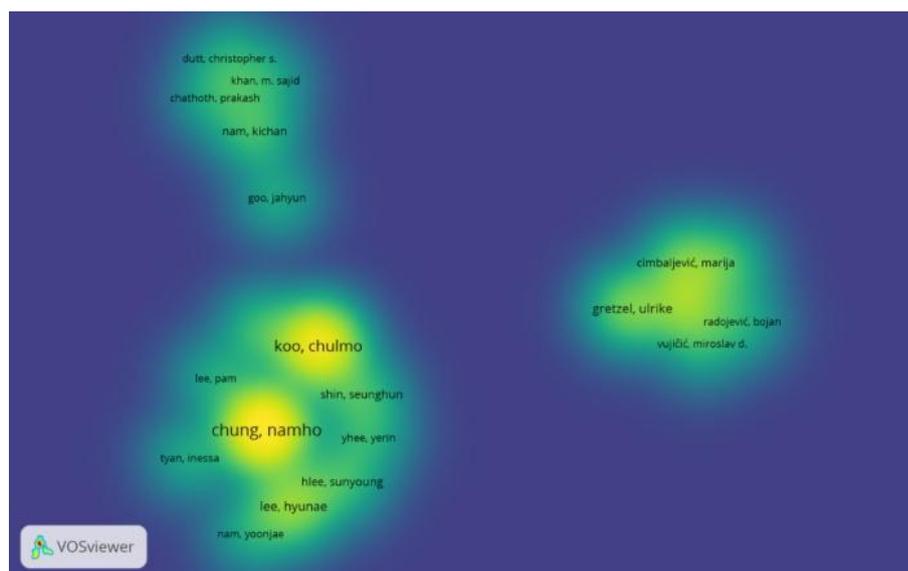


Figure 11. Density Visualization Co-Authorship
(Source: Vosviewer, 2025)

This figure illustrates the collaboration patterns among authors in smart tourism research, showing that the field is still dominated by a few key scholars such as Koo, Chulmo, Chung, Namho, and Gretzel, Ulrike. The visualization highlights the formation of strong knowledge hubs; however, the collaboration network remains fragmented, as connections between clusters are relatively limited. This pattern suggests that while certain groups have consolidated their influence, cross-cultural and cross-regional knowledge exchange is still constrained. For the global development of smart tourism, this trend underscores the importance of expanding interdisciplinary and international collaborations to foster more inclusive, adaptive, and globally relevant advancements in the field.

The visualization of collaboration density using VOSviewer indicates that global smart tourism research has developed strong knowledge hubs, particularly around key scholars such as Koo, Chulmo; Chung, Namho; and Gretzel, Ulrike. This demonstrates that the advancement of smart tourism is not fragmented but is instead concentrated within strategic academic collaboration networks. Such a trend reflects the growing importance of cross-country collaboration in accelerating the diffusion of tourism technology innovations. Thematically, two main orientations emerge: first, the development of digital technologies such as IoT, AI, and big data to optimize destinations; and second, the study of digital tourist behavior that increasingly relies on online platforms. This evidence confirms that smart tourism represents a dual transformation: not just a technological upgrade, but a fundamental shift in global tourist behavior and expectations.

The novelty of this study lies in its ability to identify thematic clusters while also highlighting research gaps. The identification of novelty clusters such as smart rural tourism and smart heritage tourism was derived from keyword co-occurrence analysis in VOSviewer, where these terms appeared as emergent nodes during the 2022-2024 period. Their temporal emergence and relative isolation from dominant clusters such as “smart city” or “big data” indicate that these themes represent new and evolving subfields rather than extensions of prior technological discussions. For instance, smart rural tourism and smart heritage tourism remain underexplored, despite their importance in promoting

community-based tourism and cultural preservation. Emphasizing these aspects expands the scope of smart tourism research from merely focusing on technology to also strengthening social and cultural values. Furthermore, the global mapping for 2019-2024 reveals that research is dominated by developed countries (China, Spain, South Korea), while developing countries including Indonesia still make limited contributions. This opens strategic opportunities for developing nations to fill research gaps by designing local data-driven smart tourism models that align with their unique socio-economic characteristics.

The implications for policy derived from this study carry direct practical significance. In practical terms, these findings carry direct implications. First, destination managers can leverage smart technologies to enhance tourist experiences while simultaneously building digital loyalty. Second, the results encourage the establishment of international research consortia to foster stronger cross-disciplinary collaboration, enabling responses to global challenges while reinforcing sustainability. Third, by linking technology and sustainability, this study highlights that smart tourism should be positioned as a strategic pathway for inclusive and adaptive tourism development, and oriented toward balancing innovation, economic growth, and both environmental and cultural preservation. Furthermore, this discussion integrates sustainability goals by linking the dominance of digital technologies in smart tourism with the objectives of SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), and SDG 12 (Responsible Consumption and Production). This integration emphasizes that the advancement of smart tourism necessitates a dual commitment—not solely to technological innovation, but equally to the furtherance of sustainable tourism development.

CONCLUSION

This study makes a significant contribution by systematically mapping the global development of smart tourism research during the period 2019-2024. The findings indicate that this field has experienced substantial growth, with a strong concentration on digital technology themes such as IoT, AI, big data, and technology-driven tourist behavior. However, there remains a notable imbalance in research coverage, where socio-cultural and sustainability-oriented topics such as smart rural tourism and smart heritage tourism are still underexplored. The identification of these gaps represents the novelty of this study, as it opens opportunities to expand research beyond technological innovation toward the integration of social, cultural, and environmental values.

From a practical perspective, these findings highlight the strategic necessity for destination managers to harness smart technologies as a holistic platform, one that transcends tourist experiences to foster digital loyalty, promote sustainable practices, preserve cultural heritage, and empower local communities. From an academic standpoint, the study emphasizes the importance of building stronger international collaborations, expanding the participation of researchers from developing countries, and developing more contextualized smart tourism models tailored to local socio-economic characteristics.

From a policy perspective, the findings of this bibliometric study can also serve as a strategic reference for policymakers and destination managers in formulating national tourism R&D agendas. By identifying dominant themes, emerging research gaps, and institutional collaboration patterns, decision-makers can allocate resources more effectively to stimulate innovation in underrepresented areas such as smart rural tourism,



digital sustainability initiatives, and heritage-based smart destinations. This actionable insight encourages the use of bibliometric evidence to guide evidence-based policymaking in tourism innovation and sustainability programs.

Accordingly, future research directions should focus on: (1) strengthening cross-country and cross-disciplinary collaborations to reduce knowledge fragmentation, (2) increasing the contributions of developing countries to enrich global perspectives, and (3) exploring smart rural tourism, and smart heritage tourism as integral elements of smart tourism transformation. By emphasizing these aspects, this study contributes to the academic discourse on smart tourism while offering actionable guidance for tourism policy and development. Based on the bibliometric findings, the evolution of smart tourism research highlights the need for policies that integrate digital innovation, sustainability, and community empowerment. Smart tourism should be positioned as a strategic framework within tourism policy to promote digital transformation, sustainability, and inclusivity across destinations while empowering local communities, ensuring equitable digital access, and preserving cultural and environmental values. Therefore, the study contributes to policy directions by identifying how smart tourism can guide governments and destination managers in designing adaptive, technology-driven, and socially responsible tourism strategies.

Overall, the study reinforces smart tourism as a transformative pathway for shaping future tourism policies that are more inclusive, adaptive, and sustainable. This study acknowledges certain limitations related to data coverage and analytical scope. The use of a single database and specific analytical tools may restrict the comprehensiveness of findings. Future research is encouraged to broaden data sources and apply comparative approaches to enhance methodological robustness and ensure a more comprehensive understanding of smart tourism research development.

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INTEGRATING ECOTOURISM AND RURAL DEVELOPMENT: A CASE STUDY OF GIRPASANG VILLAGE, CENTRAL JAVA, INDONESIA

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| Article Info | Abstract |
|--|---|
| <p>Keywords: Ecotourism, Rural Development, Sustainable Tourism, Village Tourism, Girpasang Village.</p> <p>Received: July 10, 2025</p> <p>Approved: November 12, 2025</p> <p>Published: December 05, 2025</p> | <p>Girpasang is an area that has been significantly impacted by the transformation of the Girpasang Bridge region into a tourist destination. This development has prompted a shift in the socio-cultural activities of the community, leading to changes in the natural environment, cultural practices, and economic activities in the area. The objective of this research is to create guidelines for a sustainable eco-tourism approach that draws upon rural elements. This goal was achieved through a qualitative approach employing analytical techniques grounded in sustainable tourism development, eco-tourism, village tourism, and functional structure. The fieldwork was carried out between February and March 2024 in Girpasang, where data were collected through systematic observations and a series of in-depth interviews with three key community leaders and policymakers who possess extensive knowledge and direct involvement in local tourism practices. The findings reveal the importance of strengthening six key sectors of rural tourism: institutions, human resources, tourism packaging, visitor management, marketing, and partnerships. These components are elaborated in a strategy aimed at enhancing the elements of rural tourism. The outcomes of this research can be used as a conceptual framework that sustainable village tourism needs to be linked to institutional, management, and networking functions, with an emphasis on a functional structure approach. In addition to empirically providing guidelines and a framework for the development of sustainable tourism villages.</p> |

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INTRODUCTION

Sustainable tourism has become a key framework in contemporary tourism development, emphasizing the balance between environmental conservation, social inclusion, and economic growth (UNWTO, 2013). This approach ensures that tourism development not only provides economic benefits but also safeguards natural resources and cultural heritage for future generations. Sustainable tourism practices encourage responsible behavior among tourists, local communities, and stakeholders to maintain the integrity of destinations. Furthermore, the sustainable tourism framework highlights the importance of local participation and empowerment. Community-based tourism and ecotourism are examples of approaches that align with sustainability principles by promoting local ownership, distribution of benefits, and respect for socio-cultural values (Lane & Kastenholz, 2015). Such approaches strengthen the resilience of rural destinations and support long-term development goals.

Sustainable tourism is defined as an integrated, sustainable, and responsible approach to planning, as outlined in the Regulation of the Minister of Tourism and Creative Economy/Head of the Tourism and Creative Economy Agency of the Republic of Indonesia Number 9 of 2021, which provides guidelines for sustainable tourism destinations. This development model is characterized by its compatibility with local culture, social acceptability, a focus on local communities, non-discrimination, and environmental friendliness. Rural tourism is viewed as a catalyst for revitalizing and stimulating economic growth in Indonesia during the pandemic. The pandemic has also spurred the development of local tourism and enhanced the quality of tourism services in rural areas (Polukhina et al., 2021). According to Kemenparekraf (2021), rural tourism serves as a tool for empowering local communities, enabling them to harness their local potential and reap direct benefits from this development.

Rural tourism refers to activities conducted in rural areas that provide experiences related to local traditions, way of life, and regional products (Ahmed & Jahan, 2013; Bhadauria & Rastogi, 2012; Kumar et al., 2025; Lane, 1994; Poerwoningsih et al., 2016; Sanagustin-Fons et al., 2018; Tou et al., 2022). This definition is further emphasized by Prakoso (2021), who describes a tourist village as a rural area rich in natural resources and local culture, managed by the community to maximize benefits for both the community and the environment. Supporting this view, He et al. (2021) note that rural tourism typically has a positive impact on the development of village communities, both economically and socio-culturally. Several key elements are essential for the development of rural tourism. These include the rural setting, which creates the overall atmosphere, as well as the natural and cultural resources that serve as attractions. Furthermore, it is crucial for the local community to effectively manage its area to ensure that the advantages of tourism are maximized for the benefit of both the community and the environment. This approach forms the foundation for sustainable growth as a tourist destination.

Tourism development today should be viewed from two key perspectives: that of the local community and of the tourists. This approach helps create harmony between the demand from tourists and the supply from local communities. Ecotourism is one concept that fosters this harmony. According to Prakoso & Irawati (2018) and Sugiarto (2021), ecotourism is a nature-based tourism model managed directly by local communities. This concept brings multiple benefits, including environmental protection, cultural preservation,



economic development, and enhanced community pride. It also provides tourists with valuable natural and cultural educational experiences, leading to a high-quality travel experience. Stone & Nyaupane (2016) and Wood (2002) further emphasize that ecotourism's focus on conservation can deepen tourists' understanding of environmental preservation and the richness of local cultures. Additionally, López-Sanz et al. (2021) note that nature, culture, and society are the primary motivations driving tourists to visit tourist villages. The close interaction between tourists, nature, and local culture, as emphasized in the concept of tourist villages, allows for meaningful engagement, fulfilling these motivations and ultimately enhancing travel satisfaction.

The development of tourist villages is also not free from adverse impacts. Zhang (2021) explains in his study that the development of tourism villages often stems from government initiatives aimed at improving the welfare of local communities. However, the wrong policies and practices can lead to uncontrolled and misguided communities, which can be socially, culturally, and economically detrimental to the village area. These losses can take the form of urbanization, resulting in a decline in the village economy, as well as population decline and environmental damage (Xi et al., 2015; Yotsumoto et al., 2016; Zaei & Zaei, 2013). In terms of management, there is the impact of the emergence of new buildings as attractions, amenities and facilities as development of tourist needs (Prakoso, 2021; Susanti et al., 2018), in addition to the dependence of local communities on third parties and the potential takeover of tourism activities by outsiders (Dangi & Jamal, 2016; Mtapuri & Giampiccoli, 2016; Nair & Hamzah, 2015). Even Kolopaking (2015) in his research explained the marginalization of the poor in the village due to the arrival of tourists. Furthermore, the most important thing to avoid is the erosion of the village's authentic value due to improper management (Chang, 2017; Crăciun et al., 2022; Linderová et al., 2021; Ruiz-Ballesteros & González-Portillo, 2024). This condition confirms that managing tourism organizations in a tourist village for maximizing the benefits of tourism activities and utilizing rural resources effectively.

This research examines the relationship between community members in a local organization and their role in managing a village that has been transformed into a rural tourism area, from the perspective of rural sociology. The tourism aspect will be analyzed through both functional and structural lenses, recognizing that society operates as an interrelated system where the various components impact one another. Therefore, changes in one element will affect other parts of the system (Raho, 2021). Durkheim argued that each element within the system has a specific function that contributes to overall balance (Anto, 2018). From this perspective, transforming the village into a tourist area must be accompanied by the adaptation of all village elements—not just one—to function effectively within the rural tourism system. To establish a well-functioning social order, Parsons identifies four essential requirements known as AGIL: adaptation, goal attainment, integration, and latency (Prasetya et al., 2021; Rahmawati & Jayadi, 2019; Ritzer & Stepnisky, 2019). The AGIL theory is applied to analyze the social changes driven by the development of rural areas into tourist destinations, serving as a functional approach to societal change. These adjustments should yield positive outcomes for the community, promoting gradual self-adjustment to achieve balance and sustainability in their lives.

Research on ecotourism development in villages has highlighted the importance of community participation. Susanto et al. (2019) discussed how to foster community involvement in tourism development, while Endiyanti & Sarwadi (2021) analyzed the



impact of this involvement on the various stages of tourism development in rural areas. Additionally, Astutiningsih & Hasan (2022) focused on the design of ecotourism concepts through the formulation of Indonesia's tourism policy strategy. Previous studies underscore the crucial role that local communities play in shaping policies and strategies for ecotourism development. Building on this foundation, the present research aims to explore ecotourism from a new perspective, suggesting that it should act as a guideline for enhancing tourism elements within a village. This includes considerations for the setting, resources, management, and benefits of ecotourism. The primary objective of this research is to develop guidelines for promoting ecotourism sustainability in Girpasang, with an emphasis on rural elements. It is hoped that tourism development in the village can progress without compromising local values and sustainability. In particular, this study employs a functional-structural approach by applying Parsons' AGIL theory (Adaptation, Goal attainment, Integration, and Latency) to analyze the social changes driven by the transformation of rural areas into tourist destinations. By framing ecotourism through the AGIL functions, this research demonstrates how communities gradually self-adjust to achieve balance and sustainability in their socio-cultural, environmental, and economic lives. This application not only addresses the research gap in positioning ecotourism as a guideline for rural tourism enhancement but also contributes a theoretical innovation by integrating AGIL as a functional model for sustainable rural tourism development.

METHODOLOGY

This research utilized a qualitative case study method, incorporating both primary and secondary data, as outlined by Yin (2014). The study was conducted in February and March 2022 in Girpasang and Bringin Hamlets, located in Tegalmulyo Village, Kemalang District, Klaten Regency, Central Java Province. The research questions and interview protocol were developed based on four key variables of sustainable rural tourism, namely environmental, socio-cultural, economic, and organizational aspects. Each variable was elaborated into empirical indicators that guided the formulation of structured and open-ended interview questions. Primary data were collected through direct and participant observation, in-depth interviews, and documentation, including photos and videos. Three participants were involved in the interviews, consisting of the Head of Bringin Hamlet, a local community leader, and a representative from the Klaten Regency Tourism Office. Participants were recruited purposively based on their knowledge, leadership roles, and direct involvement in rural tourism development and policy implementation. Secondary data were gathered from relevant documents, studies, and articles concerning the research site.

The data analysis method focused on sustainable tourism development, ecotourism, tourist villages, and functional structures. These elements serve as the foundation for addressing the problem of how to strengthen rural tourism based on the ecotourism approach. The theory will be synthesized to identify applicable variables in the field, which will help determine the desired indicators. This will be accomplished using the data collection techniques outlined in Table 1.

Table 1. Theories, Variables, Indicators, and Data Collection Techniques

| Sustainable Tourism Destinations | Theories | | | Variables of Rural Tourism Elements | Indicators | Data Collection |
|----------------------------------|-----------------|---|---|-------------------------------------|--|---|
| | Village Tourism | Eco-tourism | Functional Structural | | | |
| Environmentally sustainable | Setting | Nature based Conservation | | Environmental | - Natural potential and attraction - Conservation activity | - Observation - In-depth interview - Documentation |
| Culturally acceptable | Resources | Culture awareness | Adaptation | Socio-Cultural | - Cultural potential and attraction - Traditional custom | - Observation - In-depth interview - Documentation |
| Economically Viable | Benefit | Educational value Experience value Economic value | Goal Attainment Integration Latency | Economical | - Local benefit - Tourist benefit - Edu-attraction | - In-depth interview - Observation - Documents archive - Documentation |
| Organizationally resilience | Organization | Community engagement | | Organizational | - Village managerial - Local organization and communities - Policy | - In-depth interview - Documents archive |

Source: Analysis, 2024

The data will be identified based on the research variables and analyzed according to the guidelines and principles of ecotourism. The analysis will support the strengthening of elements and the structural functionalism approach in explaining how local actors or organizations interpret the village's status as a rural tourism destination. The analytical process was carried out through several stages: first, organizing and transcribing interview and observation data; second, conducting open and axial coding to categorize emerging themes; third, triangulating findings from interviews, observations, and secondary documents to ensure validity; and finally, synthesizing the results in relation to the principles of ecotourism and the structural functionalism approach (Strauss & Corbin, 1998). This step-by-step analysis enables a clearer explanation of how local actors and organizations interpret the village's status as a rural tourism destination and how the strengthening of rural tourism elements can be achieved.

FINDINGS AND DISCUSSION

The Phenomenon of Tourism Activity at Girpasang Bridge

Klaten Regency, located in Central Java Province, boasts remarkable natural resources and enjoys a strategic position between the major cities of Yogyakarta and Solo. This advantageous location has created excellent opportunities for tourism development. According to BPS Klaten, the region has 120 tourist attractions, primarily consisting of swimming pools and fishing sites, with 58 attractions in total. In 2020, these places attracted 1,399,167 domestic tourists and 22,199 foreign visitors (BPS Kabupaten Klaten, 2021). Girpasang Hamlet is a remote area that can be accessed via a steep path leading down a 150-meter-deep ravine, requiring visitors to navigate 1,001 steps to reach Bringin. The Girpasang Bridge was constructed to connect Girpasang with Bringin more efficiently, reducing the travel time from 30 minutes to just 3–5 minutes. In January 2022, the Chairman of the House of Representatives of the Republic of Indonesia inaugurated this suspension bridge, opening it to the public as a new tourist attraction. The opening of the bridge significantly boosted visitor numbers to the area, prompting the development of



tourism facilities such as cafes, food stalls, and other related businesses. Prior to the bridge's completion, Tegalmulyo Village received an average of only 300 tourists per day. However, following the bridge's inauguration, daily visits surged to approximately 5,000, with even higher numbers expected on weekends (TribunTravel.com, 2022). This bridge enhances access to Girpasang Hamlet, thus encouraging more tourist visits to the area. Supporting facilities available at the Girpasang Bridge tourist site are outlined in Table 2.

Table 2. Supporting Facilities of Girpasang Bridge

| Supporting Facilities | Quantity | Location | Function | Manager (Community or private) |
|----------------------------------|----------|-----------|--------------------------|-----------------------------------|
| Parking Lot | 2 | Bringin | Parking 4 or more wheels | Pokdarwis Bringin |
| Parking Lot | 2 | Bringin | Parking 2 wheels | Pokdarwis Bringin |
| Parking Lot | 3 | Bringin | Parking 2 wheels | Private |
| Cafe | 1 | Bringin | Food and Beverage | Private |
| Stall | 5 | Bringin | Food and Beverage | Private |
| Gondola | 1 | Bringin | Attraction | Pokdarwis Bringin |
| vegetable and fruit Stall | 9 | Bringin | Food and Beverage | Private |
| Stall | 4 | Bringin | Food and Beverage | Private |
| Cafe | 1 | Girpasang | Food and Beverage | Pokdarwis Girpasang |
| Photo Spot | 2 | Girpasang | Landmark and Photo | Pokdarwis Girpasang |
| Community Center/ <i>Pendapa</i> | 1 | Girpasang | Function Area | Pokdarwis Girpasang |
| Homestay | 2 | Girpasang | Accommodation | Private |

Source: Analysis, 2024

The development of Girpasang as a tourist destination must be carefully managed to preserve its natural environment and culture while benefiting the local community. According to interviews with the neighborhood leader (Ketua RT), approximately 300 to 400 tourists visit daily. This estimate is confirmed by direct observation in the field and documentation, which shows a high frequency of tourist arrivals, especially on weekends and holidays, reaching up to 5,000 tourists. These visits continue to increase, reaching 187,507 tourists in 2024 (Tyas & Deslia, 2025).

In response, local residents have begun to enhance tourism-related facilities, establishing food stalls, cafes, vegetable markets, and homestays. Currently, there are fifteen stalls and cafes in the hamlet, which has only twelve families and thirty-five residents. In 2024, Sari & Affianto (2024) estimated that these facilities generate an annual economic value of Rp2,352,570,404.52. While this growth in tourism activities can be beneficial, it also raises concerns about potential over-tourism, which could undermine the principles of sustainable tourism that should apply to such a destination.

The Analysis of Rural Tourism Elements

The Girpasang area is a popular tourist destination, primarily known for its impressive suspension bridge (see Figure 1). In addition to the bridge, visitors can enjoy a variety of complementary attractions, including stunning natural scenery, cafes, stalls, gondolas, photo spots, and shopping areas. This destination connects the two hamlets of Bringin and Girpasang and is situated at the foot of Mount Merapi.



Figure 1. The Girpasang Suspension Bridge
Source: Documentation, 2022



Bringin Hamlet is the area's entrance, featuring tourism support facilities such as gondolas, cafés, food stalls, and parking areas. Across the bridge is Girpasang Hamlet, which has a staging area, photo spots, cafés, food stalls, homestays and vegetable vendors. The condition of Girpasang is hilly and still retains its natural beauty, with several stalls selling to tourists (9 stalls). Some stalls utilize the front or terrace area of residential houses.



Figure 2. Gondola in Bringin and Photo Spots in Girpasang
Source: Documentation, 2022

Socio-Cultural Overview. Unlike Bringin, which has evolved into a tourist destination with its residents primarily reliant on tourism, Girpasang is a small hamlet consisting of 12 family heads and 35 residents. The village remains largely untouched by modernization, with the local economy still rooted in farming and gardening. This natural environment presents opportunities for cultivating crops that could be promoted as culinary or shopping attractions, including vegetables, coffee, flowers, and fruits. Additionally, there is potential for *Hadrah*—a form of Islamic art characterized by tambourine accompaniment while chanting verses in praise of the Prophet Muhammad (SAW)—as well as the development of local culinary specialties.

Economical Overview. The residents of Girpasang primarily engage in agriculture and produce trading. Currently, several stalls in Girpasang sell food and produce, including vegetables and fruit. Additionally, private homestays have been established to accommodate visitors. Girpasang Hamlet receives income from 5% of the gondola revenue managed by the tourism awareness group (Pokdarwis) of Bringin Hamlet. They also earn a small amount from tourists passing through the area. The Pokdarwis operates a café, which provides income for the hamlet and employment opportunities for the residents of Girpasang. Besides the café, other facilities in Girpasang Hamlet are managed privately.

Organizational. The tourism organization in Girpasang remains based on the local organizational system. *Rukun Tetangga* (RT) or Neighborhood Association is a local organization in Girpasang, with the Head of RT serving as its leader and also the coordinator of the Girpasang Hamlet Group's business unit in this area. This business unit is limited to managing one stall or café at the entrance to the village, as well as a homestay. Several stalls and cafés are still privately owned. They have not been integrated with the Hamlet business unit. An analysis of the tourism elements at the study sites is summarized in Table 3.

Table 3. Analysis of Conditions of Tourism Elements

| Elements | Condition | Analysis |
|---------------|--|--|
| Environmental | <p>a. The hamlet's setting area is about 1800 meters above sea level and at the foot of Mount Merapi, about 5 km from the top of the mountain.</p> <p>b. It has a beautiful and unique natural panorama.</p> <p>c. The area's condition is hilly and still retains a natural feel, with several stall buildings for selling to tourists (9 stalls); some stalls utilise the front or terrace area of residential houses.</p> | The hamlet's condition still preserves its original landscape, featuring natural contours such as a moor and garden. This condition must be upheld to cultivate a rural atmosphere, the most suitable setting for rural tourism development. |



| Elements | Condition | Analysis |
|----------------|---|---|
| Socio-Cultural | a. It has 12 families with 35 residents who work as farmers and traders | The social relations of still-related people provide advantages in communication, and on a small scale, will also provide advantages in coordination. There are potential plantations, local cuisine, and daily culture that align with rural tourism resources, allowing tourists to gain new experiences from the uniqueness and authenticity of the village. |
| | b. Has the potential for crops that can be developed as a culinary or shopping attraction (vegetables, coffee, flowers, fruits) | |
| | c. There is potential for <i>Hadrah</i> , but it has not yet been packaged as a tourist attraction | |
| | d. The condition of the village, which is still natural, is a special attraction | |
| Economical | a. There is a sharing of gondola revenue with Pokdarwis Bringin, but still at a small percentage (5%). | Regarding economic benefits, Girpasang still needs to improve and not rely solely on profit sharing and the café. The business unit of the group needs to develop additional services, as well as a homestay business that can be integrated directly with the business group, utilizing a profit-sharing system with the owner. |
| | b. Revenue sharing from managing one <i>warung</i> or café | |
| | c. Personal income from business units (stalls, vegetable and fruit trading) | |
| | d. Homestay (privately owned) is still not operational | |
| Organizational | a. The Head of the RT coordinates with a local manager. | There is already an embryo in tourism management, and this manager needs assistance from outside parties in managing the tourism village. One-door management is necessary for managing tourism businesses in Girpasang and should be formally legalized. |
| | b. The limited business unit still manages one <i>warung</i> or café at the entrance of the village. | |
| | c. Homestays and some stalls/café are still privately owned and have not been integrated into the village management system | |

Source: Analysis, 2024

Functional Structural Approach Analysis of Ecotourism Sustainability

Adaptation. In this process, the community must be able to meet the needs of the community itself, namely by changing the environment to meet their needs and survive the times. The adaptation process in Girpasang is necessary, and this is due to the sudden development of the area into a tourist attraction. An adaptation that occurs can be in the form of physical changes to the area (Setyaningsih, 2016; Xi et al., 2015; Zeisel, 1981), as well as its social, economic, and cultural activities (Ahimsa-Putra, 2013; Pamungkas & Mukhtiali, 2015). Physically, there are changes in the function of buildings and land use, such as the emergence of changes in house terraces into stalls or moorlands that become tourist facilities. On the other hand, non-physical adaptation to the organization and its human resources occurred when the community organization (RT level) developed into a tourism organization (The Pokdarwis of Girpasang Hamlet). Residents changed their livelihoods from farmers and traders to hospitality workers, starting from being actors in tourism organizations and businesses as stall keepers, cooking, and serving guests/tourists. (Adesetiani et al., 2021; Luo et al., 2025) explained that institutions are one of the keys to tourism development, so improving and strengthening the institutions of tourism organizations is essential in this adaptation process. While this approach highlights adaptive capacity, it may overlook uneven adaptation across community segments, such as differences in access to resources or the willingness to shift from traditional livelihoods.

Goal Attainment. A system can determine its goals and strive to achieve those goals that have been agreed upon. The residents of Girpasang have agreed to respond to the development of tourism activities at Girpasang Bridge by opening a joint business managed by the group. They believe that tourism activities can provide additional benefits to residents. What needs to be considered is how the group can capture as much benefit as possible while maintaining environmental, socio-cultural, and economic sustainability. On the tourist side, the authenticity of the village in terms of nature and local culture is an experience sought after (Ahmed & Jahan, 2013; Damanik, 2013). A purely goal-oriented analysis may underplay emergent or unintended consequences, such as cultural commodification or environmental strain, which may not align with initial objectives



Integration. The community must regulate the relationship between its components or elements to function optimally. In realizing sustainable tourism, this relationship arrangement can be referred to as tourism management carried out by local tourism organizations. This management must be carried out with full planning and have the ability to maintain, control, protect, and develop potential (Carr et al., 2016; Mathieson & Wall, 1982). Therefore, this management depends on the capacity of tourism organizations and human resources in Girpasang. The structural functional approach may obscure conflicts or power imbalances within the community, such as whose voices drive decision-making in Pokdarwis or who benefits most from tourism activities.

Latency. A system always maintains its form of social interaction and corrects behavior that is considered deviant so that it can be accommodated into a new consensus that will always adapt. Habraken (1983) refers to this as cultural transformation, which is a change in the understanding and consensus of the community that emerges from a continuous evaluation process. Park et al. (2024) call this empowerment, representing communities' sense of control and ability to adapt to a changing environment. In this change process, the Girpasang community must complement, maintain and improve individual motivation and cultural patterns that create and sustain motivation in tourism activities. The role of organizations and community leaders is important at this stage. This phase may insufficiently account for cultural loss or dilution, especially when traditional values are repackaged for tourists, potentially undermining meaningful cultural continuity.

Comparisons with similar case studies in Indonesia reveal similar patterns. For example, rural communities in Bali and Sade Village, Lombok have also adapted their livelihoods and institutions to tourism, facing similar tensions between preserving cultural authenticity and responding to economic opportunities. Furthermore, conditions in the region indicate that rural tourism requires a balance between ecological preservation, cultural sustainability, and community well-being (Cohen, 2018; Cole, 2007; Rosalina et al., 2023). This comparison reinforces that while structural-functional analysis is valuable in describing systemic adaptation, sustainable rural tourism requires the integration of multiple perspectives to capture the complexity of socio-cultural transformation fully. Additionally, in Kampung Naga, West Java, the community has adapted to tourism while maintaining cultural integrity (Setiawan et al., 2025). This condition demonstrates that enhanced institutional governance and inclusive community engagement, particularly ensuring fair participation across the community, are key to long-term sustainability.

An analysis of the functional structural approach to the sustainability of rural ecotourism at the study sites is shown in Table 4.

Table 4. Elaboration of Ecotourism-Based Strengthening Strategies

| Rural Tourism Elements | Eco-tourism | Functional Structural | Strategies | Sector |
|------------------------|--------------|-----------------------|---|----------------------------|
| Environmental | Nature based | Adaptation | Maintaining the original condition of nature with small-scale development and following the landscape | ▪ VM |
| | | Goal Attainment | Has guidelines on nature-based tourism by utilizing the potential of the area (agriculture, plantations, and regional conditions) | ▪ VM ▪ Packaging |
| | | Integration | Improve managerial skills and the quality of human resources as tourism business actors | ▪ Institutional ▪ HR |
| | Conservation | Latency | Positioning tourism as a secondary activity by utilizing primary activities as resources | ▪ VM ▪ Packaging |
| | | Adaptation | Develop conservation-based attractions, such as agricultural activities, tree planting, and outbound. | ▪ Packaging ▪ Marketing |



| Rural Tourism Elements | Eco-tourism | Functional Structural | Strategies | Sector | |
|------------------------|----------------------|-----------------------|---|--|--|
| Socio-Cultural | Culture awareness | Goal Attainment | Packaging the community's daily activities as attractions so that they have added value and remain in the corridor of nature protection | <ul style="list-style-type: none"> ▪ Packaging ▪ Marketing | |
| | | Integration | Conduct regular village clean-ups and natural regeneration activities | <ul style="list-style-type: none"> ▪ VM | |
| | | Latency | Implement quality tourism by focusing on spending and controlling the number of tourist visits | <ul style="list-style-type: none"> ▪ VM | |
| | | Adaptation | Identify and develop local cultural potential | <ul style="list-style-type: none"> ▪ Packaging ▪ Marketing ▪ VM | |
| | | Goal Attainment | Upholding traditions and customs as guidelines for tourism development | <ul style="list-style-type: none"> ▪ Packaging ▪ VM | |
| | | Integration | Prioritizing traditions and customs in tourism management. | <ul style="list-style-type: none"> ▪ Packaging ▪ Marketing ▪ Packaging ▪ Marketing | |
| | Educational value | | Latency | It is creating traditions and customs as tourist attractions while preserving their authenticity. This can be achieved through appropriate interpretation for both residents and tourists. | <ul style="list-style-type: none"> ▪ Marketing |
| | | | Adaptation | Developing educational value in each tourist attraction offered with the proper interpretation and packaging | <ul style="list-style-type: none"> ▪ Packaging ▪ Marketing |
| | | | Goal Attainment | Provide educational value to tourists through tourism activities and to local communities through their involvement. | <ul style="list-style-type: none"> ▪ Packaging ▪ Marketing ▪ HR ▪ HR |
| | | | Integration | Developing the ability to package tourist attractions | <ul style="list-style-type: none"> ▪ Packaging ▪ Institutional |
| | | | Latency | Strengthen the educational value of attractions and apply that value equally to local communities through gradual and regular evaluation and capacity building. | <ul style="list-style-type: none"> ▪ Packaging |
| | | | Adaptation | Highlighting the uniqueness and authenticity of Girpasang | <ul style="list-style-type: none"> ▪ Packaging |
| Economical | Experience value | Goal Attainment | Prioritizing the satisfaction of the travel experience as one of the targets | <ul style="list-style-type: none"> ▪ HR ▪ Marketing ▪ Partnership | |
| | | Integration | Involve external parties in the identification and packaging of attractions to enhance their competitiveness and selling power. | <ul style="list-style-type: none"> ▪ HR | |
| | | Latency | Improve and maintain product quality and service excellence | <ul style="list-style-type: none"> ▪ HR | |
| | Economic value | | Adaptation | Develop tourist attractions based on daily activities and local culture so that tourism can be an added value | <ul style="list-style-type: none"> ▪ Packaging ▪ Marketing |
| | | | Goal Attainment | Developing tourism as a medium to improve the welfare of local communities and preserve the natural and cultural environment. | <ul style="list-style-type: none"> ▪ Institutional |
| | | | Integration | Controlling tourism with the principle of sustainability | <ul style="list-style-type: none"> ▪ VM ▪ Institutional ▪ VM |
| Organizational | Community engagement | Latency | Revitalize the potential that began to stagnate and tends to be damaged | <ul style="list-style-type: none"> ▪ Institutional | |
| | | Adaptation | Establish business entities in the tourism sector to strengthen and enhance local communities by empowering them as owners, managers, and organizers. | <ul style="list-style-type: none"> ▪ Institutional | |
| | | Goal Attainment | Local communities as tourism owners, managers, and organizers | <ul style="list-style-type: none"> ▪ Institutional ▪ HR | |
| | | Integration | Collaborate with external parties (academics, industry, and government) for mentoring and capacity building | <ul style="list-style-type: none"> ▪ Partnership ▪ HR | |
| | | Latency | Conduct a regeneration of rural tourism management | <ul style="list-style-type: none"> ▪ Institutional ▪ HR | |
| | | Adaptation | | | |

Source: Analysis, 2024

From the results of the deepening of the elements and approaches described above, there are results of the strategies described in each element to strengthen the rural tourism elements to remain sustainable. From the strategies that have been produced in the analysis, six areas are the focus of strengthening (see Table 4), ie, (1). Institutional, which is a strategy for strengthening the capacity of local community organizations; (2) Human Resources (HR), which is a strategy for strengthening the capacity of local human resources; (3) Tourism Packaging, which is a strategy for developing tourist attractions; (4)



Visit Management (VM), which is a strategy to protect and control the carrying capacity of the area; (5) Marketing is a strategy to increase the marketing of tourism products offered to the targeted market segment; and (6) Partnership, is a strategy to increase stakeholder cooperation and collaboration in mentoring, training, and financing. This sector is in line with the Ministry of Tourism's guidelines for developing tourism villages, which focus on developing an ecosystem comprising attractions, amenities, accessibility, activities, and human resources (Wirdayanti et al., 2021). This study not only examines the components that have been developed within this ecosystem but also places greater emphasis on visitor management, packaging, institutional strengthening, and partnership formation as the primary drivers of sustainability in a rural context.

The Sustainable Ecotourism Strategy Framework based on rural elements is shown in Figure 3.

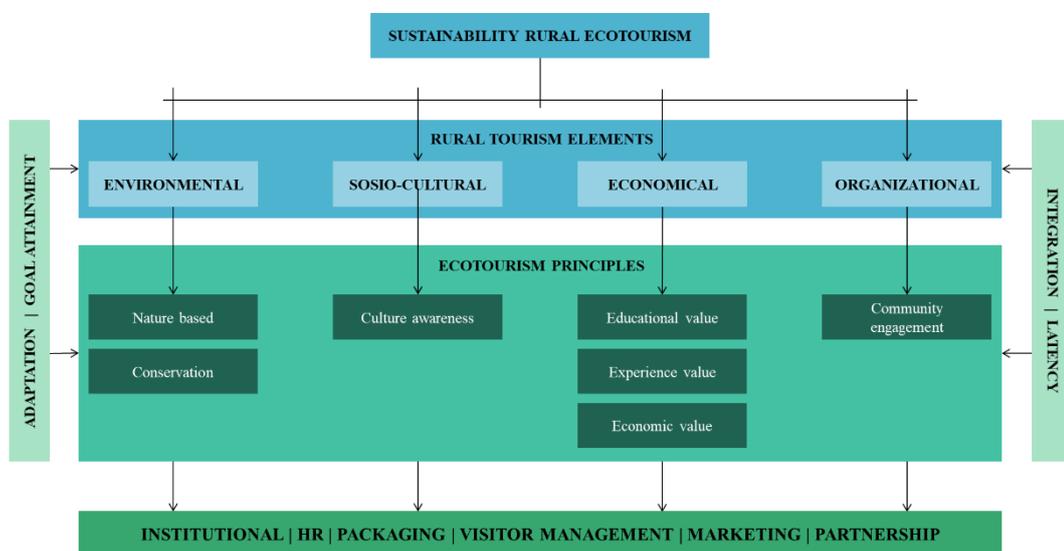


Figure 3. Strategy Framework for Sustainability Ecotourism- Based Rural Elements

Source: Analysis, 2024

To ensure effective implementation, stakeholder coordination mechanisms should include regular community forums facilitated by Pokdarwis, collaboration agreements with the government and private sectors, and monitoring groups involving local leaders, policymakers, and tourism practitioners. These mechanisms are expected to build trust and maintain accountability across stakeholders. In the development of tourism villages in Nglanggeran and Pentingsari, community forums and partnerships with universities and government agencies have played an important role in strengthening local capacity and ensuring sustainability, including structured collaboration between Pokdarwis, local households, and tourism operators (Hermawan, 2016; Purbasari & Asnawi, 2014; Rozzaq Rofiq & Prananta, 2021).

CONCLUSION

The development of tourism activities around the Girpasang Bridge has directly impacted Girpasang and Bringin Hamlets. As a rural area with the potential to be developed into a sustainable tourism village, it is essential to strengthen rural elements through six key strategies: institutions, human resources, tourism packaging, visit management,

marketing, and partnerships between local organizations and other stakeholders. Implementing these six strategies can be done in stages, with priority given to institutional strategies to strengthen the foundation of local organizations in Girpasang. To ensure effective implementation, stakeholder coordination mechanisms should include regular community forums facilitated by Pokdarwis.

In terms of timeline, the implementation phases can follow a stepwise progression: the short-term phase (1–2 years) should emphasize institutional strengthening and capacity building for human resources; the medium-term phase (3–5 years) can focus on tourism packaging, visit management, and initial marketing efforts; and the long-term phase (beyond 5 years) should expand partnerships and advanced marketing strategies while ensuring ongoing evaluation and adaptation. Practically, tourism managers can enhance tourism sustainability through small-scale, nature-based development combined with conservation and educational programs. Integrating local traditions and crafts into tourism helps maintain cultural authenticity while engaging visitors in meaningful experiences. Empowering local communities through training in product packaging, digital marketing, and service quality strengthens both economic and social impacts. Collaboration among local institutions, government, and private sectors, supported by digital promotion and thematic tour development, is essential for sustaining competitiveness and long-term growth.

This research aims to identify the elements of rural tourism and develop a macro strategy for ecotourism sustainability. To further refine the findings at the study site, future research can provide a detailed examination of the six strategies outlined. For instance, the institutional strategy can focus on the management organization and partnerships with other stakeholders. Additionally, marketing strategy research could explore promotional methods for developing Girpasang tourism, as well as segmentation studies and tourism products tailored for the area.

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INTEGRATIVE GOVERNANCE MODEL FOR SUSTAINABLE RURAL TOURISM PLANNING: THE CASE OF TANJUNG BOLENG VILLAGE, INDONESIA

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| Article Info | Abstract |
|--|---|
| <p>Keywords: Sustainable tourism, Resilience, Dynamic conservation, Tourism governance, Community-based tourism, Rural development, West Manggarai.</p> <p>Received: August 2, 2025</p> <p>Approved: November 14, 2025</p> <p>Published: December 05, 2025</p> | <p>This study develops an integrative planning and design model for tourism governance in Tanjung Boleng Village, West Manggarai, grounded in sustainability, resilience, and dynamic conservation. Existing governance frameworks rarely integrate these three dimensions simultaneously within the context of rural tourism, often resulting in fragmented management and limited adaptive capacity. The study formulates a governance framework that aligns ecological preservation, socio-cultural empowerment, and adaptive policy mechanisms. A qualitative methodology was employed, incorporating in-depth interviews, participatory observation, documentation review, and focus group discussions with multi-sectoral stakeholders—data were analyzed thematically to identify interrelationships among environmental, social, and institutional dimensions. The resulting empirically informed model integrates ecological, socio-cultural, and policy factors within a coherent structure, thereby advancing theoretical understanding of planning and designing sustainable tourism governance. Moreover, the model provides a practical, replicable framework for adaptive, community-based tourism development in rural destinations with similar characteristics.</p> |

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INTRODUCTION

Tourism has emerged as a vital sector for economic development in many developing countries, especially those endowed with rich natural and cultural assets. In Indonesia, rural tourism is increasingly recognized as a strategic vehicle for promoting local economic empowerment while preserving cultural identity and ecological integrity. This is particularly evident in regions like West Manggarai, Flores, East Nusa Tenggara, where biodiversity and traditional practices remain largely intact. Tanjung Boleng Village, situated roughly 30 kilometres from Labuan Bajo, exemplifies the potential of nature based and cultural tourism to drive sustainable rural development (Lane, Kastenholz, & Carneiro, 2022).

Tanjung Boleng's tourism offerings are diverse, spanning natural, cultural, and ecotourism attractions. Key sites include Rangko Cave—featuring unique saltwater pools and active speleological formations—and extensive mangrove forests, which provide kayaking trails of varying lengths. The concept of mountain-based tourism is a recent development, manifesting particularly through destinations such as Wae Bobok Ecotourism, offering panoramic views of the northern coastline. According to data from the West Manggarai Tourism Office (2025), Rangko Cave attracted 9,480 international and 6,082 domestic visitors by September 2025, reflecting the growing appeal of ecotourism and underscoring the village's potential as a sustainable tourism hub.

Despite these opportunities, Tanjung Boleng faces significant structural and institutional challenges constraining tourism development. Infrastructure remains underdeveloped, with limited accommodation options—only about five to ten homestays currently operate—and substandard road connectivity. Public facilities such as water supply, electricity, and banking services are poorly organised and insufficient to support growing visitor numbers. Although sea access offers an alternative entry point, the lack of docking infrastructure reduces its viability. Moreover, tourism management is fragmented, lacking stakeholder coordination, and local participation remains minimal despite the presence of community tourism groups. These systemic issues hinder the realisation of sustainable and inclusive tourism in the area (Shi, Zhang, Cui, & Zhang, 2022).

Addressing these multifaceted challenges necessitates an integrated, context sensitive planning and design model grounded in sustainability, resilience, and dynamic conservation. Global literature identifies recurring issues in rural tourism—including fragmented policy, weak participatory governance, cultural commodification, and ecosystem degradation. Traditional top down conservation strategies often marginalise local communities, eroding trust and social cohesion, while failing to acknowledge the efficacy of indigenous and community led conservation. The shift toward inclusive, community based governance models respecting land rights, indigenous knowledge, and local stewardship is therefore essential (Kürüm Varolgüneş, Çelik, Del Río Rama, & Álvarez García, 2022; Shi et al., 2022).

Although several regional policies exist to support tourism in West Manggarai (e.g., Regional Regulations No. 3/2014 to No. 6/2023, and Perbup No. 75/2024 to No. 15/2025), their implementation remains limited and lacks operational adaptation to local contexts. In particular, there is no comprehensive planning framework tailored to the coastal, rural and socio cultural setting of Tanjung Boleng. As global challenges—from climate change to pandemics—increasingly affect tourism, conventional growth driven

models prove inadequate. Emerging scholarship advocates for adaptive, integrative, and place based planning that embeds flexibility, equity, and conservation at its core (OECD, 2022). The concept of tourism resilience as a destination system is gaining traction, emphasising the need for structural adaptation rather than mere recovery (Lane et al., 2022). Despite these developments, tourism governance in Tanjung Boleng remains fragmented, revealing a critical gap between policy intent, spatial planning, and meaningful local participation.

This study therefore addresses the problem by proposing an interdisciplinary, participatory governance model integrating sustainability, resilience, and dynamic conservation into tourism planning. Sustainability ensures alignment with ecological limits and social carrying capacities; resilience promotes adaptive systems capable of withstanding external shocks; and dynamic conservation reconceptualises protection as a participatory and evolving process (Peng, J., et.al., 2025). The study employs a suite of methodological tools—including Participatory Rural Appraisal (PRA), GIS based spatial planning, scenario modelling, and the Sustainable Livelihood Framework—to enable evidence based, inclusive, and spatially grounded decision making. By linking local socio ecological realities to the theoretical nexus of sustainability, resilience, and conservation, the research situates Tanjung Boleng’s tourism development within a dynamic systems perspective that values adaptation, equity, and ecological integrity.

This model provides a replicable and transformative framework for sustainable tourism governance in rural and ecologically sensitive regions. The model strengthens local ownership and adaptive capacity by means of a systematic mapping process of ecological and cultural assets. This is then followed by an assessment of community capacity and the co-development of spatial scenarios with local stakeholders, including youth, indigenous groups and tourism actors. Beyond Tanjung Boleng, the framework has been designed to facilitate scalability across similar contexts in Indonesia and Southeast Asia. The research contributes to bridging critical gaps in tourism policy and practice by demonstrating how participatory, integrated, and data driven planning can foster inclusive, resilient, and ecologically sound rural development (Shi et al., 2022; OECD, 2022).

LITERATURE REVIEW

Sustainability

Sustainability has become central to global development, emphasizing meeting present needs without compromising future generations (United Nations, 2021). In tourism, it requires balancing economic growth, environmental conservation, and socio-cultural enrichment (OECD, 2022), in response to the adverse impacts of mass tourism such as ecosystem degradation, cultural erosion, and community marginalization (Shi, Zhang, Cui, & Zhang, 2022). Theoretically, sustainable tourism aligns with the Resource-Based View, where a destination’s competitive advantage derives from managing unique cultural, ecological, and social assets (Lane, Kastenholz, & Carneiro, 2022). Yet, despite policy support, sustainability often remains aspirational, with limited integration of community participation and indigenous knowledge (Kürüm Varolgüneş, Çelik, Del Río Rama, & Álvarez García, 2022; Peng et al., 2025).

Recent studies highlight the need for localized, participatory approaches: COVID-19 recovery efforts exposed constraints in local capacity and institutional support (Ekka & Annamalai, 2022), while Southeast Asian research shows engagement depends on



perceived socio-economic benefits (Vu Thi Hong Phuong, Nguyen, & Tran, 2025). In Indonesia, collaborative governance and valorization of local products are key drivers of sustainability (Simorangkir, 2024). Despite policy rhetoric, global tourism strategies often lack actionable, context-specific mechanisms, underscoring the imperative to operationalize sustainability as a place-based, participatory, and interdisciplinary practice (Roberts et al., 2022; OECD, 2022; Shi et al., 2022).

Resilience in Rural Tourism

Resilience, rooted in ecology and psychology, has become central to sustainable development and spatial planning, denoting a system's capacity to absorb shocks, adapt, and maintain essential functions (Folke et al., 2021). In rural tourism destinations like Tanjung Boleng, resilience addresses vulnerabilities from natural disasters, climate variability, and market fluctuations (Shi, Zhang, Cui, & Zhang, 2022). Adaptive capacity—the community's ability to learn, innovate, and respond—is critical for sustainable enterprise, cross-sector collaboration, and supportive governance (Biggs et al., 2021; Lane, Kastenholz, & Carneiro, 2022).

Effective resilience extends beyond infrastructure, encompassing social cohesion, participatory governance, and economic diversification (OECD, 2022; Roberts et al., 2022). Empirical evidence highlights that resilient rural destinations combine diverse attractions, integrated digital systems, and strong community networks, leveraging strategies such as localized information systems, digital marketing, and diversified livelihoods in agriculture, fisheries, and small enterprises (Gössling et al., 2021; Simorangkir, 2024).

Spatial planning reinforces resilience through flexible land-use, risk-sensitive tourism zoning, and adaptive evacuation and resource management aligned with local capacities (IPCC, 2022; Folke et al., 2021). Yet, integration of resilience into rural tourism remains fragmented, constrained by limited digital and financial literacy, economic dependence, and weak institutional frameworks in Eastern Indonesia (Vu Thi Hong Phuong, Nguyen, & Tran, 2025).

Consequently, resilience must be reframed as a proactive, participatory strategy fostering sustainable tourism via local empowerment, institutional innovation, and multi-stakeholder governance (Lane et al., 2022; OECD, 2022). Operationalizing resilience requires continuous monitoring, adaptive learning, and co-creation of strategies that align socio-ecological realities with long-term sustainability objectives.

Dynamic Conservation

Dynamic conservation offers an adaptive, context-sensitive alternative to static preservation, emphasizing heritage as an evolving socio-cultural process rather than a fixed artifact (Gibson et al., 2021; Sterling et al., 2020). It integrates adaptation, revitalization, and re-actualization to maintain cultural and ecological relevance amidst social, economic, and environmental change (Fatorić & Seekamp, 2020; Salazar, 2022). In practice, this approach engages local stakeholders in heritage management, fostering empowerment, cultural continuity, and sustainable use while avoiding the “museumization” risks associated with static models (Gibson et al., 2021; Salazar, 2022).

In rural tourism contexts like Tanjung Boleng, dynamic conservation enables holistic preservation of cultural landscapes, coastal ecosystems, and traditional livelihoods.

Initiatives include community-managed ecotourism, sacred site revitalization, and sustainable maintenance of natural attractions such as Rangko Cave and Nanga Lumut Mangrove, emphasizing minimalist, educational, and participatory interventions. Governance strategies align with participatory planning, adaptive land use, and the integration of indigenous knowledge, ensuring that preservation reinforces local agency while supporting resilient, inclusive, and culturally authentic tourism systems (Sterling et al., 2020; Fatorić & Seekamp, 2020; Gibson et al., 2021).

Locality-Based Development Planning and Design

Locality-based planning emphasizes space as both physical and socially constructed, integrating cultural practices, community interactions, and place-based knowledge to guide sustainable rural tourism (Lefebvre, 1991; Fatorić & Seekamp, 2020). In Tanjung Boleng, this approach entails the integration of local values, social structures, and spatial characteristics into participatory planning, fostering spatial justice, resilient placemaking, and culturally rooted development (Ahern, 2020; Postma et al., 2025). The process unfolds in three interlinked stages:

- Formulation – participatory visioning, cultural and spatial mapping, and scenario planning engage stakeholders to identify key assets, define goals, and assign spatial functions. Tools such as GIS, environmental carrying capacity assessments, PRA, and scenario methods support locally grounded, data-informed decisions (Chambers, 2021; Postma et al., 2025).
- Implementation – tangible outcomes are achieved through culturally embedded design, preservation of vernacular architecture and landscapes, universal design for inclusivity, and institutional capacity building via tourism cadres and Destination Management Units (Beatley, 2020; Moscardo, 2021).
- Evaluation – adaptive monitoring uses KPIs and participatory feedback to assess socio-cultural, ecological, and economic impacts, ensuring responsive governance, equitable benefit distribution, and avoidance of superficial participation (Cooke & Kothari, 2020; Fatorić & Seekamp, 2020; Soja, 2020).

This model links local knowledge, participatory governance, and adaptive design to produce tourism systems that are ecologically sustainable, socially inclusive, and culturally vibrant, reinforcing both community empowerment and destination resilience.

Table 1. Planning Stages in Locality-Based Tourism Development

| Stage | Key Activities | Tools | Outcomes |
|----------------|--|---|--|
| Formulation | Visioning, cultural/spatial mapping, scenario planning | GIS, PRA, environmental assessments, SWOT, scenario methods | Locally grounded, culturally contextualized planning |
| Implementation | Infrastructure, capacity building, design integration | Universal design, placemaking, DMUs, traditional architecture | Culturally resonant products; empowered institutions |
| Evaluation | Monitoring, feedback, adaptive refinement | KPIs, participatory evaluation, policy review loops | Spatial justice; resilient, adaptive tourism systems |

Source: Author Analysis, 2025

Destination Governance Model

Destination governance integrates planning, coordination, and regulation of actors, resources, and infrastructure to deliver quality visitor experiences while ensuring social,



economic, and ecological sustainability (Morrison, 2023; Ritchie & Crouch, 2003). In contradistinction to the broad discipline of tourism management, the field of governance focuses on destination-specific elements—attractions, accessibility, infrastructure, stakeholder networks, and place identity—within a collaborative framework (Buhalis, 2021).

Effective governance harmonizes stakeholder interests, builds institutional and community capacity, and adapts to market and environmental shocks (Dredge & Jamal, 2021; Hassan & Thomas, 2020). Network-based, multi-level models emphasizing co-creation, digital innovation, and shared accountability enhance adaptive capacity. It is evident that tools such as GIS, real-time visitor monitoring, and digital engagement platforms enable evidence-based, responsive decision-making (Li et al., 2023; Gössling & Hall, 2021).

In rural destinations like Tanjung Boleng, community-based governance is vital for culturally sensitive, inclusive, and ecologically grounded tourism. Empowered local actors foster ownership, social resilience, and spatial justice, while institutional mechanisms such as Destination Management Organizations coordinate visitor flows, environmental protection, human resource development, and local product integration (UN Tourism, 2021; Postma et al., 2025).

Robust information systems, incorporating spatial data, impact assessments, and scenario-based planning, enhance resilience to climate, economic, and technological challenges. Destination governance thus extends beyond coordination, creating a dynamic, adaptive, and collaborative socio-political environment critical for the long-term sustainability and viability of tourism destinations (Hassan & Thomas, 2020; Mariani et al., 2021).

METHODOLOGY

The present study employs an exploratory qualitative approach with an intrinsic case study design (Yin, 2022) to examine tourism planning, management, and development in Tanjung Boleng Village, West Manggarai. Framed through sustainability, resilience, and dynamic conservation lenses, the research explores socio-ecological complexities, governance arrangements, community perceptions, and spatial practices (Simorangkir, 2024; Gössling & Hall, 2021). The case study approach facilitates the acquisition of contextualized, holistic insights, emphasizing adaptive, place-based planning grounded in local knowledge, stakeholder experiences, and culturally embedded practices (Creswell & Creswell, 2021; Postma et al., 2025).

Data were triangulated through semi-structured interviews, participatory observation, and document analysis. Twenty-one key informants—including village leaders, customary authorities, homestay operators, women's organizations, and NGOs—provided insights into sustainability understanding, spatial planning, community participation, and adaptive strategies. Observations focused on ecological and tourism zones (Rangko Cave, mangroves, Solohana Hill), land-use dynamics, and community-tourist interactions. Policy and planning documents analyzed included the Tanjung Boleng Tourism Master Plan (2025), West Manggarai RTRW (2021), NTT RPJMD (2019), RIPARNAS (2011–2025), and relevant spatial and socio-economic datasets, facilitating assessment of alignment between macro-level plans and local practices.

Data analysis followed an iterative thematic coding and reflexive process (Braun & Clarke, 2021; Yin, 2022), enabling identification of patterns, divergences, and context-



sensitive insights. Themes focused on the integration of ecological sustainability, social resilience, dynamic conservation, and participatory spatial mapping within local governance and tourism development. This approach ensured findings were grounded in empirical realities while generating actionable frameworks for community-centered, adaptive, and sustainable rural tourism.

The analytic process unfolds across several interconnected phases. The planning phase involves conducting a literature review, identifying relevant policies, developing the interview protocol, and mapping the study sites. In the field data collection phase, researchers carry out semi-structured interviews, engage in participatory observation, document sites visually, and gather key planning documents. The subsequent phase is that of analysis and synthesis, comprising data coding, theme development, triangulation of findings, validation of interpretations, and the creation of conceptual models.

The findings of the study provide a foundation for the development of a contextual tourism planning model integrating flexible ecological zoning, community-based resilience strategies, dynamic conservation via living landscapes, and participatory spatial mapping of tourism potentials and infrastructure interventions.

RESULTS AND DISCUSSION

Tourism Governance in Tanjung Boleng

The case of Tanjung Boleng exemplifies a substantial disparity between its considerable tourism potential and the capacity of prevailing governance structures to manage that potential sustainably. Although the village is endowed with notable natural and cultural attractions—such as Rangko Cave, the Nanga Lumut mangrove forest, and the distinctive Lodok agricultural landscape—tourism development remains constrained by inadequate infrastructure, limited public facilities, insufficient risk mitigation, and spatial planning that does not anticipate cumulative tourism pressures. In the absence of an integrated governance and management framework, development has proceeded in a fragmented and reactive manner.

In response to these institutional gaps, local communities have initiated informal adaptive strategies, including family-based homestays and voluntary guiding services. These bottom-up initiatives reflect strong community agency and resilience, yet they remain uncoordinated and insufficiently linked to formal planning and regulatory mechanisms. This situation mirrors broader debates in tourism governance, where participatory and adaptive approaches are widely promoted (Becken & Kaur, 2021; Dangi & Gribb, 2021), but scholars increasingly note that participation alone does not guarantee equitable or sustainable outcomes, particularly when power dynamics and structural inequalities remain unaddressed (Bramwell & Lane, 2020; Scheyvens & Biddulph, 2018).

Tanjung Boleng therefore underscores the need for governance arrangements that effectively bridge community-driven initiatives with coherent institutional frameworks. As Higgins-Desbiolles (2022) argues, sustainable tourism governance must extend beyond managerial efficiency to address issues of power, justice, and accountability. At the same time, community innovations—especially in rural and peripheral contexts—can strengthen resilience when connected to supportive governmental and market networks (Hall, Prayag, & Amore, 2023). Achieving sustainable tourism in Tanjung Boleng thus requires the co-evolution of governance capacity, planning systems, and local agency to ensure that



tourism growth aligns with socio-ecological thresholds and delivers fair and long-term benefits

Locality as a Foundational Basis for Destination Planning and Design

The present study demonstrates that locality in Tanjung Boleng transcends its geographic boundaries, representing instead a symbolic and cultural construction that fundamentally shapes the village's tourism identity. Contemporary spatial theory emphasizes that space is not a neutral container but a socially produced and culturally mediated phenomenon, continuously shaped through local practices, narratives, and meanings (Lefebvre, 1991; Merriman, 2022). Accordingly, the spatial environment of Tanjung Boleng is deeply embedded in cosmological values, spiritual practices, and social systems that cannot be separated from its physical landscape. Recent scholarship further highlights that localities in the Global South embody “pluriversal” spatialities—spaces defined by indigenous worldviews and relational ontologies that challenge homogenizing development paradigms (Escobar, 2020; Porto-Gonçalves & Leff, 2022). Therefore, the landscape of Tanjung Boleng should be understood not merely as a site for tourism development but as a living socio-ecological space co-constituted through ongoing interactions between people, culture, and environment.

Key tourism landscapes such as Rangko Cave and the Lodok rice fields function dually as tourist attractions and as repositories of local culture and spirituality. For instance, the Marine Tourism Design of Rangko Hamlet (Figure 1) exemplifies the traditional fisher's house, reflecting the coastal community's worldview and intimate relationship with Tanjung Boleng Beach. Beyond its architectural form, this design embodies sustainability principles through the incorporation of locally sourced materials, passive cooling systems, and spatial arrangements that minimize ecological disturbance. It also demonstrates resilience by integrating adaptive construction techniques suited to coastal conditions and by reinforcing cultural continuity as a form of social resilience. Thus, the design functions not only as a visual representation of local identity but also as an applied expression of sustainable and resilient living within a changing coastal environment.

Figure 1. Rangko Hamlet Marine Tourism Design Concept

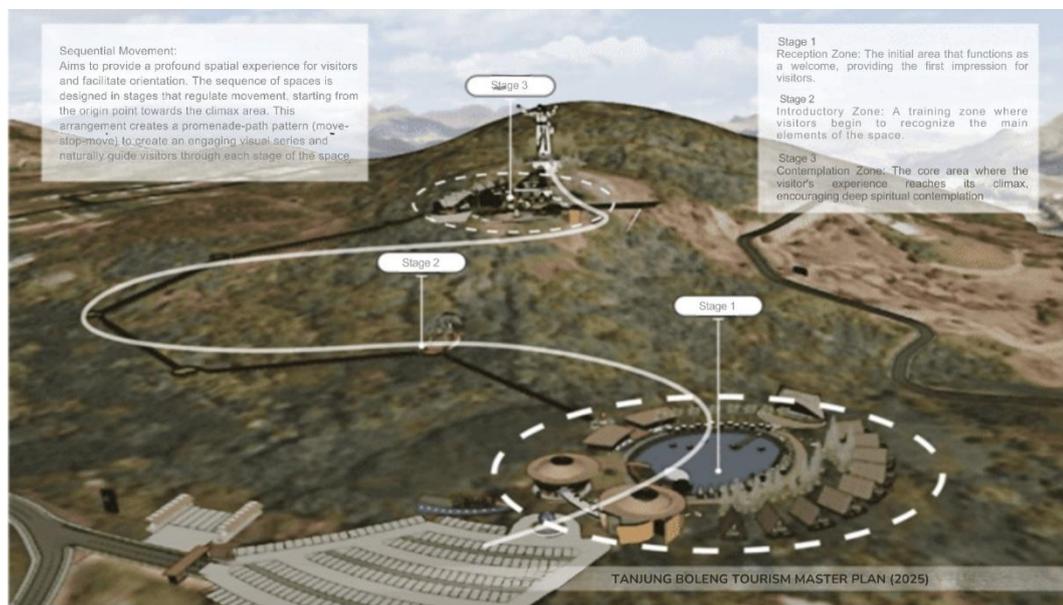


Source: Tanjung Boleng Tourism Master Plan (2025)

Similarly, the Lodok rice fields extend beyond their agricultural function; they represent the Manggarai community's cosmological system and collective land ownership, which is increasingly incorporated into emerging agrotourism frameworks. Moreover, the Nanga Lumut mangrove forest exemplifies a naturally preserved ecosystem, maintaining ecological balance and symbolizing the community's harmonious relationship with natural resources. The forest's order and integrity highlight the importance of ecological stewardship as part of local identity and tourism sustainability.

Further, the Solohana Hill corridor (Figure 2) is conceptualized as an interfaith spiritual garden, illustrating a transformative approach that redefines sacred spaces into inclusive, cross-cultural collaborative zones. This innovative design embodies the village's evolving socio-cultural dynamics, fostering spiritual pluralism and community cohesion. From a sustainability and resilience perspective, the corridor exemplifies social sustainability by nurturing intergroup dialogue, shared stewardship, and collective responsibility for the landscape. It enhances cultural resilience by preserving spiritual traditions while allowing adaptive reinterpretation in response to changing social contexts. Ecologically, the integration of native vegetation and low-impact pathways reinforces environmental stewardship and landscape restoration. Thus, the Solohana Hill corridor functions as both a symbolic and practical manifestation of resilience—linking cultural continuity, ecological care, and social inclusivity within the broader framework of sustainable tourism development.

Figure 2. Contemplative Space Design of the Solohana Hill Prayer Garden, Corridor to Tanjung Boleng Village



Source: Tanjung Boleng Tourism Master Plan (2025)

Understanding locality as a complex epistemological construct enables a more nuanced approach to destination design—one that respects and incorporates local cosmologies, spiritualities, and social relations. Salazar (2012), for instance, underscores the significance of local knowledge systems and the experiential realities of communities, arguing that tourism development should engage with local epistemologies to avoid imposing external frameworks that may distort or marginalize indigenous ways of



knowing. In contrast, Gibson et al. (2021) adopt a more quantitative, data-driven perspective, advocating for evidence-based planning that prioritizes measurable outcomes such as tourist satisfaction, economic returns, and environmental sustainability. While Salazar foregrounds the relational and interpretive dimensions of locality, Gibson et al. highlight the utility of standardized metrics for scalable policy design. Bringing these perspectives into dialogue suggests that effective destination design can benefit from both the richness of local epistemologies and the analytical rigor of data-driven methods, thereby bridging the gap between contextual sensitivity and operational efficiency. This place-based epistemology challenges conventional tourism planning, advocating for designs that are culturally resonant, ecologically sustainable, and socially inclusive. It underscores the necessity of grounding tourism development in the lived realities and symbolic meanings held by the community.

The tourism design in Tanjung Boleng Village embodies the principle of living heritage as articulated by UNESCO (2003), through three key elements. Firstly, the design actively adapts Manggarai vernacular architectural forms. Secondly, it utilizes locally sourced materials such as bamboo, wood, and stone. Thirdly, it integrates oral historical narratives into the visitor experience. This approach underscores the dynamic and evolving nature of cultural heritage, ensuring its relevance through contemporary practice. For instance, spatial patterns and design motifs are derived from local natural and cultural symbols, as illustrated in Figure 3. Elements such as the coconut tree, the contours of beaches and islands, the Lodok rice fields, mountains, and mangrove plants serve as symbolic inspirations for the layout and architectural features within the tourist village. These design choices reflect a conscious effort to embed the village's ecological and cultural identity into its physical environment. Interpreted through the lens of sustainability and resilience, these motifs function as more than aesthetic representations—they embody ecological knowledge, adaptive practices, and intergenerational continuity. The integration of mangrove and coastal forms promotes awareness of ecosystem services vital for shoreline protection and biodiversity. Meanwhile, the Lodok rice field patterns symbolize collective land management and food security. Similarly, references to mountains and coconut trees highlight the community's dependence on and respect for natural resources. Collectively, these spatial narratives transform the built environment into a living expression of resilience, where cultural symbolism and ecological functionality converge to sustain both community identity and environmental balance.

Figure 3 Symbols and Icons of the Characteristics of the Tanjung Boleng Area

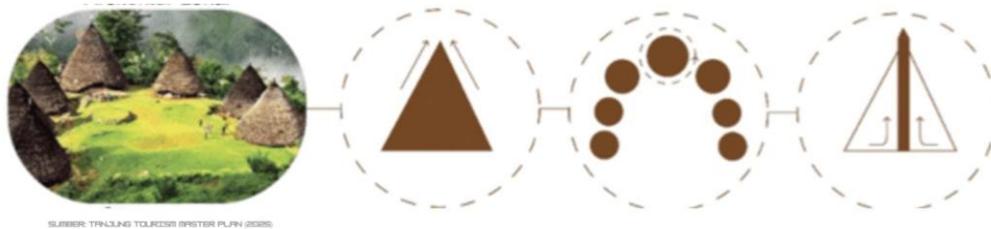


Source: Tanjung Boleng Tourism Master Plan (2025)



In a similar manner, Figure 4 demonstrates how fundamental design forms—including shapes inspired by the traditional house, cones, circles, and triangles—are infused with philosophical significance. These shapes are rooted in the local cosmology, particularly linked to the symbolism of *kesatuan ruang hidup budaya masyarakat* (*gendang one linko pe'ang*), a culturally resonant artifact in Manggarai philosophy. By incorporating these forms, the design maintains continuity with local worldviews and spiritual values. From a sustainability and resilience standpoint, these geometries serve not only as aesthetic or symbolic elements but as frameworks that preserve cultural integrity and guide adaptive spatial organization. The circular and triangular motifs express harmony, balance, and cyclical renewal—principles that mirror ecological processes and sustainable living systems. Embedding these cosmological values within the built environment strengthens cultural resilience by ensuring that design innovation remains anchored in ancestral wisdom, fostering a sense of belonging and continuity amid social and environmental change. Thus, the forms act as both tangible and philosophical foundations for sustainable, culturally grounded spatial resilience.

Figure 4. Basic Concept of Character & Form



Source: Tanjung Boleng Tourism Master Plan (2025)

Furthermore, interpretive panels and youth-led storytelling tours function as vehicles for intergenerational knowledge transfer, enriching the tourism experience by making it both educational and participatory. This not only fosters community engagement but also enhances visitors' understanding of local history and cultural significance. Local foods, such as pounded corn (*jagung titi*) and smoked fish are also presented as cultural narratives rather than mere consumables. These culinary offerings connect tourists to the village's ecological history, reinforcing the inseparability of cultural heritage and environmental context within the tourism experience.

By incorporating living heritage principles into tourism design, Tanjung Boleng fosters a form of sustainable tourism that acknowledges cultural continuity and ecological embeddedness. This integrative approach promotes deeper visitor engagement and supports the preservation and transmission of local knowledge systems, aligning tourism development with the community's identity and values.

Contextual Planning and Design: Integrating Sustainability

The Tanjung Boleng Masterplan (2025) exemplifies a comprehensive approach to tourism planning and design that integrates principles of sustainability, locality-based resilience, and dynamic conservation across both physical and non-physical dimensions. This integrated framework aims to harmonize ethical, aesthetic, and ecological considerations to foster sustainable and culturally resonant tourism development.

The Masterplan's non-physical planning components emphasize community empowerment, product development, disaster risk management, promotion, and participatory governance. These elements recognize the importance of building local capacity, ensuring community involvement in decision-making processes, and enhancing the resilience of both social and economic systems against external shocks. Concomitantly, the physical planning aspect prioritizes ecological zoning, thereby ensuring that land use respects environmental sensitivities. It incorporates accessibility improvements, low-impact infrastructure, clearly defined evacuation routes, and public spaces designed around local functions and social practices. These measures underscore a commitment to minimizing environmental impacts while enhancing safety and social inclusiveness.

A salient design element of the plan is the entrance gate, which is strategically situated as a symbolic entry point to the village (Figure 5). This gate integrates culturally significant motifs such as the *lodok* (traditional agricultural system) and the Manggarai weapon, visually representing local identity and heritage. The architectural design synthesizes local ethics, aesthetic values, and ecological principles, thereby creating a dynamic spatial experience that symbolically guides visitors through the village landscape. The integration of spatial form and movement within the gate's design reinforces a sense of place and cultural continuity. When interpreted through the lens of sustainability and resilience, the entrance gate functions as more than a cultural marker—it operates as a spatial narrative of stewardship and adaptive identity. The incorporation of the *lodok* motif signifies sustainable land-use ethics and collective resource management, while the Manggarai weapon symbolizes protection, resilience, and community strength in facing environmental and social challenges. The gate, by embodying these values, becomes a threshold between tradition and transformation, thereby linking cultural preservation with sustainable tourism practices. Ultimately, it represents an architectural expression of resilience, where cultural symbolism, ecological awareness, and spatial experience converge to sustain the integrity of place.

Figure 5. Gate Design Concept



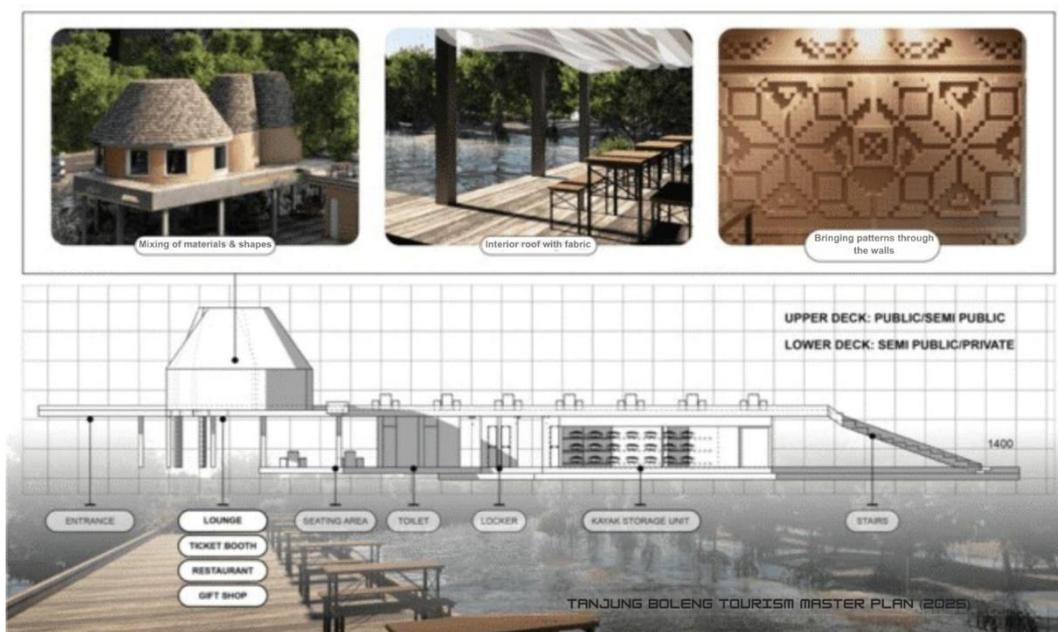
Source: Tanjung Boleng Tourism Master Plan (2025)



The Tanjung Boleng Tourism Master plan demonstrates the efficacy of integrating ethical considerations, cultural aesthetics, and ecological integrity through contextualized, locality-based approaches. By embedding these principles into both physical infrastructure and governance frameworks, the plan fosters resilient, community-centered tourism that aligns with sustainable development goals and local values.

The zoning system delineated within the Master Plan is meticulously designed to honor and respect sacred, ecological, and productive spaces. This approach is undertaken to ensure the preservation of the village’s cultural and environmental integrity. The infrastructure elements, including trekking trails, mangrove boardwalks, and contemplative gardens are designed according to nature-based adaptive principles. These principles promote ecological resilience and visitor engagement with the natural environment. Furthermore, homestays and dining facilities—including restaurants and cafés—are intentionally designed to reflect traditional settlement patterns, incorporating features such as cross-ventilation and the use of locally sourced materials. This approach consciously avoids generic architectural styles that could undermine the unique character and sense of place inherent to Tanjung Boleng (Figure 6). When evaluated through lens of sustainability and resilience, this zoning and design strategy exemplifies a balanced integration of human activity with ecological systems. The protection of sacred and ecological zones reinforces environmental stewardship and cultural continuity, ensuring that development enhances rather than erodes local values. Nature-based infrastructure promotes adaptive capacity by reducing environmental impact, mitigating climate-related risks, and fostering environmental education among visitors. Similarly, the use of vernacular design principles in homestays and public spaces strengthens both environmental sustainability—through energy efficiency and material circularity—and social resilience by sustaining local craftsmanship, livelihoods, and identity. Collectively, these spatial and architectural decisions demonstrate how resilience is embedded not only in ecological adaptation but also in the enduring relationship between people, place, and cultural meaning.

Figure 6. Design Concept for Restaurant, Souvenir and Ticket Counter Facilities



Source: Tanjung Boleng Tourism Master Plan (2025)



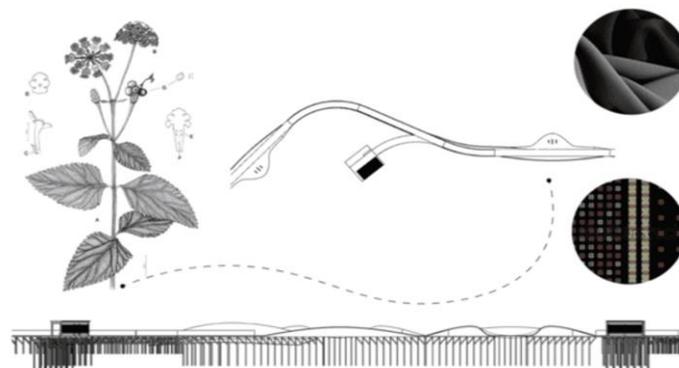
The integration of zoning that acknowledges cultural and ecological significance with context-sensitive architectural and infrastructural design is a key aspect of the Master Plan, aiming to reinforce the village's identity and sustainability objectives. This locality-driven design ethos ensures that tourism development enhances rather than detracts from the community's social and environmental fabric. This step reflects spatial justice, where design not only distributes space, but also respects the symbolic value and socio-ecological function of space.

Contextual Innovation: Resilience as Social-Spatial Transformation

The community's approach in Tanjung Boleng is not characterized by the utilization of advanced technology, but rather by its capacity to revitalize traditional knowledge and spaces through adaptive reuse and multifunctional transformation. This process reflects a form of social-spatial resilience, wherein existing cultural assets and built environments are repurposed to address contemporary needs while preserving their intrinsic values. For instance, underutilized residential properties have been repurposed as community cafés and craft centers, thereby fostering social cohesion and economic diversification. A similar approach has been adopted in the development of mangrove sidewalks, which have been implemented as mangrove walks and interpretive trails surrounding Rangko Cave. These sidewalks have been designed to serve as educational and contemplative spaces, aiming to foster ecological awareness and cultural engagement.

As illustrated in Figure 7, the design approach for the Nanga Lumut mangrove forest area prioritizes minimal concrete construction. Conversely, the design employs local materials and traditional construction techniques, thereby reducing environmental impact and reinforcing the connection between built forms and natural surroundings. From a sustainability and resilience perspective, this approach exemplifies ecological sensitivity and adaptive design. The utilization of local, low-impact materials has been demonstrated to reduce the carbon footprint and preserve the integrity of mangrove ecosystems, which are critical for coastal protection, carbon sequestration, and biodiversity. Traditional construction techniques enhance structural adaptability to tidal fluctuations and storm events, reflecting community knowledge in managing environmental risks. By aligning built interventions with natural systems, the design not only sustains ecosystem health but also strengthens social-ecological resilience, ensuring that the forest area continues to support both local livelihoods and ecological functions over time.

Figure 7. Nangalumut Design Concept



Source: Tanjung Boleng Tourism Master Plan (2025)

This contextual innovation underscores resilience as a dynamic process of social-spatial transformation, where the revitalization of local knowledge and culturally embedded practices enables sustainable tourism development. By valuing intangible heritage alongside physical spaces, Tanjung Boleng fosters adaptive strategies that enhance community agency and ecological stewardship.

The infrastructure within the designated area of Tanjung Boleng has been meticulously engineered to bolster disaster resilience, incorporating both vertical and horizontal evacuation routes, early warning signage, and bio-filtration toilets as ecological adaptation measures. In line with nature-based solutions, vegetative drainage systems have been implemented to replace conventional concrete trenches, thereby promoting sustainable water management and reducing environmental impact.

Beyond the tangible infrastructure, social innovation constitutes a central pillar of community adaptive capacity in Tanjung Boleng. Initiatives such as youth-led cultural tours that highlight local civilizations and oral histories, alongside digital marketing training for women's groups, illustrate innovation not merely as a technical intervention but as a process of social transformation and empowerment. This perspective aligns with the growing recognition that innovation in tourism operates through social networks, shared learning, and empowerment processes, rather than through externally imposed technologies or top-down programs (Nair & Hussain, 2021; Păunescu et al., 2022). In this sense, innovation becomes a participatory and relational practice that redistributes agency and reconfigures power within communities (Haxeltine et al., 2020).

However, scholars caution against overly idealized views of social innovation. Critics contend that participatory innovation can inadvertently reinforce existing hierarchies, privileging already empowered groups and marginalizing others under the guise of inclusivity (Bock & Gasser, 2021). Similarly, while locally driven initiatives often generate enthusiasm, their sustainability may be undermined by limited institutional support, dependency on short-term funding, and the absence of formal integration into regional planning systems (Richards & Duif, 2020). These tensions underscore the necessity of institutionally embedding and structurally supporting social innovation to sustain its transformative potential.

To monitor and evaluate these complex processes, a multidimensional performance framework is employed, capturing interlinked dimensions of sustainability, resilience, dynamic conservation, locality, and community empowerment. This approach draws upon and adapts existing frameworks (GSTC, 2020; Al-Ansi & Han, 2019; Scheyvens, 2020) to the socio-ecological realities of rural Indonesia. Proponents argue that such multidimensional assessment systems offer a holistic understanding of tourism impacts, balancing quantitative and qualitative indicators (Wondirad et al., 2021). Yet, others have warned that evaluation tools often privilege measurable outcomes over intangible social values, such as cultural vitality and identity (Carneiro et al., 2022).

The incorporation of disaster-resilient infrastructure, socially innovative practices, and context-specific evaluation systems in Tanjung Boleng model exemplifies the potential for a comprehensive, community-centered approach to sustainable tourism development. Nevertheless, the case also reveals enduring tensions between participatory ideals and institutional realities, reminding policymakers that the sustainability of rural destinations depends as much on governance structures and long-term support as on community creativity and innovation.



Rural Tourism Planning Model Based on Sustainability, Resilience, and Dynamic Conservation: Integration of Value, Space, and Participation

The Rural Tourism Planning Model developed in Tanjung Boleng Village signifies a transformative shift in rural governance, situating local communities as primary agents rather than passive beneficiaries in tourism development. The concept is founded on the interconnection of ethical values (justice and participation), aesthetics (contextual beauty), and economics (equitable welfare), reflecting the growing recognition of multidimensional sustainability in rural development (Teguh, 2021; Dangi & Gribb, 2021). Similar integrative approaches have been advocated to reconcile cultural authenticity with economic vitality (Lew, 2020). However, recent studies have cautioned that the ideal of holistic tourism frequently obscures underlying structural inequalities and market dependencies that have the potential to compromise community welfare. For instance, research in rural areas indicates that ethical and aesthetic discourses can obscure asymmetrical benefit-sharing and cultural commodification. Consequently, the efficacy of Tanjung Boleng's model hinges on the ongoing dialogue between local empowerment and external economic forces, thereby striving to align value-driven and market-oriented logics.

The model's four interrelated pillars—sustainability and locality, community participation, resilience and dynamic conservation, and collaborative governance—embody a comprehensive framework for adaptive rural tourism governance. The extant literature supports such pluralistic designs that integrate ecological stewardship with participatory mechanisms (Sterling et al., 2017; Becken & Kaur, 2021). However, empirical studies highlight persistent tensions between participatory ideals and governance realities. For instance, Hall et al. (2023) observe that local participation frequently manifests as tokenism when institutional capacity is deficient or when power asymmetries favor external investors. Similarly, while collaborative governance is lauded for fostering inclusion and shared accountability, it may falter in practice due to fragmented authority and inconsistent policy frameworks. In this context, Tanjung Boleng's emphasis on co-creation and indigenous institutions represents both innovation and challenge—its long-term viability depends on its ability to institutionalize trust, transparency, and deliberation amid shifting socio-political dynamics.

Operationalizing the model through five strategic dimensions—contextual spatial design, vernacular adaptive infrastructure, cultural narratives, social innovation, and multidimensional monitoring—translates abstract values into tangible community practices. Such integration resonates with recent frameworks emphasizing spatial storytelling, participatory design, and inclusive entrepreneurship as drivers of rural resilience (Hall et al., 2018; UN Tourism, 2021; Hockings et al., 2020). Nonetheless, contrasting research points to enduring barriers in implementing community-based innovation. Studies from Southeast Asia reveal that digital divides, limited entrepreneurial literacy, and weak institutional coordination often constrain the effectiveness of local tourism enterprises. Furthermore, the evaluation systems employed in numerous community-based tourism initiatives are predominantly externally driven, with a myopic focus narrowly on economic performance, neglecting social justice and cultural continuity. Consequently, while the Tanjung Boleng framework demonstrates notable strengths in terms of operational breadth, it is imperative that its monitoring processes undergo



continuous refinement to ensure the principles of reflexivity and community ownership are upheld.

By embedding sustainability, resilience, and cultural identity into governance and practice, the Tanjung Boleng model advances a community-centered paradigm for rural tourism that aspires to be scalable and replicable. Recent evidence, however, tempers such optimism: replication without contextual adaptation risks reinforcing dependency, environmental degradation, and social stratification. Comparative analyses of rural tourism demonstrate that models succeed when they are sensitive to local histories, informal institutions, and ecological thresholds. Accordingly, the model of Tanjung Boleng should not be regarded as a universal blueprint; rather, it should be regarded as a context-sensitive heuristic—a living framework that must remain adaptive to local values, environmental uncertainty, and market fluidity. This reflexive approach situates the model within broader academic debates on inclusive and adaptive rural transformation, positioning it as both an empirical case and a conceptual contribution to the future of participatory tourism governance in Southeast Asia.

Collaborative Local Governance as a Catalyst for Rural Tourism Transformation

The governance model developed in Tanjung Boleng Village places significant emphasis on collaborative local governance as a fundamental catalyst for transformative rural tourism development. This governance framework integrates multiple coordination and participation dimensions, including horizontal coordination (among diverse ethnic, inter-religious, gender and generational groups), vertical coordination (linkages between local communities, village governments, academia, NGOs and the private sector), participatory institutions (village tourism consultative forums, cooperatives and regional management organizations) and inclusive role distribution (active involvement of women and youth in planning, storytelling and governance). Such practices transcend conventional administrative functions, embodying relational and ethical principles grounded in local cosmologies and cultural norms (Teguh, 2021). Indeed, recent empirical research on Indonesian village tourism affirms the value of trust, stakeholder role-mapping and institutional commitment in fostering collaborative governance. However, the literature also points to significant caveats: collaborative governance is seldom seamless. In a study of a coastal tourism project in East Java, Fatmawati (2023) observed that stakeholder dialogues were infrequent, strategic trust weak and shared vision lacking — leading to sub-optimal collaboration. Therefore, in the Tanjung Boleng model, while the theoretical coordination architecture is strong, its efficacy will depend on processes of institutionalisation, sustained trust-building and the mitigation of power imbalances among actors.

The model posits a multifaceted indicator system as a means to assess and oversee destination performance, encompassing four core dimensions: sustainability (e.g., waste-management efficacy, energy conservation, local economic impact); resilience (e.g., disaster preparedness, adaptive design, institutional sustainability); dynamic conservation (e.g., heritage revitalization, community participation, biodiversity preservation); and locality (e.g., community satisfaction, cultural harmony, local identity representation). This evaluative framework aligns with established standards, including the Global Sustainable Tourism Council (GSTC) Goal-Criteria (2020), the Village Sustainable Development Goals (SDGs), and inclusive, resilient, place-based planning principles (UN Tourism,

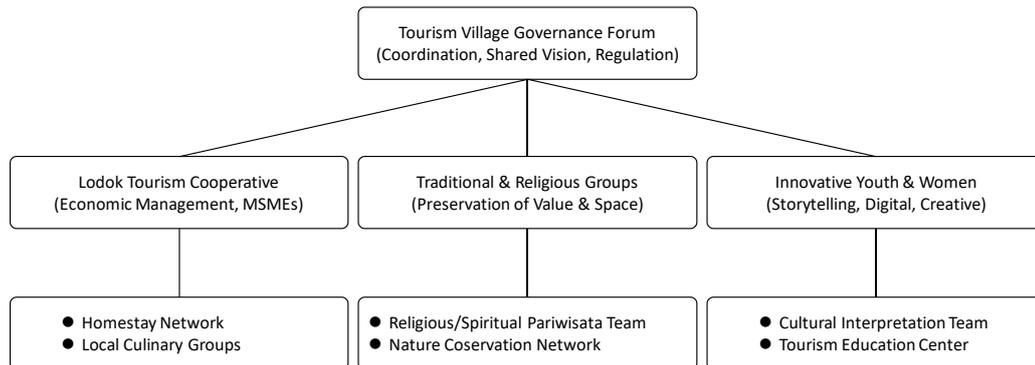


2021). Yet, critical literature raises doubts about the practical adoption of comprehensive M&E systems in rural tourism. For instance, Ginting et al. (2024) highlight that many governance frameworks in tourism remain under-resourced, with evaluation systems that are externally driven and lack community ownership. Moreover, the recent SF-MST report (UN Tourism, 2024) notes that while global measurement frameworks are advancing, they often inadequately incorporate host-community well-being and localised values. Therefore, while Tanjung Boleng's indicator system is methodologically ambitious and contextually relevant, its long-term effectiveness will require local capacity building, reflexive governance and alignment with global standards without overlooking local priorities.

Importantly, the Tanjung Boleng model is not pitched as a rigid blueprint but rather as a flexible, contextualized framework that can be adapted according to local cosmologies and social structures. Key guiding principles include flexibility (tailoring to unique social-cultural configurations), evolutionary development (gradual, iterative processes rather than instantaneous transformation), locality mapping (prioritising identification and understanding of local meanings before intervention), multilevel coordination (ensuring cross-sectoral collaboration) and sustainable minimum infrastructure (low-impact, affordable and community-manageable). This locality-based rural tourism model thus represents a paradigm shift: value-driven tourism that brings local narratives and cultural identities to life rather than commodifying scenery; quality over quantity, emphasising ecological and social connections rather than just visitor numbers; and culturally-rooted innovation resisting externally imposed modernisation. Such framing is consistent with current scholarship that argues rural tourism governance must be adaptive, context-sensitive and resilient. At the same time, comparative research from China demonstrates that multi-level governance remains deeply embedded in state hierarchies and resource differentials, and that replicability across contexts is far from assured (Hu et al., 2025). In light of this, the Tanjung Boleng approach offers a valuable reference for national and regional rural tourism strategies — but its replication elsewhere must be accompanied by careful adaptation to local contexts, power structures and resource realities.

Finally, the governance structure (Figure 8) provides a structured operationalization of the model: aligning governance elements, objectives, guiding principles, design approaches and performance indicators facilitates participatory planning, data-informed decision-making and adaptive management. Yet again, the academic literature urges caution: sustainable tourism governance frameworks often struggle to translate from design to practice due to institutional fragmentation, weak accountability and limited community empowerment. To be effective, the Tanjung Boleng governance model must therefore incorporate iterative feedback loops, transparent stakeholder accountability, capacity building for local institutions, and mechanisms to manage the inevitable tensions between tourism growth, cultural preservation and socio-economic equity. In so doing, the model not only advances a context-sensitive governance architecture for rural tourism but also engages the broader framework on inclusive, adaptive and participatory tourism governance in rural contexts.

Figure 8. Proposed Tanjung Boleng Tourism Governance Structure



Source: Author Analysis, 2025

The case study of Tanjung Boleng demonstrates that successful rural tourism development depends fundamentally on locality, community participation, and sensitivity to the socio-ecological context. This model effectively integrates sustainability, resilience, and dynamic conservation as operational principles in both spatial planning and destination governance, moving beyond rhetoric towards professional, adaptive, and community-centered tourism management and governance.

CONCLUSIONS AND IMPLICATIONS

This study finds that an integrative tourism governance model—anchored in sustainability, resilience, and dynamic conservation—effectively guides rural coastal tourism development. The study further posits that locality serves as both a setting and a source of knowledge that strengthens the connection between place, culture, and development. The concept of sustainability is achieved by aligning ecological and social capacities, resilience is supported through adaptive systems, and dynamic conservation embeds cultural and ecological practices into daily life, maintaining relevance amidst change.

Theoretical Implication: The triadic framework expands governance theory by operationalizing abstract concepts in rural contexts, demonstrating how communities can transition from passive participants to active co-creators through inclusive, participatory governance. It also reframes dynamic conservation as a context- and time-specific practice, linking theoretical constructs to the lived realities of rural communities and enriching understanding of space production, locality, and adaptive governance.

Practical Implication: For regional tourism authorities, the model provides a flexible, replicable framework for implementing adaptive, community-led tourism governance. By harmonizing community empowerment, environmentally sensitive infrastructure, and evidence-based decision-making, it offers a practical tool for sustainable development, participatory conservation, and culturally grounded tourism planning, with applicability in rural coastal and similar contexts worldwide.

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ADVANCING CIRCULAR GASTRONOMY IN INDONESIAN TOURISM

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| <p>Keywords: Circular gastronomy, culinary heritage, Sustainable tourism, Food waste, Policy framework.</p> <p>Received: July 29, 2025</p> <p>Accepted: November 24, 2025</p> <p>Published: December 05, 2025</p> | <p>This study addresses a critical research gap in the contextual implementation of circular gastronomy within Indonesia's tourism sector, where the integration of sustainability, culinary heritage, and circular economy principles remains fragmented. Current practices and regulations predominantly focus on technical solutions or isolated waste-reduction efforts, often overlooking the rich cultural context and multi-stakeholder collaboration required for systemic change. Using a qualitative literature review and thematic analysis of global best practices, policy documents, and Indonesian case studies, the research reveals significant barriers—including limited regulatory support, low stakeholder awareness, and fragmented cross-sector engagement—while also identifying opportunities in leveraging local food traditions, empowering communities, and targeting eco-conscious travelers. The findings highlight the urgent need for multidimensional, culturally adaptive frameworks and comprehensive policies that bridge technical solutions and Indonesia's unique gastronomic identity. In the context-specific circular gastronomy framework that highlights Indonesia's rich cultural heritage, community engagement, and local ecosystems, Indonesia is positioned as an innovator in sustainable gastronomy. To advance holistic implementation, future efforts should integrate these sociocultural elements into research and practice, in parallel with the development of tailored policies, incentives, and multi-sector collaboration.</p> |

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INTRODUCTION

The concept of circular gastronomy, as articulated by Nyberg et al. in the *Journal of Gastronomy and Food Science*, signifies a comprehensive and integrated framework in which food, meals, and sustainability are interwoven according to the principles of the circular economy. It encompasses the collective knowledge and skills required to design and reimagine food and meals, with a strong emphasis on re-creation and redesign, thereby advancing gastronomy towards a sustainable future (Nyberg et al., 2022). This framework highlights a commitment to embedding sustainability across all aspects of food and dining through innovative strategies that promote closed-loop systems and minimize waste.

In essence, circular gastronomy applies the tenets of the circular economy specifically to the gastronomic sector, foregrounding sustainable food production, waste reduction, and the cultivation of regenerative food systems aimed at reducing environmental impact while advancing social and economic sustainability (Moura et al., 2024). Beyond addressing critical environmental challenges, this concept enriches the dining experience by fostering consumer awareness of and engagement with sustainable practices. Practical applications frequently cited in the literature include reducing food waste, utilizing locally sourced and seasonal ingredients, and converting organic waste into compost—each a vital strategy aligned with broader sustainability objectives (Ruiz-Real et al., 2020). Within the Indonesian context, the realization of circular gastronomy can be achieved by synthesizing the nation's rich traditional culinary heritage with tourism-based dining experiences, underpinned by sustainability and circular economy frameworks (de Pablo Valenciano et al., 2019). This synthesis can be conceptualized along three foundational pillars—food, dining experience, and sustainability—which together form an ecosystem that both protects and celebrates Indonesia's culinary identity while advancing low-waste, regenerative food systems in the tourism industry.

Several practical applications of circular gastronomy can be observed globally, including the pioneering example of Restaurant Nolla in Helsinki, Finland, recognized as the first zero-waste restaurant in the Nordic region. The restaurant operates without a trash bin in its kitchen, reflecting its strong commitment to utilizing every ingredient. It sources local and seasonal produce, avoids plastic packaging, and composts all organic waste. This initiative exemplifies circular gastronomy in practice. This concept is further explored through the Ellen MacArthur Foundation's platform (www.ellenmacarthurfoundation.org), particularly in its prominent initiative *The Big Food Redesign* (2021). This framework advocates for a transformation of the food system from production to distribution, by embedding sustainability principles throughout. It promotes the reduction of dependency on global resources while simultaneously strengthening resilient local food systems. Such an approach is highly relevant for implementation within the hospitality and restaurant sectors in tourist destinations. In Indonesia, a local example can be found in Sari Bodag Meliah, a community-based restaurant in Ubud, Bali, which designs its menu based on the availability of organic produce harvested from its own garden. The restaurant also recycles livestock waste into compost, involving local farmers and reinforcing circular practices at the community level. Bali's farm-to-table cooking class—such as Pemulan Organic Farm and Paon Bali—integrate organic farming, waste composting, and traditional cooking techniques, thereby demonstrating holistic circular practices within culinary tourism. Other notable examples include zero-waste initiatives in Borobudur and Yogyakarta homestays



where banana stems, cassava leaves and rice husks are utilized in local cooking and handcrafts; as well as community-led seafood-waste valorization projects in Lombok, where fish bones and other by-products are transformed into broths and seasoning powders.

Food waste, however, remains a pressing global issue with far-reaching social, economic, and environmental implications, undermining food system resilience and contributing substantially to greenhouse gas emissions. Globally, UNEP 2024 report, estimates that 1.05 billion tonnes of food were wasted in 2022 (132 kg per person). In the Indonesian context, food waste is estimated at 23-44 million tonnes per year (115-184kg per person) (Rasyaad, et al 2023). Ranked among the world's largest producers of food waste, Indonesia faces particularly acute challenges, as mounting waste exacerbates pressures on natural resources, societal welfare, and economic development. The tourism sector—an essential contributor to Indonesia's GDP and employment—further magnifies these issues, as tourism-related gastronomy and food services frequently generate high levels of food and energy consumption, directly intensifying carbon emissions and environmental degradation (Waluyo & Kharisma, 2023). While international tourism supports economic growth and job creation, it simultaneously increases the national carbon footprint, making it increasingly difficult to achieve a sustainable equilibrium between economic advancement and environmental stewardship increasingly (Adhariani, 2024).

Conventional food service models within the tourism industry typically operate on a linear “produce-consume-dispose” paradigm, which thereby accelerates resource depletion and increases waste generation. In response, the emerging paradigm of circular gastronomy seeks to operationalize closed-loop resource cycles, design menus and production processes that minimize waste, foster co-creation in food systems, and transform by-products into secondary resources. Despite its potential, the systematic integration of circular gastronomy into the Indonesian tourism sector remains underexplored, particularly with respect to stakeholder education and regulatory infrastructure (Akomea-Frimpong et al., 2024).

Current research on sustainable gastronomy in Indonesia typically centres on isolated practices such as organic sourcing or waste minimization, often overlooking the development of integrative, cross-sectoral models suited to Indonesia's unique culinary and tourism contexts. The absence of contextually relevant frameworks, coupled with insufficient policy emphasis on gastronomic circularity has resulted in a disconnect between high-level sustainability objectives and actionable measures at the destination level (Yubianto & Putra, 2024; Pramezwarya & Ayuningsih, 2019; Mudana et al., 2024).

Consequently, this research critically examines circular gastronomy within Indonesia's tourism sector, aiming to map the associated policy and practice challenges and to advance a robust, context-sensitive theoretical framework for implementation. The study is grounded in circular economy theory (Stahel, 2019), which advocates decoupling economic growth from resource extraction by maximizing value retention, reuse, and regeneration. Within the field of gastronomy, scholars such as Sanchez & Schlegelmilch and Nyberg et al. extend these ideas by promoting a holistic approach that emphasizes closed-loop systems, ecological integrity, community participation, and cultural preservation (Saracevic & Schlegelmilch, 2024; Nyberg et al., 2022). Further informed by the work of UNESCO, UNWTO, and the Sustainable Development Goals (SDGs) (Hák et al., 2016), the study draws on principles of sustainable and regenerative gastronomy



designed not only to maintain but also to restore food systems through innovation, education, and stakeholder engagement (Lehtokunnas, 2023; Lehtokunnas et al., 2022).

Addressing these research gaps, the present study seeks to develop a multidimensional, context-adaptive model that strategically links circularity, gastronomy, and hospitality within Indonesian tourism. By leveraging the country's traditional culinary heritage and fostering community-driven innovation (Dias et al., 2023; Everitt et al., 2018; Hjalager & Richards, 2002), this approach is intended to guide the systemic transformation required in policy and destination management to achieve genuinely sustainable and regenerative food tourism.

METHODOLOGY

This research employs a qualitative literature review as its primary methodology, (Snyder, 2019; Seaman, 2008). The literature analysed encompasses peer-reviewed works published from 2010 to 2024 in total of 54 journal articles, 12 key international policy documents (e.g., UNWTO, 2019, 2021, 2022; UNEP, 2021; FAO, 2019; EU Circular Action Plan, 2020; Ellen MacArthur Foundation, 2021; ASEAN Gastronomy White Paper, 2019; OECD, 2020; and World Bank, 2020), and five Indonesian regulations such as RPJN 2025-2045, Perpres 83/2018, Permenparekraf 14/2021, and the Ministry of Tourism Document (2024)

Data were collected through a structured manual search process. Relevant documents were identified by scanning titles, abstracts, and keywords from academic journals, policy reports, and national regulations, using predefined inclusion criteria and direct relevance to circular economy, gastronomy, food waste, or tourism. In addition to peer reviewed journal articles, this study also examined non-commercial publications, such as official reports, policy documents, and national regulations obtained from sources including UNWTO, the European Commission, and the Indonesian Ministry of Tourism and Creative Economy.

The literature analysis was conducted in several steps: (1) identifying and collecting relevant materials using specific keywords; (2) removing duplicates and irrelevant items; (3) screening titles and abstracts to ensure suitability; (4) reading full texts for detailed evaluation; (5) coding content based on main themes; and (6) synthesising the results into key thematic insights connecting global perspectives with the Indonesian context.

A thematic analysis framework was adopted, systematically coding documents along major themes: conceptual development of circular gastronomy, policy frameworks, stakeholder engagement, and implementation case studies in both global and Indonesian contexts (Braun & Clarke, 2006; Nowell et al., 2017). The coding process followed two main steps: (1) screening of full texts to ensure relevance to the research questions, and (2) inductive and deductive coding of the content to extract recurring concepts and patterns, which were then grouped into thematic categories. Coding was conducted manually to maintain close engagement with the data. The alignment between these procedures and the study's results is evident in the thematic structure of the findings, which present a synthesis of global trends, Indonesian policy and practice, as well as opportunities and barriers for advancing circular gastronomy in tourism.

FINDINGS AND DISCUSSION

The Journey toward Circular Gastronomy Development

Despite the rapid evolution of the tourism industry, gastronomy tourism has undergone significant transformation, moving beyond mere food tasting to immersive, sustainability-oriented experiences. Globally, the trajectory of culinary tourism has mirrored a paradigm shift: between 2010 and 2015, initial efforts centered on industry awareness through pioneering zero-waste initiatives and “farm-to-table” models, as exemplified by Restaurant Nolla in Finland (Nguyen, 2019). The subsequent period (2015–2020) witnessed growing implementation, with the emergence of circular restaurants, greater consumer participation, and nascent policy attention to sustainable practices. Since 2020, circular gastronomy principles have been progressively institutionalized, incorporated into tourism policy frameworks, education, and industry guidelines in alignment with the Sustainable Development Goals (SDGs). In the European context, this progression can be mapped into three distinct phases: exploration, early implementation, and institutionalization which together illustrate how circular gastronomy has evolved from conceptual ideas into structured practices and formal recognition within industry and policy.

The growing concern over environmental issues —particularly food waste generated by the tourism sector —has led to the emergence of the concept of *circular gastronomy*. This concept applies the principles of the circular economy to food systems by aiming to reduce food waste, maximize resource efficiency, and integrate regenerative cycles, such as composting and the reuse of food materials (e.g., nose-to-tail cooking, upcycling food scraps). Renfors et al. (2024) demonstrate that circular restaurants implement circular menu design, close loop cooking, and waste reprocessing to minimize resource inefficiencies. This approach also emphasizes environmentally friendly and efficient operations, including the use of sustainable ingredients, packaging reduction, and technological innovations that optimize food cycles to minimize waste. Circular gastronomy represents a holistic model that integrates dining experiences, health benefits, and environmental impact, positioning itself as a forward-looking, responsible, and innovative future for the gastronomy sector. In essence, circular gastronomy is not merely about reducing waste; it is about creating a regenerative food system that nourishes both people and the planet. (Farrell et al., 2024; Jamaludin et al., 2022)

Since 2020, circular gastronomy principles have become progressively institutionalized at the global level, integrated into policy frameworks, culinary education, and industry guidelines in alignment with SDGs. Despite this mainstreaming, significant research gaps persist, particularly in Indonesia, where existing studies rarely explore the nuanced integration of cultural narratives, local ingredient sourcing protocols, and sustainability education within circular gastronomy (Nyberg et al., 2022). Most academic work continues to focus narrowly on food waste reduction or supply chain efficiency, often overlooking the broader systemic transformation required to shift toward regenerative gastronomic tourism. Furthermore, while the UNWTO (2022) identifies food waste—estimated at up to 32 kg per tourists annually in hotels and restaurants—as a critical challenge for global tourism, there remains a lack of contextualized, destination-specific models for Indonesia (Teigeiro & Dia, 2014). A closer look at earlier global trends underscored the depth of this research gap. From 2015 to 2020, the practical adoption of



circular gastronomy gained momentum, marked by the emergence of purpose-driven circular restaurants, increased consumer participation, and growing policy attention to sustainable culinary practices. These developments followed an exploratory phase between 2010 and 2015, during which pioneering restaurants and grassroots initiatives experimented with zero-waste approaches and farm-to-table system. Together, these global milestones demonstrate a gradual but structured evolution toward circular food systems — an evolution that Indonesia has yet to fully capture or adapt within its own tourism and gastronomy landscape.

Gastronomy tourism, initially adopting a more holistic and sustainability-oriented approach, has progressed into sustainable gastronomy, which emphasizes environmental and social sustainability and has ultimately transformed into this circular model. It seeks to redesign food system using systemic, zero-waste and regenerative practices, particularly within hospitality and food service sectors (Shanchez and Schlegekmikch, 2020). It represents the application of circular economy principles in the food and culinary sector, combining expertise in food preparation, food systems, and the management of kitchen and food waste. Nyberg et al. (2022), Nguyen (2019), UNWTO (2023), and Ellen MacArthur Foundation (2021) identify three phases in the development of circular gastronomy in Europe: the exploration phase, the early implementation phase, and the institutionalization phase. These phases reflect a gradual transition from conceptual adoption to practical integration and formal recognition within policy and industry standards.

Table 1. Stages of Circular Gastronomy Development in Europe

| No | Phase | Description |
|----|-------------------------------------|---|
| 1 | Exploration (2010–2015) | Restaurants began experimenting with zero-waste practices and farm-to-table concepts, initiating early awareness of circular food systems. |
| 2 | Early Implementation (2015–2020) | The emergence of circular restaurants (e.g., Nolla in Finland) and increased efforts in consumer education marked a shift toward practical adoption. |
| 3 | Institutionalization (2020–present) | Supported by green policies and the Sustainable Development Goals (SDGs), circular gastronomy has expanded to industrial scales and culinary education. |

Source: Nyberg et al. (2022), Nguyen (2019), UNWTO (2023), and Ellen MacArthur Foundation (2021).

Table 1 systematically chronicles the evolution of circular gastronomy in Europe through three distinct phases, as identified by Nguyen (2019), UNWTO Report Global Roadmap for Food Waste Reduction in Tourism (2023), and Ellen MacArthur Foundation (2021).

Exploration (2010–2015): During this initial phase, restaurants began experimenting with sustainability-oriented practices, such as zero-waste initiatives and farm-to-table sourcing. The emphasis was on increasing awareness of the possibilities and importance of circular food systems within the food service sector. These early efforts were primarily experimental and grassroots in nature, laying the groundwork for broader transformations by raising both industry and public consciousness about food system circularity (Wendler, 2016).

Early Implementation (2015–2020): In the second phase, the movement evolved from isolated experimentation to more structured adoption. Notably, the emergence of



purpose-driven circular restaurants, such as Nolla in Finland demonstrated the practical feasibility of integrating circular principles into regular operations. Concurrently, there was a marked increase in consumer education efforts, indicating a transition from awareness to actionable behaviour changes and a more systematic application of circular strategies in the gastronomic sector (Alhola et al., 2019).

Institutionalization (2020–present): The third and current phase is characterized by significant systemic integration. Circular gastronomy has become aligned with broader policy frameworks, including green policy initiatives and the United Nations Sustainable Development Goals (SDGs). This phase marks the scaling up of circular practices to the industrial level and their formal incorporation into culinary education systems, reflecting the transition from niche innovation to mainstream, policy-driven adoption across the industry (Prokic et al., 2022).

The development of circular gastronomy in Europe, as mapped Nyberg et al (2022), Nguyen (2019), UNWTO (2023), and Ellen MacArthur Foundation (2021) demonstrates an incremental progression through three key phases: Exploration (2010–2015), Early Implementation (2015–2020), and Institutionalization (2020–present). The initial phase was characterized by experimental adoption of zero-waste practices and a growing awareness surrounding circular food systems, largely driven by pioneering restaurants and grassroots initiatives (Pantaleón et al., 2023). The subsequent phase was featured the emergence of dedicated circular restaurants and more systematic consumer education, marking a transition from conceptual adaptation to practical application. In its current manifestation, European circular gastronomy benefits from alignment with supportive policies and the Sustainable Development Goals (SDGs), facilitating large-scale industrial integration and incorporation into formal culinary education (Prakoso & Anwar, 2024).

The development of circular gastronomy is closely linked to the broader concept of the Circular Food Economy (CFE). As defined by Dayana et al. (2023), “*CFE is a co-creative food ecosystem that enhances food safety, food security, and biodiversity conservation, prevents food losses and waste, manages perishability, and utilizes regenerative agriculture.*” It represents a regenerative, inclusive, and collaborative food ecosystem approach, primarily aimed at reducing food loss and waste (FLW), conserving biodiversity, and improving food security. However, the implementation of this concept faces several challenges, including consumer behaviour patterns, limited economic incentives, technological barriers, and regulatory constraints. The principles of CFE are directly reflected in circular gastronomy, which serves as a specific application of CFE in the context of culture, tourism, and dining experiences, integrating economic, environmental, and social values within local food systems. Key elements of circular gastronomy —such as food waste reduction, the use of regenerative and locally sourced ingredients, and consumer participation in co-creative food cultures —are derived from the CFE framework. In the tourism context, circular gastronomy extends the scope of CFE by incorporating educational components, culinary heritage preservation, and storytelling as added experiential values. Each principle of the circular economy and CFE can be adapted and operationalized within circular gastronomy. This alignment reflects a more holistic and place-based approach that addresses not only sustainability but also the authenticity and experiential quality of gastronomic offerings. In line with Hendriyani et al. (2020), six key



dimensions shape the gastronomic experience: food quality, service quality, atmosphere, cleanliness, price, and storytelling. Their findings indicate that the overall dining experience significantly influences tourist satisfaction and loyalty, with satisfaction having a direct positive impact on loyalty. Thus, integrating CFE principles into gastronomic practices not only supports sustainable development but also enhances tourist satisfaction and destination competitiveness.

Table 2. The Transition from Circular Economy to Circular Gastronomy

| Circular Economy | Circular Food Economy (CFE) | Circular Gastronomy |
|-------------------------------------|---|---|
| Redesign of products and processes | Co-creation in food systems | Redesign of menus and zero-waste kitchen operations |
| Reduction of waste and pollution | Prevention of food waste | Minimization of food waste |
| Circulation of energy and materials | Prevention of food loss | Utilization of food scraps and local ingredients |
| Regenerative systems | Transformation from linear to circular food systems | Support for regenerative and inclusive food systems |

Source: Ellen MacArthur Foundation (2021), Schlegelmilch. (2020), Iqbal & Kang (2024), Dayana et al., 2023)

The predominant European framework is anchored in high-resource, highly institutionalized contexts, often overlooking the nuanced roles of cultural heritage, community-scale enterprises, and the specificities of agricultural systems found in the Global South. Furthermore, while European models foreground economic and environmental dimensions, they tend to marginalize the significance of culinary narratives, rituals, and broader cultural identity in shaping circular gastronomy practices (Keys & McConnell, 2005). To illustrate the transition from the circular economy to circular gastronomy, the Ellen MacArthur Foundation (2021), in its report “*The Big Food Redesign: Regenerating Nature with the Circular Economy*,” explores how the food and restaurant industries can transform by adopting circular economy principles. This report is highly relevant to the gastronomic context, as it outlines regenerative strategies across the entire food system, from production to consumption. Iqbal and Kang (2024) contribute to this discourse by introducing a secondary supply chain model for food waste management within the culinary industry. Their work emphasizes the importance of integrating circular economy principles into food systems to manage surplus and waste more efficiently. Schlegelmilch (2020) provides a foundational theoretical and practical framework for circular gastronomy in Europe. Their research details the evolution of sustainable culinary value chains and presents circular gastronomy as a comprehensive model that links resource efficiency, waste minimization, and value creation in the food sector. From a tourism-specific perspective, the UNWTO (2022) report “Global Roadmap for Food Waste Reduction in Tourism” highlights the critical role of circular approaches in food management across the tourism sector including restaurants, hotels, and cruise ships. The report identifies tourists not only as consumers but also as significant contributors to food waste. It estimates that tourism-related food services generate approximately 32 kg of food waste per tourist annually. To monitor and reduce waste, the report introduces key performance indicators such as “food waste per guest night” (for hotels) and “per guest day” (for cruises). These metrics position tourists as central actors in the success of food waste reduction initiatives. Furthermore, the report advocates enhanced tourist education



and engagement in sustainable practices, including modifications to food service systems—such as reducing oversized buffets that encourage overconsumption— and guest involvement in sustainability programs, such as composting and food donation initiatives. The active involvement of tourists is deemed essential for achieving the global target of a 50% reduction in food waste by 2030. This goal underscores the necessity of transforming food systems within tourism through circular principles and shared responsibility among stakeholders, particularly consumers.

In Indonesia, the “Gastronomy Triangle” (AGI, 2016) offers an alternative perspective that emphasizes the integration of local ingredients, traditional and innovative cooking techniques, and culturally aware consumption behaviours. Indonesian circular gastronomy leverages food authenticity, local ingredient optimization, and waste valorisation, while also prioritizing the experiential and ritualistic elements of meals and embedding sustainability across ecological, economic, and sociocultural domains (Polat & Aktaş-Polat, 2020). This approach underscores that preserving culinary heritage can go hand in hand with sustainability goals. Adopting circular gastronomy in Indonesia is therefore essential strengthen the tourism sector’s contribution to sustainability. Circular gastronomy can be understood as the application of circular economy principles within gastronomy, focusing on sustainable food production, waste minimization, and the development of regenerative food systems. It aims to reduce environmental impact while simultaneously promoting social and economic sustainability (Nyberg et al., 2022). Beyond addressing environmental challenges, this concept enhances the overall dining experience by fostering consumer awareness and engagement with sustainable practices. Examples of such practices, identified in various studies, include food waste reduction, the use of locally sourced and seasonal ingredients, and the transformation of organic waste into compost (Ruiz-Real et al., 2019). These practices constitute essential strategies within circular gastronomy that align with broader sustainability goals. In the Indonesian context, the circular gastronomy can be holistically envisioned by integrating traditional culinary heritage with tourist dining experiences, guided by sustainability and circular economy principles. This integration can be conceptualized through three fundamental pillars: food, dining experience, and sustainability. Collectively, these pillars shape an ecosystem that not only preserves local culinary identity but also promotes the creation of low-waste, regenerative food systems embedded within the tourism sector.



Figure 1: Indonesian Circular Gastronomy Concept
Source: Nyberg, M., et.al: 2022, AGI:2016, Hendriyani, D., et.al: 2020



The first pillar is food, which emphasizes the use of diverse and locally sourced Indonesian ingredients derived from the nation's rich natural resources and biodiversity. This pillar focuses on maximizing ingredient utilization while highlighting quality, authenticity, and the unique spices inherent in traditional Indonesian cuisine. According to the Indonesian Gastronomy Academy (AGI, 2016) and its Triangle Concept of Indonesian Gastronomy, authentic local food is deeply influenced by both culture and history. Food connected to culture is expressed through traditional rituals and local customs, while its historical dimension is reflected in the use of spices. The cultural-historical linkage is further reinforced through the stories embedded in each dish. In the context of the Indonesian Circular Gastronomy Concept, food also involves minimizing raw material waste by transforming food scraps into new products or using entire ingredients efficiently from root to stem and nose to tail. This approach aligns with the principles of circularity and promotes sustainable resource use.

The second pillar is the meals experience which extends beyond food as a product and frames it as a comprehensive experience involving consumption, service, and sociocultural interaction. In Indonesia, meals are often imbued with ritualistic, traditional, and communal values that shape the core of the local food culture. Research conducted by Hendriyani et al. (2020) demonstrates that tourists' traditional dining experiences in Bali are influenced by several factors: food quality, service quality, ambiance, price, cleanliness and health aspects, as well as storytelling behind the dishes. These elements significantly enhance tourist satisfaction and loyalty. Within the Indonesian Circular Gastronomy framework, the meals experience also encompasses responsible consumption practices such as portion control to avoid food waste and encouraging healthy and sustainable eating patterns. Educating tourists is essential and can be effectively facilitated through food storytelling, especially during interactive moments throughout the dining experience.

The third pillar is sustainability, which lies at the core of the Indonesian Circular Gastronomy Concept. This pillar promotes sustainable resource management, including food waste reduction, recycling, and the reuse of food ingredients as well as eco-friendly packaging. It also involves the preservation of ecosystems and local culture to ensure that Indonesian gastronomy continues to thrive without compromising environmental and sociocultural integrity. Sustainability in this context requires balancing ecological, social, and economic dimensions. Accordingly, the Indonesian Circular Gastronomy Concept integrates the optimal use of authentic local ingredients with cultural dining experiences that foster responsible and sustainable consumption. It reflects circular economy principles by maintaining the equilibrium among nature, society, and economy through efficient, regenerative food system practices.

This concept not only aims to preserve Indonesia's culinary and cultural heritage but also ensures that food production and consumption are carried out in an environmentally responsible and future-oriented manner. Economically, the development of circular gastronomy enhances resource efficiency and reduces operational waste, resulting in cost savings, as demonstrated by initiatives from IHG and Accor (Bux & Amicarelli, 2022). Socially, the adoption of circular gastronomy practices strengthens brand reputation, attracting environmentally conscious tourists—an expanding market segment (Booking.com, 2021). Moreover, such practices foster local economic development by promoting the use of local ingredients and supporting small-scale farmers, as exemplified by sustainable restaurants in Bali (Trip Canvas, 2019).



International and National Regulations Advancing Circular Gastronomy in Indonesia

In the pursuit of an inclusive and sustainable economic transformation aligned with the Vision of Golden Indonesia 2045, the Indonesian government has articulated strategic policies for the development of the tourism sector. These include strengthening the culinary tourism sector as part of the creative economy, which holds significant potential to improve community welfare. The Ministry of Tourism of the Republic of Indonesia has explicitly identified gastronomy as one of the nation's "hidden gems" of tourism. Through its strategic document *Gastronomy Towards World-Class Destinations*, gastronomy is conceptualized not merely as a food offering but as a multisensory cultural experience, with emphasis on four pillars: culinary innovation, sustainable ecosystems, global marketing, and multi-stakeholder collaboration (Ministry of Tourism, 2024a).

The sustainability aspect of gastronomy is a key priority in the national initiative *Indonesia Spice Up the World (ISUTW)*. This initiative aims to enhance Indonesia's global competitiveness as a gastronomic tourism destination by promoting spices and seasonings, developing Indonesian restaurants abroad, and strengthening domestic gastronomic destinations. This approach is closely aligned with circular gastronomy principles, including the sustainable use of local ingredients, food waste minimization, and the promotion of environmentally friendly supply chains (Purwasito, 2016).

At the national level, long-term development policy is also supported by Law No. 59 of 2024 on the National Long-Term Development Plan (RPJPN) 2025–2045, which outlines a development trajectory reducing greenhouse gas emission intensity toward net-zero and enhancing responsible consumption and production (SDG 12). This legal framework provides both a normative and operational basis for developing gastronomy tourism grounded in circularity and sustainability principles. Indonesia also plays an active role in regional cooperation, as reflected in the ASEAN Gastronomy White Paper, which supports the development of the ASEAN Region of Gastronomy. This regional initiative aims to strengthen sustainable food systems through tourism by integrating the agriculture, culture, and education sectors (ASEAN Tourism Ministerial Meeting, 2019). Collectively, these national and regional policy instruments demonstrate that the development of Indonesia's gastronomy tourism is being directed toward:

- elevating the value of local ingredients and culinary uniqueness;
- promoting environmentally sustainable culinary practices;
- enhancing global competitiveness through culinary diplomacy and national branding;
- ensuring inclusive stakeholder engagement through cross-sector collaboration (Pentahelix model).

As such, gastronomy tourism is positioned not merely as a complementary strategy within national tourism, but as a transformative instrument of the creative economy that supports sustainable food systems, cultural diplomacy, and tourism development aligned with the Sustainable Development Goals (SDGs).

To support the development of circular gastronomy in Indonesia, alignment with global policy directions that emphasize sustainability in food systems and tourism is essential. Three major international frameworks serve as critical foundations for this agenda:

1. SDG 12.3 on reducing food waste in the retail and consumption sectors;
2. UNWTO Guidelines for the Development of Gastronomy Tourism; and



3. The European Union Circular Economy Action Plan (2020).

Table 3. Major International Policy Frameworks Supporting Circular Gastronomy Development

| No | International Framework | Key Policies Focus |
|----|---|---|
| 1 | SDG 12.3 on reducing food waste in the retail and consumption sectors | Aims to reduce global food waste by 50% at the retail and consumer levels, while minimizing food losses along production and supply chains. |
| 2 | UNWTO Guidelines for the Development of Gastronomy Tourism | Promotes a holistic approach to gastronomy development that emphasis sustainability, cultural identity and active community participation. |
| 3 | The European Union Circular Economy Action Plan (2020) | Advocates a systemic transition toward a circular economy based on redesign, reuse, recycling and waste reduction across all industrial sectors, including food and beverage. |

Source: Document analysis conducted by authors' team

First, SDG Target 12.3 aims to halve global food waste by 2030. In the context of gastronomy tourism, this target can be pursued through initiatives such as educating tourists on responsible portion sizes, encouraging the use of local ingredients, and innovating in food waste processing to create value-added products. Circular gastronomy serves as a core strategy for achieving this target by fostering more efficient food systems, minimizing waste, and shifting the consumption paradigm from excess to responsibility.

Secondly, the UNWTO Gastronomy Tourism Guidelines issued by the United Nations World Tourism Organization recommend a holistic approach to gastronomy development, emphasizing sustainability, cultural identity, and the active engagement of local communities. Circular gastronomy reinforces these guidelines by promoting zero-waste kitchen practices, the reuse of food materials, and cross-sector collaboration among restaurants, local farmers, and tourism stakeholders. The UNWTO report also outlines two models for measuring the impacts of food consumption, including those developed by the World-Wide Fund for Nature (WWF), which provide frameworks for assessing consumer-driven environmental footprints. These approaches not only enhance the tourist experience but also foster greater awareness of the environmental impacts associated with excessive food consumption.

Thirdly, the European Union's Circular Economy Action Plan (2020) strongly advocates a transition toward a circular economy by prioritizing redesign, reuse, recycling, and waste reduction across all industrial sectors, including food and beverage. When adapted into circular gastronomy, the circular economy framework can be operationalized through practices such as the use of low-carbon, locally sourced ingredients, sustainable logistics systems, the reduction of plastic packaging in restaurants and hotels, and the integration of technology in food waste management. This action plan establishes a comprehensive operational framework that can be adopted transnationally to support the advancement of circular economy principles within the gastronomic tourism sector.

Together, these international references—SDG 12.3, the UNWTO Gastronomy Tourism Guidelines, and the EU Circular Economy Action Plan—provide essential policy foundations that align with and reinforce the implementation of circular gastronomy. By incorporating sustainability, cultural richness, and system-wide collaboration, circular gastronomy emerges as a transformative pathway for developing responsible and resilient food systems within the global tourism industry.



At the national level, several regulations address sustainability and waste management in tourism; however, there is currently no specific regulation that explicitly governs the implementation of circular gastronomy in Indonesia as shown in Table 4.

Table 4. Key National Policy Frameworks Related to Sustainability and Circular Gastronomy in Indonesian Tourism

| No | National Policy | Main Focus |
|----|--|--|
| 1 | Presidential Regulation No. 83 of 2018 on Marine Debris Management | Establishes the National Action Plan for Marine Debris 2018-2025 with the goal of reducing marine plastic waste by 70% by 2025 |
| 2 | Ministerial Regulation of Tourism and Creative Economy No 14 of 2021 on sustainable Tourism Destinations | Outlines a comprehensive sustainability framework structured around four pillars: (1) sustainable management, (2) socio-economic sustainability, (3) cultural sustainability and (4) environmental sustainability. |
| 3 | National Long-term Development Plan (RPJPN) 2025-2045 | Defines Indonesia's long term vision for a green, inclusive, and sustainable economy emphasizing resource efficiency, decarbonization and the circular economy as pillars of national transformation. |

Source: Document analysis conducted by authors' team

Key national policies include Presidential Regulation No. 83 of 2018 on Marine Debris Management, Ministerial Regulation of Tourism and Creative Economy No. 14 of 2021 on Sustainable Tourism Destinations, and the National Long-Term Development Plan (RPJPN) 2025–2045, which outlines a vision for green economic transformation and high-quality tourism. Presidential Regulation No. 83/2018 establishes a national framework for reducing marine plastic waste, with a target of cutting such waste by 70% by 2025. This policy is operationalized through the National Action Plan for Marine Debris (RAN PSL) 2018–2025, which encompasses five strategic pillars: (1) public awareness campaigns, (2) land-based waste control (both upstream and downstream), (3) coastal and marine waste management, (4) financing, institutional strengthening, and law enforcement, and (5) research and technology development. Programmatic efforts include public education, the development of biodegradable plastics, waste-to-energy initiatives, the application of standard operating procedures (SOPs) for marine vessels and tourism operators, waste management facilities for small islands, and cross-sector collaboration. As of 2022, approximately 35% of the plastic leakage reduction target had been achieved, resulting in on-the-ground impacts such as the establishment of “Coastal Schools,” plastic bag bans, and institutional strengthening in waste governance (Riksfardini & Asmara, 2023).

In parallel, Ministerial Regulation No. 14/2021 on Sustainable Tourism Destinations provides a structured sustainability framework grounded in four pillars: sustainable management, socio-economic sustainability, cultural sustainability, and environmental sustainability. Under the pillars of cultural and economic sustainability, the policy encourages the development of culturally rooted local tourism products, including gastronomy. Meanwhile, the RPJPN 2025–2045 emphasizes Indonesia's transition toward a green, inclusive, and sustainable economy, prioritizing resource efficiency, decarbonization, and the strengthening of the circular economy. In the tourism sector, the RPJPN supports the development of environmentally responsible, community-based, and carrying-capacity-conscious tourism. This direction aligns closely with efforts to reduce



food waste as part of green economy strategies that promote sustainable consumption and production, particularly within the tourism and culinary sectors. Systematic food waste management—through education, technology, and multi-stakeholder collaboration—can significantly support the RPJPN's goals of developing ethical, resource-efficient tourism that contributes to the achievement of SDG targets, particularly SDG 12.3 on halving food waste by 2030. Despite these supportive frameworks, it is important to note that neither international nor national policy frameworks have yet established explicit regulatory guidelines for the implementation of circular gastronomy. This regulatory gap highlights the need to integrate circular gastronomy principles into future tourism, food, and environmental policy instruments. Together, these policies and strategies underscore the importance of regulations not only as compliance mechanisms but as catalysts for systemic change, promoting sustainability and resilience in gastronomy (Matthews et al., 2021).

Opportunities and Challenges in Implementing Circular Gastronomy within Indonesia's Tourism Sector.

Despite its clear benefits, the implementation of circular gastronomy in tourism destinations—particularly in Indonesia—faces several notable challenges. Nyberg et al. (2022) highlight the lack of comprehensive understanding of circularity and gastronomy as an integrated concept, which complicates practical adoption. Furthermore, studies have indicated a pressing need for deeper investigation into the drivers and barriers of consumer engagement in circular practices, specifically in the context of food waste management (Wu et al., 2021). One of the major barriers to reducing food waste in the tourism sector is the low level of awareness among culinary tourism stakeholders regarding the concepts of circular gastronomy and food system sustainability. Many food service operators, including restaurants, hotels, and local food vendors, lack an understanding of the economic, social and environmental impacts of food waste. This limited literacy results in food waste management being sidelined in tourism operations.

Additionally, the absence of specific regulations and technical guidelines further hinders the adoption of sustainable practices such as organic waste segregation, redistribution of surplus edible food, and the conversion of food waste into compost or energy (UNEP, 2021; FAO, 2019). Without accessible and practical regulatory frameworks, food service businesses remain limited in their capacity to integrate circular principles into day-to-day operations. Another significant challenge lies in the fragmented coordination among the tourism, food and environmental sector. Cross-sectoral collaboration remains limited, as tourism, agriculture and environmental often work uncoordinated. This is compounded by lack of data and in-depth research on the scale, sources, and impacts of food waste at tourism destinations, especially in developing countries such as Indonesia. Without accurate and integrated data, policy formulation and program planning for food waste reduction cannot be effectively targeted or implemented. To address these challenges, stronger synergies among stakeholders including academia, industry, and government are urgently needed. Collaborative efforts should focus on enhancing data-driven research, improving stakeholder capacity, and formulating context-specific, actionable policies at the destination level (Papargyropoulou et al., 2014; WRAP, 2020).

Another key challenge is the fragmented coordination among sectors, particularly between tourism, food, and environmental governance. Cross-sectoral collaboration

remains limited, hindering the development of an integrated ecosystem capable of addressing food waste in a comprehensive and holistic manner. This issue is further exacerbated by the scarcity of robust data and in-depth research regarding the scale, sources, and impacts of food waste in tourism destinations, especially in developing countries such as Indonesia. Without accurate and integrated data, policymaking and the design of effective food waste reduction programs remain suboptimal. To overcome these challenges, multi-stakeholder synergies are essential. This includes cooperation among academics, industry practitioners, and government actors to strengthen data-driven research and to promote practical and context-specific policy development at the destination level (Papargyropoulou et al., 2014; WRAP, 2020).

Many tourism and hospitality stakeholders exhibit limited literacy regarding circularity which often relegates food waste management to a secondary concern. A major contributing factor is the absence of robust, sector-specific regulations: without clear guidance on food waste segregation, redistribution, or composting, implementation across tourism business becomes inconsistent and largely suboptimal (De Jong et al., 2018). Further complicating matters is the cross-sectoral fragmentation among tourism, food, and environmental authorities, which results in siloed interventions rather than coordinated, ecosystem-level strategies. Insufficient and unreliable data on the extent and types of food waste further compound the difficulty of designing targeted, evidence-based interventions. Economic barriers—such as constrained resources and the lack of accessible green financing—impede investment in eco-innovative solutions. Finally, both tourists and industry actors demonstrate gaps in awareness and engagement with the core tenets of circular gastronomy, indicating a critical area for further research and practical outreach (Kivela & Crotts, 2005). These intertwined challenges highlight an urgent research and policy gap: the need for comprehensive regulatory support and multi-stakeholder collaboration to systematically embed circular gastronomy within Indonesia's tourism sector.

Culinary tourism destinations such as Bali, Yogyakarta, Minangkabau, and Lombok hold significant potential to be developed as models of circular gastronomy in Indonesia. These regions are not only rich in local culinary heritage but also possess strong community structures, traditional food processing expertise, and well-established tourism appeal. This potential aligns with the principles of place-based development, wherein local strengths and resources are leveraged to drive sustainable tourism transformation (Richards, 2018; UNWTO, 2019). Circular gastronomy in these destinations could therefore serve as a replicable model that integrates environmental sustainability, cultural preservation, and economic empowerment within the broader framework of sustainable tourism development.

The hospitality and restaurant industries also play a strategic role in food waste reduction. Hotels and restaurants can adopt integrated waste management systems, such as food composting and adaptive portioning mechanisms, to prevent overproduction and minimize leftovers. Moreover, partnerships with local farmers not only shorten the supply chain but also enhance food security and support local economies. These practices have been shown to improve operational efficiency and shape tourist perceptions, especially among travellers who are increasingly concerned with environmental issues (Gössling & Hall, 2019; WRAP, 2020). Furthermore, eco-certifications such as Green Key or



EarthCheck can serve as incentives for industry stakeholders to adopt circular economy principles.

Educational tourism also offers significant opportunities to internalize sustainability values within the tourist experience. Programs such as visits to organic farms, zero-waste cooking classes, and community-based culinary tours can function as both educational and recreational platforms. Through these experiences, tourists move beyond passive consumption and become agents of change who are aware of the environmental impacts of their food choices. Additionally, the advancement of digital technologies can support food waste reduction through innovations such as stock-monitoring applications, food redistribution platforms, and circular logistics systems. These digital solutions have proven effective in urban and global tourism contexts and are increasingly integral to the digital transformation agenda in tourism, as emphasized in Indonesia's National Long-Term Development Plan (RPJPN) 2025–2045 (UNEP, 2021; World Bank, 2020).

Based on the identified opportunities and challenges in implementing circular gastronomy in the tourism sector, this study proposes four policy recommendations relevant to the Indonesian context and valuable for consideration by tourism stakeholders. First, the integration of circular gastronomy concepts into the sustainable tourism destination standards is a strategic measure to reinforce Indonesia's commitment to achieving the Sustainable Development Goals (SDGs), particularly SDG 12 on responsible consumption and production. Circular gastronomy should be embedded within destination assessment indicators, including Indonesia's existing CHSE framework (Cleanliness, Health, Safety, and Environment), developed by the Ministry of Tourism and Creative Economy. By incorporating circularity principles into destination quality standards, tourism managers receive structural incentives to adopt practices such as food waste reduction, organic waste processing, and the efficient use of local ingredients (UNEP, 2021; UNWTO, 2021).

Second, the development of a National Circular Gastronomy Guideline is essential to provide clear and applicable technical references for industry practitioners and relevant stakeholders. Such a guideline should be grounded in both international best practices and local wisdom, reflecting the culinary heritage and cultural diversity across Indonesian regions. This approach would strengthen the dimension of glocalization in culinary tourism development by merging global standards with local contexts. The guideline could include strategies for inventory management, the reuse of surplus edible food, and community-based food ethics practices (FAO, 2019; Papargyropoulou et al., 2014). Third, offering economic incentives—such as green certifications, tax reductions, or access to green financing for hotels and restaurants adopting circular gastronomy—represents a market-based approach to fostering behavioural change in the industry. Certifications such as EarthCheck, Green Key, or those endorsed by the Global Sustainable Tourism Council (GSTC) can be used to assess the extent to which hospitality businesses manage food waste and organic waste sustainably. Moreover, green financing schemes are essential to support investment in eco-innovations and environmentally friendly infrastructure in the hospitality and culinary sectors (OECD, 2020; World Bank, 2020).

Fourth, multi-stakeholder collaboration and curriculum innovation in vocational education are critical long-term pillars. Circular gastronomy requires not only regulatory frameworks but also a broader social and cultural transformation involving chefs, academics, tourism associations, indigenous communities, and younger generations.



Therefore, tourism vocational education should begin integrating specialized modules on food circularity, food waste management, and food ethics into its curricula. This ensures that future tourism professionals are equipped with the awareness and competencies needed to implement sustainability principles from an early stage (Richards & Hjalager, 2018; BCFN, 2021). These recommendations are closely aligned with the City of Gastronomy Implementation Framework and Action Plan 2020–2024, which outlines key indicators for achieving the City of Gastronomy vision. These indicators span cultural, health, economic, environmental, and educational dimensions, positioning the city not only as a hub of food and beverage but as a collaborative platform for building inclusive, sustainable, and creative urban development.

Key indicators include: (1) festivals and the preservation of local cultural and culinary knowledge; (2) access to healthy and locally sourced food; (3) environmental sustainability through regenerative agriculture and circular food economy practices; (4) support for local economies through the growth of small-scale and artisanal agribusinesses and culinary enterprises; and (5) education and training in gastronomy and tourism to foster sustainable career pathways. The framework also emphasizes the importance of multi-stakeholder collaboration involving governments, indigenous communities, the food and beverage industries, the education sector, and international organizations to ensure impactful and inclusive implementation. Within this context, gastronomy becomes a medium for social transformation, public health promotion, creative innovation, and the strengthening of local identities in the global arena, particularly through the UNESCO Creative Cities of Gastronomy network.

Advancing the Circular Gastronomy Framework in Indonesian Tourism

The “Advancing the Circular Gastronomy Framework in Indonesian Tourism” model as illustrated as Figure 1, encapsulates a comprehensive and culturally grounded approach to developing a sustainable gastronomy sector. It systemically outlines the challenges and opportunities in the field, progressing toward research-based insights, urgent needs and context-specific recommendations. At its core, the model bridges technical innovation with cultural heritage, distinguishing it from policy-centric approaches commonly found in European contexts. By foregrounding Indonesia’s Gastronomy Triangle—highlighting the synergy of local ingredients sourcing, diverse culinary practices, and culturally sensitive consumption patterns—the framework emphasizes sociocultural transformation, community participation, and the integration of tropical ecosystems. Ultimately, it positions Indonesia as a global innovator in circular gastronomy, advancing both academic perspectives and pragmatics pathways for implementation.



Figure 1. Advancing the Circular Gastronomy Framework in Indonesian Tourism

Figure 1 illustrates the structured framework for advancing circular gastronomy within Indonesian tourism, mapping the progression from the current state and key challenges to targeted research, urgent needs, strategic recommendations, and the overall vision. The chart visually organizes each component, highlighting how existing issues, barriers, opportunities, and foundational research collectively inform actionable steps and position Indonesia as an innovative leader in sustainable, culturally grounded gastronomy. The following outlines the structural components of *the Advancing the Circular Gastronomy Framework in Indonesian Tourism*:

- 1) **Current State:** Identifies existing issues in Indonesia’s tourism gastronomy sector.
- 2) **Barriers & Opportunities:** Depicts the factors that shape and influence the key area requiring critical attention.
- 3) **Research & Analysis:** Represents the foundational work that integrates both local and global insights.
- 4) **Urgent Needs:** Functions as the bridge, synthesizing challenges and opportunities into actionable directions.
- 5) **Key Recommendations:** Provides context-appropriate, holistic steps for effective implementation.
- 6) **Vision:** Articulates the long-term aspiration of positioning Indonesia as a leader in sustainable gastronomy.

These six steps must be carried out in a chronological and comprehensive manner to effectively advance circular gastronomy within Indonesian tourism. Beginning with the identification of the current state, the process first highlights pressing issues faced by the sector. Subsequently, analyzing barriers and opportunities becomes crucial for understanding the factors require immediate attention. Building on this, the research and analysis stage draws upon both global trends and local realities, providing the foundational insights needed for strategic planning. Addressing urgent needs then functions as a connecting bridge, translating challenges and opportunities into targeted actions. The formulation of key recommendations ensures the implementation of integrative, context-specific strategies. Ultimately, this structured progression culminates in a clear vision: positioning Indonesia as a leader in sustainable gastronomy through holistic, culturally grounded transformation. Although the proposed model is primarily conceptual, it is derived from a thematic analysis of peer-reviewed studies, international policy documents,

and Indonesian case studies. Future research will strengthen this model through empirical validation, including stakeholder interviews, food waste data analysis, and prototyping in selected destinations.

CONCLUSION

This article makes a significant conceptual framework contribution by addressing research gaps in sustainable gastronomy and introducing a context-specific circular gastronomy framework for Indonesia. By centering Indonesia's "Gastronomy Triangle"—the synergy of local ingredient sourcing, both traditional and innovative culinary practices, and culturally sensitive sustainable consumption—the study highlights the importance of cultural dynamics, community participation, and the richness of tropical ecosystems. This approach shifts academic discussions from a narrow focus on supply-chain efficiency and waste reduction toward a holistic integration of sustainability, heritage preservation, community empowerment, and consumer education. By contrasting the more policy-driven and institutionalized European models with Indonesia's culturally grounded gastronomy approach, the article demonstrates that local wisdom and tradition-based solutions can be highly adaptive and relevant for developing and tropical countries.

The novelty of this research lies in the development of a contextually relevant circular gastronomy framework that foregrounds Indonesia's unique cultural heritage, community engagement, and diverse local ecosystems—elements often neglected in previous studies that are predominantly European-focused. By introducing the "Gastronomy Triangle" concept, this article expands the scope of circular gastronomy to include sociocultural transformation alongside environmental and economic considerations. Consequently, Indonesia is positioned not merely as a follower, but as a leading innovator in the global discourse on sustainable gastronomy.

Theoretically, future research and the development of circular gastronomy frameworks should integrate cultural heritage and community engagement. Practically, it is essential to develop sector-specific policy guidelines, provide incentives, foster cross-sectoral collaboration, and enhance stakeholder literacy. Clearer regulations, integrated data systems, and community empowerment are recommended to support Indonesia's efforts to become a global reference for holistic and contextually grounded circular gastronomy implementation. In alignment with Indonesia's national policy frameworks—which prioritizes quality and sustainable tourism through designated priority destinations and tourism areas—the proposed circular gastronomy framework can be strategically adopted by local governments as a policy innovation. Its practical application lies in strengthening destination competitiveness from a gastronomic perspective. Therefore, the integration of circular gastronomy principles into regional tourism development plans is strongly recommended as a strategic direction for local governments.

This article is subject to several limitations. As a qualitative, literature-based study, the analysis relies on secondary data, which may not fully capture the actual practices of circular gastronomy. The absence of empirical fieldwork limits the ability to validate how circular gastronomy is being operationalized in the destination level. Therefore, future research should prioritize empirical data collection, explore policy experimentation, and cross-sector governance to accelerate systemic transitions toward regenerative food tourism.



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BALINESE WOMEN IN GASTRONOMIC TOURISM: REDEFINING ROLES AND CULTURAL CAPITAL IN A GLOBALIZING INDUSTRY

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| Article Info | Abstract |
|--|---|
| <p>Keywords: Balinese women, gastronomic tourism, cultural capital, gender roles, social construction.</p> <p>Received: July 17, 2025</p> <p>Approved: November 17, 2025</p> <p>Published: December 05, 2025</p> | <p>This study aims to identify and analyze the construction of Balinese women's roles in sustainable gastronomic tourism in Gianyar Regency. It begins by addressing the underexplored issue of how Balinese women negotiate and redefine their gendered positions within a rapidly globalizing tourism context. Using a qualitative interpretive approach, this research applies a thematic interpretation and constant comparative method supported by role theory, social construction theory, and Pierre Bourdieu's theory of social practice. This research involved eight purposively selected female culinary entrepreneurs. Data were collected through in-depth interviews, participatory observation, and visual documentation. The findings reveal that Balinese women construct their roles in four key categories: cultural initiators, cultural instructors, adaptive professionals, and cultural curators. They successfully convert domestic <i>habitus</i> and cultural capital into economic and symbolic capital within the tourism arena. These findings demonstrate how women's agency bridges domestic and public spheres while fostering gender equality, cultural resilience, and sustainable tourism. Despite facing dual role burdens and structural constraints, their adaptive strategies have generated multidimensional impacts across economic, social, and cultural domains. This study contributes theoretically by integrating three sociological frameworks to explain role transformation, practically by offering insights for gender-responsive tourism development policies in line with the sustainable Development Goals (SDGs).</p> |

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INTRODUCTION

Balinese women play a central role in the development of gastronomic tourism, particularly in Gianyar Regency. Since the early growth of this sector, women have been key actors in shaping the local culinary ecosystem ranging from opening modest food stalls to becoming cooking class instructors and family-based entrepreneurs. This role places them not only in the realm of economic activities but also in the creation of authentic tourism experiences imbued with local cultural nuances (Komalasari et al., 2024; Pitanatri, 2016; Yanthy, 2016).

However, the growing visibility of women in gastronomic tourism does not always translate into fair recognition or decision-making power within the industry. Despite their substantial contributions, women’s roles in the formal structures of the tourism industry remain underacknowledged. Many are still relegated to technical or domestic positions rather than recognized as decision-makers (Shantika et al., 2021), a pattern echoed in various global contexts.

This pattern is not unique to Bali but resonates across various contexts worldwide. In Greece, for instance, creative women significantly shape the gastronomic image of destinations, yet continue to face structural gender-based discrimination (Poulaki et al., 2022). Similarly, in Spain, while women serve as key custodians of culinary heritage, particularly with PDO/PGI products, they are often excluded from the official tourism narratives (García-Henche et al., 2024). A parallel condition is found in Indonesia, as demonstrated by the women of Baluwarti, Surakarta, who preserve traditional foodways through festivals and local eateries (Budiningtyas & Turgarini, 2019).

In contrast, women’s cooperatives in Turkey and ethnic minority communities in Vietnam have shown more inclusive and empowering practices by transforming local culinary heritage into collective tourism assets (Akmese et al., 2024; Dang & Phan, 2023). This illustrates that women’s engagement in gastronomic tourism involves both structural challenges and creative strategies that vary across cultural settings. The comparative overview of these patterns is summarized in Table 1.

Table 1. Comparative Overview of Women’s Roles in Gastronomic Tourism

| Country | Typical Roles | Main Barriers | Adaptive / Empowerment Strategies | Reference |
|---------|---|---|--|-----------------------------|
| Greece | Creative entrepreneurs shaping destination images | Gender-based discrimination; limited leadership access | Networking through local associations; informal mentorship | Poulaki et al. (2022) |
| Spain | Custodians of heritage foods (PDO/PGI products) | Exclusion from official tourism narratives and policies | Community-based initiatives; culinary education programs | García-Henche et al. (2024) |
| Turkey | Members of women’s cooperatives valorizing local gastronomy | Limited access to capital and visibility | Cooperative-based empowerment and shared ownership | Akmese et al. (2024) |
| Vietnam | Ethnic minority women as cultural educators and guides | Market inequalities; limited institutional support | Mobilizing social and cultural capital for empowerment | Dang & Phan (2023) |



| | | | | |
|-------------------------|--|--|---|------------------------|
| Indonesia (Bali) | Cultural curators and economic innovators in gastronomic tourism | Patriarchal norms; dual domestic–public burden | Role negotiation, community solidarity, and cultural entrepreneurship | Shantika et al. (2021) |
|-------------------------|--|--|---|------------------------|

Source: Research Data, 2025

As shown in Table 1, women’s participation in gastronomic tourism reflects recurring patterns of marginalization but also diverse forms of agency and adaptation. In the Balinese context, women’s strategies, such as role negotiation, community solidarity, and cultural entrepreneurship, reflect a synthesis of local values and adaptive innovation. These comparative features underscore the global nature of gendered challenges while situating Bali as a distinctive case where cultural identity and empowerment intersect.

In Bali, women’s role in gastronomic tourism is strongly connected to the island’s culinary and cultural traditions. Balinese cuisine is not only about eating but also a way to express social values, spirituality, and identity (Agung & Suryawati, 2024). Food is deeply tied to rituals and community life, and every stage—from farming and spice blending to serving—carries cultural meaning (Sartini, 2018; Sukerti & Marsiti, 2020). Balinese women are the main keepers of this knowledge. Gastronomic tourism in Bali has become a space where women act as guardians and creators of culinary heritage (Giri Adnyani, 2023). Through food stalls, cooking classes, and agro-tourism, they not only serve food but also share stories and traditions through each dish. Many women also run businesses and guide visitors through these experiences (García-Henche et al., 2024; Rocio Beltran Rueda & Alexander Mora Forero, 2022). Yet, their contributions are still not fully recognized in policies and public narratives, which often remain male-centered and profit-driven (Gibson et al., 2017; Khoo & Guan, 2025; Silva & Couto, 2023).

These realities show that Balinese women’s participation in gastronomic tourism involves more than economic activity; it reflects a negotiation of social positions and cultural meanings shaped by gender and tradition, which requires a theoretical lens to explain how such roles are constructed, challenged, and transformed.

Building on these empirical observations, it is essential to interpret women’s experiences through a theoretical lens that explains how such roles are formed, negotiated, and transformed. According to role theory (Biddle, 1986), social roles shaped by norms and expectations tides to individuals’ social positions. Balinese women have long been associated with domestic obligations, yet the expansion of gastronomic tourism enables them to reinterpret these boundaries and convert culinary knowledge into symbolic and economic capital.

Nevertheless, academic studies on gastronomic tourism in Bali, particularly those that critically examine the roles of women, remain scarce. Most existing research tends to focus on tourist experiences or gastronomic products, such as cooking classes and culinary festivals (Bell, 2015; Bestari et al., 2022), without delving into the social construction of women’s roles or their strategies for navigating patriarchal structures and global market demands.

Given this research gap, this study attempts to fill it by examining how Balinese women construct, negotiate, and transform their roles within the field of gastronomic tourism. Conducted in Gianyar Regency, Bali, during 2023–2024, this study involved women entrepreneurs managing family-based culinary businesses, cooking classes, and agro-tourism ventures as representative cases. This study contributes to understanding how



women's cultural institutions and everyday practices redefine gender-based work in tourism while reinforcing local identity and cultural sustainability.

In response to these issues, this article aims to explore two central research questions: first, what roles do Balinese women assume within the sphere of gastronomic tourism?; and second, how are these roles socially constructed, negotiated, and transformed within the dynamic interplay of local cultural values, patriarchal social structures, and global market forces? To address these questions, this study adopts an interpretive-qualitative approach, drawing on three key theoretical frameworks: role theory (Biddle, 1986), the social construction of reality theory (Berger & Luckmann, 1966), and Pierre Bourdieu's theory of social practice (1990).

These three theories are combined to capture the complexity of women's experiences in gastronomic tourism from different yet complementary perspectives. Role Theory explains how women's positions and expectations shift between domestic and public spheres; the Social Construction framework shows how these roles are produced, legitimized, and maintained in everyday life; and Bourdieu's Theory of Practice reveals how cultural knowledge and *habitus* are transformed into social and symbolic capital within the tourism field. Together, these perspectives provide a comprehensive view of how structure and agency interact in shaping women's participation in Bali's gastronomic tourism, allowing the study to explore not only women's economic involvement but also the deeper cultural and social transformations behind it.

By employing this approach, women are not merely perceived as economic agents driving the tourism industry, but as cultural actors who actively reshape and rearticulate their roles, social positions, and symbolic meanings amid the broader socio-cultural transformations brought about by tourism. As such, this study offers both theoretical and empirical insights into the intersections of gender, culture, and tourism, highlighting the transformative potential of women's agency in reconfiguring traditional roles within a globalizing context.

METODOLOGY

Research Approach

This study employs a qualitative approach to explore the meanings, lived experiences, and social strategies of Balinese women involved in gastronomic tourism. This approach allows for a nuanced examination of the dynamics of women's roles within the intersections of local cultural traditions, patriarchal social structures, and the demands of the global tourism market.

Research Location and Subject

This research was conducted in Gianyar Regency, Bali, which was purposively selected due to its reputation as the epicenter of Balinese gastronomic tourism and its recognition by the Indonesian government as the prototype of a national gastronomic destination. Gianyar represents a microcosm of Balinese cultural tourism where women play significant roles both in domestic and public domains.

Eight female informants were purposively selected to reflect variations in age, educational background, and types of gastronomic involvement such as traditional food stalls, cooking classes, agro-tourism, and food festivals. Despite the relatively small



number of participants, this sample size is consistent with qualitative research practices emphasizing depth over breadth, and data saturation was achieved when no new categories emerged.

Data Collection and Research Procedures

Data were collected through in-depth interviews, participatory observation, and visual documentation. Each interview lasted 60-90 minutes, and was conducted in the Indonesian and Balinese languages with verbal consent and later transcribed. Observation took place during daily business and cultural activities to capture women's practices and interactions in gastronomic settings.

Participants in this study are publicly known business owners and culinary actors who regularly interact with tourists. Their real names are used to maintain contextual accuracy, as their professional identities are already public. No personal or sensitive information is disclosed, and all interviews were conducted by respecting research ethics and employing cultural sensitivity to Balinese communities.

Data Analysis Techniques and Analytical Framework

The data were analysed using a thematic interpretation framework combined with the constant comparative method. Analysis proceeded in three coding stages: open coding to identify initial concepts, axial coding to connect categories and subcategories, and selective coding to develop core themes that reflected the central phenomena. Each piece of new data was systematically compared with previous findings until data saturation was reached. The process was conducted reflexively to understand women's real experiences in gastronomic tourism.

To frame the analysis, three interrelated theoretical perspectives were applied. First, Pierre Bourdieu's theory of social practice (1990), particularly the concepts of *habitus*, *capital* (economic, cultural, social, symbolic), and *field*, was used to examine how women mobilize culinary knowledge and cultural values within tourism arenas. Second, the social construction theory of Peter L. Berger and Thomas Luckmann (1966) provided a lens for understanding how gender roles are shaped, legitimized, and internalized within Balinese social structures. Third, role theory (Biddle, 1986) offered insights into how women negotiate and transform their roles across the domestic-public, traditional-modern, and local-global continuum. These three frameworks complement one another: role theory helps to identify the shifting expectations women face, social construction theory explains how these new roles gain legitimacy and become part of everyday identity, while Bourdieu's practice theory reveals how cultural knowledge and values are transformed into symbolic and economic capital within the tourism field. By combining them, the study goes beyond descriptive accounts and provides a deeper interpretation of power relations, cultural meanings, and women's agency in shaping new socio-cultural spaces through gastronomic tourism.

FINDINGS

Balinese Women's Participation in Gastronomic Tourism

Balinese women have played a pivotal role in shaping the history and development of gastronomic tourism in Gianyar Regency. From the early stages, they emerged as trailblazers by founding home-based eateries that later became culinary landmarks, such as



Ibu Oka's Babi Guling, Nasi Ayam Kedewatan, and Murni's Warung. These entrepreneurial efforts not only reflect their economic contributions but also serve as cultural expressions that embody local values such as *menyama braya* (kinship and communal harmony) and familial solidarity.

As the tourism sector evolved, women's roles expanded beyond the kitchen into the public domain as agro-tourism guides, cooking class facilitators, and managers of community-based enterprises. Through these evolving roles, Balinese women continuously negotiated their position between household responsibility, cultural expectation, and the demands of the competitive global market.

The following subsection presents four key empirical categories identified through the thematic analysis, namely cultural initiators, cultural instructors, adaptive professionals, and cultural curators. Each category captures a distinct yet interconnected dimension of women's participation, demonstrating how Balinese women translate domestic expertise and cultural knowledge into economic, educational, and symbolic capital within the field of gastronomic tourism.

1. Balinese Women as Cultural Initiators in Gastronomic Tourism

Beyond their foundational role in the development of gastronomic tourism in Gianyar Regency, Balinese women have also emerged as cultural initiators who translate local knowledge and tradition into innovative culinary practices. Their efforts are particularly evident in the establishment of family-based culinary enterprises that have transformed into culturally significant gastronomic landmarks. Ni Made Nani (widely known as Menjuwel), the owner of Warung Nasi Ayam Menjuwel, exemplifies how Balinese women strategically integrate domestic expertise, cultural literacy, and market awareness to craft authentic culinary experiences. Other prominent figures include Ni Luh Made Puspawati (Paon Bali Cooking Class) and Citra Dewi (D'Alas Warung), whose entrepreneurial initiatives not only bolster the local economy but also reframe traditional Balinese cuisine as a living cultural expression that continues to evolve, adapt, and thrive amid the shifting currents of global tourism.

Menjuwel recalled, "In the beginning, my *warung* was small, I only sold chicken rice for schoolchildren. Now, many public figures and celebrities have come here, including Mr. Ganjar Pranowo and Bondan Winarno, they have eaten here, too." A similar experience was shared by Ni Luh Made Puspawati: "In 2009, this kind of thing didn't exist... I talked with my husband and said, 'Why don't we try running a cooking class at home?'" Likewise, Citra Dewi, the founder of D'Alas Warung, recounted, "We were pioneers, there were no competitors here at the time. So we opened a small *warung* using standard household utensils. It was a simple idea at first to make sure this land wasn't sold and could instead benefit the family."

These narratives underscore that women's involvement in culinary enterprise initiation, whether consciously or not, functions as a form of cultural preservation and family empowerment. For instance, Warung Menjuwel is not only known for the taste of its food, but also for the emotional and cultural experiences it offers, conveyed through family storytelling and the warm, distinctive hospitality of the Balinese people. The active involvement of children, in-laws, and other family members in the management of the *warung* (local eatery) exemplifies a model of intergenerational regeneration of cultural values and skills within the family unit.

Meanwhile, Citra Dewi has utilized inherited land and reimagined it as a productive space that is both ecological and educational. By maintaining the sustainability of the environment and the social structure of the village, she transformed agricultural land into a site of recreation and learning that introduces the local ways of life to global visitors. These examples indicate that the creation of women-led culinary businesses is grounded in practical family needs yet produces long-term cultural and ecological benefits for the community.

The role of women as cultural initiators is also reflected in their educational strategies. Ni Luh Made Puspawati, for example, designed her cooking class not merely as a space for learning recipes but as an immersive introduction to the Balinese culture. Her program includes insights into the architecture of the traditional Balinese house, the structure of the Hindu belief systems, and the symbolic meanings embedded in local ingredients. She explained, “We always start with a market tour, and then give a simple explanation about the Balinese house, such as what’s inside, who sleeps where, the function of each space, and the basic architecture.” In this way, the kitchen is no longer just a site of domestic reproduction but is transformed into a cultural stage that bridges local narratives with global audiences.

2. Balinese Women as Cultural Instructors

The evolving role of Balinese women in gastronomic tourism extends beyond the establishment of culinary enterprises. With the emergence of participatory tourism models, women have increasingly taken on strategic roles as cultural instructors most visibly through cooking classes, agro-educational tours, and direct engagement with visitors. In this capacity, women are no longer merely providers of food or agricultural products. Instead, they serve as facilitators of knowledge, custodians of local values, and active cultural intermediaries who bridge intercultural understanding ([Komalasari et al., 2024](#); [Shantika et al., 2021](#)).

Two prominent figures in the development of interactive culinary tourism through cooking classes are Ni Luh Made Puspawati (Paon Bali Cooking Class) and I Gusti Ayu Made Madriani, known as Yukde (Casa Luna Cooking School). Both women do more than teach recipes; they curate immersive cultural experiences, using their home kitchens as narrative spaces to communicate local traditions.

Puspawati intentionally designs her cooking sessions as educational and transformative encounters. The Paon Bali program includes guided tours of traditional markets, introductions to Balinese architectural layouts, and explanations of the symbolic significance of *base genep*, the foundational spice blend in Balinese cuisine. Within a humble and intimate setting, participants are not only taught to cook but also invited to experience Balinese values such as familial bonds, spirituality, and ethical living.

Meanwhile, Yukde leads cooking classes at Casa Luna using an approach that blends education with cultural performance. She not only teaches traditional cooking techniques but also acts as a cultural guide, facilitating interactions between tourists and the local community. In her interview, Yukde shared, “Besides being a tutor, I’m also a guide. Those are my two roles, a guide and a tutor. I do guiding too, although it’s still done under the company and not independently, so it is still a part of Casa Luna.” In the classes she conducts, the kitchen becomes a dynamic intercultural stage, a space where she shares

narratives about Balinese womanhood, food philosophies, and the intricate links between culinary practices, religious beliefs, and social structures.

The role of a cultural instructor is also embodied by women in agro-educational tourism settings, where knowledge transmission occurs directly on-site. Jero Suwarni, a senior worker at Bali Pulina Coffee Plantation, is frequently tasked with receiving guests and explaining the coffee processing methods in person. She recounted, "Sometimes, when guests arrive and my colleagues are overwhelmed, I take care of them here in this area... I only know a little English, not much, just the basics, but as long as the guests understand, that's what matters. I don't need to use well-ordered verbs and grammar." Beyond roasting and drying coffee, Jero communicates each stage of production to tourists using an intuitive and self-taught approach. These accounts reveal that women often rely on intuitive, self-taught communication to engage with visitors. Their local knowledge and hospitality allow them to share cultural practices effectively despite limited formal education.

3. Balinese Women as Adaptive Professionals in Gastronomic Tourism

Contemporary gastronomic tourism demands more than culinary skills; it also requires managerial competencies, market adaptability, and service innovation that are sensitive to changing tourism trends and visitor expectations. In this arena, Balinese women have demonstrated remarkable capacity as adaptive professionals, blending traditional skills with modern knowledge to manage enterprises strategically, flexibly, and sustainably (Tajeddini et al., 2017).

A compelling example is Citra Dewi, the founder of D'Alas Warung in Tegallalang. With a background in tourism education and a professional experience in luxury hotels, she chose to return to her village and establish a business that yields not only economic profits but also social and ecological impacts. In her interview, Citra explained, "I want to preserve our family land, so it doesn't get damaged by environmentally unfriendly development, and at the same time prepare for retirement in a productive way." By integrating the concept of eco-cultural hospitality, she created a dining space that harmonizes with nature, supported by family-style service and local narratives shared with tourists. These examples show how local women entrepreneurs adapt business strategies to preserve ecological balance and cultural continuity while sustaining family livelihoods.

In this way, Balinese women, as adaptive professionals in the field of gastronomic tourism, not only assert their capacity to meet the demands of the global tourism industry but also illustrate their ability to align local values, cultural responsibilities, and sustainability ethics within a unified economic practice. They are not merely workers or entrepreneurs but also social innovators propelling Balinese tourism toward a more ethical, empowered, and sustainable future.

Similarly, Kadek Sumawati, a staff member at Bali Pulina Coffee Plantation, exemplifies adaptive professionalism within the context of agrotourism. In her role, she serves not only as a waitress but also as a tour guide. "At Bali Pulina, I work as a guide, like a tour guide explaining to guests about coffee and other products. Sometimes I rotate into other tasks, too," she explained. Meanwhile, Wayan Metriani, a guide at Pemulan Bali Plantation, uses her multilingual abilities not only to describe different types of plants but also to convey the life values of the Balinese society to foreign tourists. She noted that working in the tourism sector provides space for personal development and broader social roles: "I taught myself French and Russian because we often have guests from those



countries. If you don't understand the language, it's hard to explain, so I learned through apps and directly from other guides.”

It is also important to note that many women who run businesses or work in this sector still have to fulfill their domestic and customary roles concurrently. This dual responsibility requires time management, emotional resilience, and a high degree of role negotiation, as Jero Suwarni shared: “Even if I'm tired from ceremonial duties, I still have to come here to work at 3 p.m.” Likewise, Wayan Metriani added that without family support it would be difficult to carry out these roles simultaneously: “If I didn't have my in-laws, I wouldn't have been able to do this work... but if I didn't work, I wouldn't have money for daily needs and ceremonies.” These examples illustrate that Balinese women are not only economic actors but also custodians of cultural and familial values, managing both spheres in parallel.

In practice, professional women in the gastronomic tourism sector are not merely economic actors; they also serve as cultural mediators, family social managers, and transmitters of local values within a global context. Thus, Balinese women as adaptive professionals in gastronomic tourism not only affirm their capacity to meet the demands of the global tourism industry, but also demonstrate their ability to harmonize local values, cultural responsibilities, and sustainability ethics within a coherent economic practice.

4. Balinese Women as Cultural Curators in Gastronomic Tourism

In the midst of increasing commercialization and homogenization in global tourism, Balinese women have assumed a pivotal role as cultural curators serving as custodians, interpreters, and conveyors of local cultural narratives within the sphere of gastronomic tourism. This role entails a high degree of selective and reflective sensitivity in curating, preserving, and representing culinary heritage and indigenous values, while simultaneously safeguarding cultural authenticity in the face of a global tourism market that is often extractive and homogenizing (Rita & Kumar, 2024; Tajeddini et al., 2017).

Rather than presenting food solely as an economic commodity, Balinese women strategically utilize culinary practices as a medium through which cultural identity is articulated and transmitted. Here, food is framed as a living cultural artifact imbued with philosophical significance, ancestral memory, customary structures, and embedded social relationships that collectively shape the Balinese society (Beer, 2016; Mazzuca & Majid, 2023).

One of the most compelling representations of this curatorial role is Ni Made Nani (Menjuwel), the owner of Warung Nasi Ayam Menjuwel in Sayan. Its modest beginning as a food stall catering to schoolchildren has grown into a culinary destination known for its authenticity, drawing the attention of government officials, celebrities, and national food bloggers. Her eatery maintains a strong sense of familial intimacy, functioning as a space for the intergenerational transmission of cultural values, where recipes are inherited and practiced as part of *menyama braya* (kinship and communal harmony).

Similarly, Ni Luh Made Puspawati of Paon Bali Cooking Class has conceptualized her cooking sessions as a form of cultural education, integrating Balinese Hindu cosmology and social structure within a communicative and personalized gastronomic experience. Likewise, I Gusti Ayu Made Madriani (Yukde) of Casa Luna Cooking School enacts a curatorial function by narrating the philosophical dimensions of Balinese womanhood through her culinary pedagogy. In these settings, the kitchen becomes a dynamic



intercultural space, transforming domestic routines into immersive and transformative cultural encounters.

Women like Citra Dewi of D'Alas Warung also fulfill curatorial roles through ecologically conscious approaches. Her work goes beyond serving food; she curates atmosphere and landscape as integral elements of the experience, weaving together spirituality and environmental ethics to shape a holistic and sustainable form of tourism.

In the context of agro-tourism, figures such as Jero Suwarni from Bali Pulina Plantation exemplify the cultural curatorial role through the traditional processing of coffee. Although her role is informal, the preservation of artisanal techniques and local knowledge becomes an essential part of the cultural narrative shared with visitors. Her work reflects the integration of embodied heritage into tourism experiences that prioritize authenticity and cultural depth.

At a broader institutional level, Ni Made Dwi Ermayanthi (Erma) plays a key curatorial role through her leadership in the Ubud Food Festival. Beyond selecting vendors and showcasing local products, she is responsible for curating an inclusive and sustainable culinary narrative that resonates with both local and international audiences. Her approach illustrates how culinary heritage can be thoughtfully edited, organized, and presented in ways that reinforce cultural continuity while remaining accessible and relevant to diverse publics. Her leadership demonstrates how women curate food events that balance tradition and innovation, ensuring that Balinese culinary heritage remains visible, inclusive, and contextually meaningful within the field of global tourism.

DISCUSSION

Balinese Women's Roles in Gastronomic Tourism

The discussion section builds upon the four empirical identified roles of Balinese women, namely cultural initiator, cultural instructor, adaptive professional, and cultural curator, and interprets these roles through the lenses of Bourdieu's theory of practice, Berger and Luckmann's social construction theory, and role theory. By reorganizing these themes into a coherent analytical narrative, this discussion demonstrates how women in Gianyar's gastronomic tourism sector negotiate, redefine, and expand their social roles while simultaneously producing cultural, economic, and symbolic values.

Beyond their foundational roles in the development of gastronomic tourism in Gianyar Regency, Balinese women have also emerged as cultural initiators who translate local knowledge and traditions into innovative culinary practices. These narratives underscore that women's involvement in culinary enterprise initiation, whether consciously or not, functions as a form of cultural preservation and family empowerment. First, these initiatives reflect an integration between domestic and productive roles. The kitchen, previously seen as a private domestic space, has become the starting point for culturally-driven creative economic activity. Second, these women demonstrate the ability to convert local knowledge into a tourism attraction that is both educational and entertaining, while still rooted in tradition. Third, their initiatives are not individual efforts but are anchored in local social values such as *menyama braya* (kinship and communal harmony) and environmental sustainability, making their culinary ventures not only economically viable but also instruments for social and ecological preservation.

Such initiatives are in line with the findings of Simi S & Manjula KG (2024), which show that empowering women through culture-based creative economies can simultaneously preserve cultural heritage and drive sustainable economic development (Simi S & Manjula KG, 2024). Women who tap into local wisdom including culinary heritage are able to generate economic opportunities while strengthening cultural identity. Rita & Kumar (2024) similarly affirm that women play a vital role in preserving and promoting cultural heritage, including traditions, languages, rituals, and artistic expressions that form the foundation of social cohesion and community resilience (Rita & Kumar, 2024).

In the context of Gianyar, these patterns are clearly reflected in figures such as Menjuwel, Puspawati, and Citra Dewi, who transform kitchens, family courtyards, and domestic space into centers of cultural production and education. These women are not merely establishing tradition-based businesses; they are also actualizing core local values such as *menyama braya* (kinship and communal harmony) through their everyday business interactions with tourists.

Drawing from Pierre Bourdieu's theory of practice, these women activate and mobilize the cultural capital embedded within their *habitus* as Balinese women, such as culinary knowledge, inherited recipes, and family values, reconfiguring it into economic and symbolic capital that is acknowledged and valued within the global tourism arena. The transmission of culinary knowledge and kinship values from one generation to the next not only serves as a symbolic force but also becomes a core element of the tourist experience, offering an emotional and authentic encounter with the Balinese culture. This aligns with the findings of Hoxha and Nini (2025), who emphasize that women play a central role in the transmission of intangible cultural heritage such as languages, rituals, and everyday practices within local communities (Hoxha & Nini, 2025).

Thus, cultural initiation becomes the foundational mechanism that bridges domestic space, where *habitus* is formed, with the public arena of tourism, which demands cultural performance and interpretive labour. At this stage, women shift from being cultural initiators to cultural instructors, actively teaching the philosophies, symbolism, and live values of the Balinese culture to tourists. To effectively perform the role of a cultural instructor, Balinese women draw upon a complex combination of capitals, as conceptualized by Pierre Bourdieu. First, they possess embodied cultural capital, internalized through everyday life experiences such as cooking skills, understanding of traditional architecture, and knowledge of ritual foodways. This knowledge is not the product of formal education but is inherited and cultivated within family and customary community settings. Second, they develop social capital through networks with local communities, tourism stakeholders, and tourists themselves, expanding their access to both economic and symbolic resources. For instance, Yukde's long-standing professional affiliation with international institutions has earned her trust as a cultural educator. Third, through recognition by tourists and media narratives, they acquire symbolic capital establishing reputations as authentic cultural representatives of Bali.

Through Bourdieu's lens of practice theory, these various forms of capital, especially embodied cultural capital, are effectively converted into economic and symbolic capital within the tourism field. Concurrently, Berger and Luckmann's theory of social construction reveals how these women externalize and objectify their local knowledge into

new social realities that are legible and valued by global visitors. Practices once embedded in the private sphere of daily life are reformulated into communicative and educational performances within the tourism space, generating new cross-cultural meanings.

When examined through the lens of role theory, the initiatives undertaken by figures such as Menjuwel, Puspawati, and Citra Dewi reflect a nuanced negotiation between domestic responsibilities and public engagement. While their efforts originate within the traditionally private space of the kitchen, they have successfully redefined it as a multidimensional arena encompassing economic activity, cultural transmission, and social interaction. Through this process, the *warung*, the kitchen, and the family courtyard are no longer confined to household functions; instead, they become strategic spaces where women assert their agency while preserving the spiritual and cultural ethos of Balinese life.

This transformation becomes apparent in gastronomic and agro-tourism settings, where women as mothers, wives, and members of traditional communities continue to fulfill socially prescribed domestic responsibilities. Yet, when standing before tourists to explain cooking processes, culinary symbolism, or architectural layouts, they activate socio-cultural roles as bearers of communal values. Simultaneously, they assume public roles as educators, facilitators, and creative economy actors. Through kitchens, farms, and household spaces, they redraw the boundaries between private and public domains, transforming these spaces into participatory arenas of cultural learning that engage both cognitive and affective dimensions of tourist experiences.

In a broader sense, Balinese women are reshaping the very contours of cultural education. Their role transcends the transmission of recipes or production techniques, encompassing the articulation of spiritual values, philosophical worldviews, social hierarchies, and customary practices that are deeply woven into the fabric of Balinese daily life. Domestic spaces such as the home, kitchen, and farmland are transformed into intercultural classroom spaces where the intimacy of local tradition meets the openness of global exchange.

Accordingly, the role of Balinese women as cultural instructors within gastronomic and agro-tourism not only underpins the advancement of sustainable tourism, but also asserts their agency as pivotal actors in the creation, curation, and circulation of cultural knowledge (Giri Adnyani, 2023). Far from being passive custodians of heritage, these women engage in its strategic management, positioning tradition as a living narrative of identity and cultural diplomacy. In doing so, they maintain the authenticity of Balinese values and social relations, even as they navigate the demands of an increasingly globalized tourism economy.

As women expand their roles from those of a cultural initiator and a cultural instructor, their participation in gastronomic tourism further reveals a distinct form of adaptive professionalism shaped by everyday experience, informal learning, and demands of intercultural interaction. These adaptive capacities emerge in response to the fluid, unpredictable, and highly interpersonal nature of gastronomic tourism, where women must navigate service expectations, cultural expressions, and social norms simultaneously.

These statements show that women in this sector are expected to possess role flexibility, cross-cultural communication skills, and mastery of local product narratives. Their ability to quickly switch between service and educational roles reflects a form of adaptive professionalism and embodiment of practical intelligence, which are developed through work experience, informal training, and contextual learning derived from direct



interaction with tourists (Jafarova, 2020). Their professional competence is rooted not in formal hospitality education but in embodied cultural knowledge, years of domestic practice, and interpersonal sensitivity shaped by Balinese social life.

Within Pierre Bourdieu's framework, the abilities demonstrated by women like Citra and Kadek represent a conversion of cultural and social capital into economic capital that is relevant within the modern tourism arena. Their prior work experience in the hospitality industry, social interactions with visitors, and communication skills acquired through hands-on practice serve as embodied capital, internalized and activated in their business and professional spaces (Tajeddini et al., 2017). This process illustrates how domestic *habitus* becomes professional expertise once situated in the tourism field.

From the perspective of social construction theory by Berger and Luckmann, the transformation of Balinese women into adaptive professionals reflects a process of internalizing a new social reality in which women are no longer confined to traditional domestic roles, but instead shape new identities through experience and social interaction in the tourism sector. They emerge as agents of change, actively responding to opportunities and challenges with context-sensitive and long-term adaptive strategies (Komalasari et al., 2024).

Meanwhile, role theory (Parsons, Biddle) interprets their adaptive professionalism as an expansion of domestic roles into the public sphere without fully abandoning the sociocultural values rooted in their communities. These women move fluidly between familial and professional responsibilities, between customary obligations and professional demands, exhibiting a form of flexibility that reflects not only compliance with systems but also their ability to redesign their positions and contributions within an ever-evolving arena.

Adaptive professionalism plays an important role in connecting women's cultural work with the wider tourism industry. It helps them meet tourist expectations, deal with gender-based challenges, adjust their work around their customary obligation, and maintain trust in their workplace. Adaptive professionalism thus serves as both a survival strategy and a form of empowerment that elevates women's status within households, communities, and the tourism industry. It becomes a transformative force, one that reshapes identity, elevates agency, and reinforces the economic and symbolic contribution of Balinese women within gastronomic tourism.

Beyond their adaptive professionalism, Balinese women also take on the role of cultural curators, shaping how Balinese identity is presented, interpreted, and experienced within gastronomic tourism. Their ability to deliver narrative with authority and authenticity allows them to occupy influential position as cultural representatives. Through this work, they turn local food, rituals, and everyday practices into meaningful stories that resonate with global visitors.

From the perspective of Pierre Bourdieu's theory of practice, these women activate symbolic capital by mastering and legitimizing cultural narratives within the tourism arena. Their ability to shape and deliver these narratives with authority and authenticity enables them to occupy influential positions as cultural representatives (Dang & Phan, 2023). Concurrently, drawing on Berger and Luckmann's theory of social construction, their actions can be seen as processes of objectifying and institutionalizing local cultural knowledge into forms that are recognizable and valued within the social structure of tourism without losing the spiritual and symbolic meanings embedded in them.

Viewed through the lens of role theory, Balinese women as cultural curators do not perform fixed or singular roles, but rather navigate multiple roles simultaneously and fluidly. At any given moment, they may embody domestic roles as mothers, wives, and custodians of tradition, while also acting as editors of cultural narratives, designers of tourist experiences, and stewards of value continuity in the public sphere. Their capacity to creatively repackage cultural heritage into narratives that are both intelligible and appealing to global audiences reflects an active integration of domestic, socio-cultural, and public roles.

Accordingly, Balinese women engaged in gastronomic tourism perform the role of living cultural curators through kitchens, farms, dining spaces, and festivals. They ensure that cultural heritage is not merely preserved, but actively lived, appreciated, and communicated with dignity amidst the tides of global tourism (Paul, 2016). Rather than passively inheriting tradition, these women intentionally curate and transform cultural meaning through strategic acts of selection, interpretation, and presentation.

Through this process, they contribute to a form of tourism that is not only economically viable but also culturally affirming and socially inclusive. Their curatorial labor enables the articulation of Balinese identity in a globalized context, anchoring tourism experiences in local values while fostering cultural resilience. Ultimately, the work of these women illuminates how cultural curation within tourism is a deeply gendered, situated, and strategic practice, one that positions them as vital agents in shaping the cultural and ethical landscape of contemporary tourism (Silva Dos Santos et al., 2025).

The Construction of Balinese Women's Roles in Gastronomy Tourism

The involvement of Balinese women in gastronomic tourism extends far beyond economic participation; it represents a dialectical arena where social identities and roles are continuously negotiated and redefined. While they have emerged as strategic, adaptive, and empowered actors, their contributions often remain sidelined by the masculine and capitalist logic embedded in the formal structures of the tourism industry. For example, in Turkey women face gendered barriers in the culinary profession such as discrimination and limited career mobility (Temizkan & Uslu, 2023; Türkmenbaş & Karaman, 2024). Similarly, Balinese women also confront structural constraints, yet they respond by creating alternative spaces in gastronomy tourism that turn domestic knowledge into cultural and economic capital. Hence, it is essential to understand how Balinese women actively construct their roles through dynamic interactions between local traditions, social change, and global demands in the gastronomic tourism sector.

This construction not only reflects the social representations attributed to women but also demonstrates how Balinese women themselves design and redefine their roles through strategies of adaptation, resistance, and transformation within existing social structures. A closer examination of this process offers deeper insight into how meaning is ascribed to their roles, and how these women generate and regenerate new forms of *habitus* in Bali's evolving cultural and economic landscape.

The construction of Balinese women's roles in gastronomic tourism is a dialectical outcome involving role dimensions, structural challenges, and adaptive strategies enacted within Bali's socio-economic and cultural contexts. Based on field findings, Balinese women simultaneously perform three major roles: productive, reproductive, and socio-

cultural. These dimensions are interwoven and constitute a new role configuration that differs significantly from static, traditional models of women’s roles (see Figure 1).

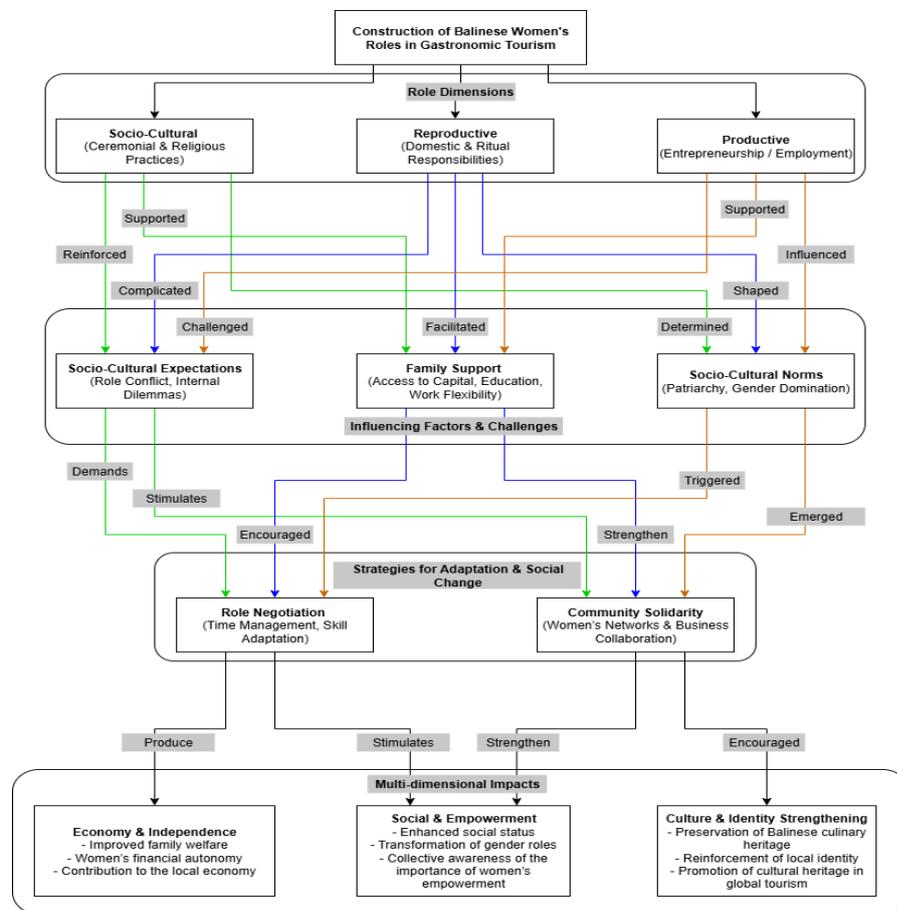


Figure 1. Model Construction of Balinese Women’s Roles in Gastronomy Tourism
 Source: Research Data, 2025

Within the productive dimension, Balinese women emerge as independent economic agents. Their roles encompass managing *warungs* (local eateries), leading cooking classes, and guiding agro-tourism experiences. Beyond operational tasks, they are also responsible for marketing, financial management, and strategic decision-making within family enterprises. This active engagement is closely tied to their capacity to transform domestic knowledge into cultural and symbolic capital that holds value in the tourism economy (Bourdieu, 1990). Culinary expertise, service ethics, and storytelling traditions once embedded in the domestic sphere are now recontextualized as formal and symbolic assets with tangible economic returns (Dang & Phan, 2023; Praminatih & Juwita Sari, 2022)

Yet, such economic participation remains inseparable from their reproductive obligations, which continue to anchor them in domestic and customary responsibilities. Women are expected to attend ceremonial duties (*ngayah*), prepare ritual offerings (*banten*), and manage everyday household affairs. Accounts from informants like Jero Suwarni and Wayan Metriani highlight the ongoing negotiation between public and private demands revealing the emotional and temporal tensions inherent in balancing entrepreneurial roles with traditional expectations.

Their socio-cultural roles unfold through their position as guardians and storytellers of cultural heritage. Rather than simply passing down traditional recipes, Balinese women reimagine domestic spaces, kitchens, homes, and agricultural fields as stages for cultural expression. As curators of heritage, they thoughtfully interpret and convey local values in ways that are meaningful and accessible to visitors. Through narratives that encompass the structure of Balinese homes, the philosophy of Tri Hita Karana, and ritual-based culinary practices, they cultivate encounters that transcend mere transactions, turning them into deeply immersive and transformative experiences.

This construction of roles does not emerge in isolation. It is continuously negotiated within the constraints of structural forces such as patriarchy, gender stereotypes, and elevated societal expectations. In many cases, women are required to assert their professional capabilities within male-dominated tourism systems while simultaneously navigating customary norms that continue to position them in subordinate roles. Similar dynamics are also evident in other global contexts: in China, women in rural tourism enterprises must constantly negotiate between traditional gender expectations and the demands of modern hospitality markets (Liu et al., 2020; Yujiao, 2021). Likewise, studies in Turkey and Spain highlight that even as women contribute significantly to culinary heritage and gastronomic image-building, they remain excluded from leadership and decision-making arenas (Temizkan & Uslu, 2023; García-Henche & Cuesta-Valiño, 2022; García-Henche et al., 2024). These parallels underscore that the struggles of Balinese women are not isolated, but part of a broader global pattern where women's agency in gastronomic tourism is simultaneously enabled and constrained by intersecting cultural norms and structural inequalities.

In navigating these structural challenges, Balinese women develop a range of adaptive and negotiated strategies, including flexible work arrangements, family alliances, and community-based solidarity. Some demonstrate autodidactic learning capacities, such as acquiring foreign language skills via digital media or incorporating digital tools into business management. Such practices illustrate that their engagement is far from a passive continuation of tradition; instead, it represents a deliberate, strategic, and reflective construction of social roles (Tuco & Culajara, 2024). Comparable adaptive strategies are evident globally: for instance, in South Africa and India, women rely on community-based solidarity and shared leadership models to navigate male-dominated professional spaces (Pillay-Naidoo & Vermeulen, 2023; Simi & Manjula, 2024). Likewise, in Vietnam, ethnic minority women mobilize social capital and cultural knowledge to negotiate tourism markets, reinforcing both cultural identity and economic resilience (Dang & Phan, 2023). These parallels reveal that the adaptive strategies of Balinese women resonate with broader global patterns, where women actively transform structural constraints into opportunities for agency, resilience, and innovation in the tourism economy.

The shaping of these roles is neither immediate nor linear. It unfolds through intricate processes of adaptation and negotiation in response to intersecting demands from domestic, customary, and professional spheres. By embracing strategies that are both personal and collective, these women sustain their presence in the public domain while continuing to uphold traditional responsibilities. This dual capacity not only underscores the depth of their agency but also positions them as pivotal actors in advancing inclusive and sustainable social transformation.

One of the most salient forms of adaptation is the negotiation of roles, particularly in terms of time management and skill flexibility (Armstrong, 2017). Kadek Sumawati, for example, arranges her work schedule to accommodate customary obligations, explaining, "I usually choose the afternoon shift if there's a ceremony." This strategy illustrates how temporal coordination becomes a crucial means for maintaining balance between professional commitments and cultural responsibilities.

Similarly, I Gusti Ayu Made Madriani embodies role flexibility by undertaking multiple functions within the tourism sector, simultaneously serving as a cooking class instructor and a tour guide. Her ability to shift between roles reflects not only responsiveness to industry demands but also a conscious effort to integrate cultural values into modern professional settings (Tuco & Culajara, 2024).

Beyond individual strategies, Balinese women also cultivate collective resilience through community-based solidarity, which serves as a form of social capital to sustain their enterprises and enhance communal welfare (Lapan et al., 2016). Citra Dewi, founder of D'Alas Warung, exemplifies this approach by organizing her business under a family-oriented management structure, complete with clear regulations to prevent internal disputes. This model underscores a broader vision of solidarity that not only promotes harmony but also embeds principles of shared leadership and equity within everyday workplace dynamics.

A collective approach is also exemplified by the initiative of Ni Made Dwi Ermayanthi, who established a community-based café that sources its coffee from local farmers in Pelaga. Her enterprise functions not only as an economic space but also as an inclusive platform for young women to engage in a sustainable gastronomic ecosystem. In this context, women's solidarity becomes a vital foundation for expanding networks, sharing resources, and fostering cross-sector collaborations (Johnson & Mehta, 2024; Pillay-Naidoo & Vermeulen, 2023).

Such expressions of solidarity not only reinforce economic resilience but also cultivate inclusive spaces for empowerment and intergenerational participation. Ni Made Dwi Ermayanthi established a community-based café that sources its coffee from local farmers in Pelaga. Her enterprise functions not only as an economic space but also as an inclusive platform for young women to engage in a sustainable gastronomic ecosystem. In this context, women's solidarity becomes a vital foundation for expanding networks, sharing resources, and fostering cross-sector collaborations (Johnson & Mehta, 2024). Together, these individual and collective strategies reveal how Balinese women negotiate the intersections of tradition and modernity, local values and global markets. Their actions demonstrate that empowerment is not merely a personal achievement but a socially embedded process, one that is nurtured through cooperation, cultural continuity, and conscious adaptation to changing socio-economic terrains.

The dynamics of adaptation and social transformation among Balinese women may be analytically framed through the theoretical lens of Peter L. Berger and Thomas Luckmann's (1966) triadic process of externalization, objectivation, and internalization. Within this paradigm, women actively project new practices such as operating culinary enterprises or assuming roles as cultural educators into broader social arenas. As these practices become validated through collective experience and public recognition, they undergo a process of objectivation, acquiring a shared and stable meaning within the social

order. Over time, these roles and identities are internalized, becoming part of the socially accepted fabric of everyday life. Consequently, the transformation of women's roles transcends the personal realm and evolves into an institutional process that reconfigures the broader social reality (Fernandes & Gaunkar, 2021; Yujiao, 2021).

Accordingly, the adaptive strategies and social transformations undertaken by Balinese women demonstrate a nuanced capacity to not only confront and negotiate structural constraints, but also to cultivate emergent pathways for empowerment. Their responses to cultural and market pressures are not limited to survival or compliance; rather, they entail an active rearticulation of social positions and an expansion of empowerment frameworks through practices that are contextually grounded, critically reflective, and inherently transformative.

The adaptive strategies and processes of social transformation pursued by Balinese women in the context of gastronomic tourism have generated not only individual resilience in navigating the complexities of multiple roles, but also broader societal shifts. These impacts are multidimensional encompassing economic, social, and cultural spheres and underscore the role of women as key agents in strengthening local identity while simultaneously contributing to the transformation of social structures.

Economically, their active engagement in gastronomic enterprises has facilitated financial autonomy and reinforced household economic stability. Women such as Citra Dewi have explicitly rejected reliance on spousal income, as reflected in her statement: "I don't want to wait for my husband's allowance just to buy groceries," a sentiment that signals a broader shift in women's orientation from dependency toward self-sufficiency. Their involvement extends beyond participation; they serve as entrepreneurs, job creators, and catalysts for local economic development, particularly in tourism-driven areas such as Gianyar and Ubud.

In the social dimension, the transformation of gender roles has led to tangible forms of empowerment. Balinese women have experienced an elevation in social status alongside a growing awareness of their intrinsic value as empowered subjects. As Ni Made Dwi Ermayanthi observes, Balinese women "have power, but are unaware of it," largely due to the absence of collective spaces in which such power could be recognized and affirmed. Through active participation in gastronomic tourism, women have not only gained social recognition but have also cultivated gender consciousness, thereby opening new avenues for participation and leadership (García-Henche et al., 2024; Poulaki et al., 2022).

Culturally, women serve as curators of values and narrators of local identity. The culinary practices they manage transcend mere economic function; they embody cultural artifacts imbued with philosophical meaning, familial history, and customary social structure. For example, Ni Luh Made Puspawati employs cooking classes not only to teach recipes, but to introduce to the participants Balinese Hindu cosmology, domestic spatial arrangements, and the symbolic significance of food ingredients, transforming the kitchen into a cultural stage that connects local tradition with global audiences.

Taken as a whole, the construction of Balinese women's roles in gastronomic tourism produces multi-layered and far-reaching effects, strengthening household economies, repositioning women within existing social hierarchies, and reaffirming Balinese cultural identity amid the forces of global tourism. Within the framework of role theory (Biddle, 1986), this phenomenon reflects how gender roles are not static prescriptions but dynamic sets of expectations negotiated across domestic and public

domains. Balinese women, in this context, do not merely perform inherited roles but actively reinterpret and renegotiate them through the interface of cultural tradition and market demands. As Berger and Luckmann (1966) theorize, the repeated enactment of these roles in public space through practices such as teaching cooking classes or managing culinary enterprises becomes externalized, validated, and ultimately internalized as new, socially legitimate identities. Simultaneously, drawing on Bourdieu's (1984, 1990) theory of practice, these women mobilize their *habitus* structured by generational knowledge, ritual obligations, and domestic experience and convert it into cultural, symbolic, and economic capital that is recognized and rewarded in the global tourism field. Seen together, these three perspectives complement one another: role theory shows how women's responsibilities shift and expand, social construction theory explains how these shifts gain recognition and legitimacy, while Bourdieu's practice theory highlights how cultural knowledge and values are transformed into tangible resources. Through this integration, it becomes clear that Balinese women are not only adapting to the demands of tourism but also actively reshaping social roles and creating new spaces of empowerment that bridge tradition and innovation, while challenging patriarchal norms and capitalist logics in the tourism industry.

CONCLUSION

Balinese women in Gianyar Regency occupy a strategically significant and multidimensional position in the development of gastronomic tourism. Their roles as cultural initiators, culinary instructors, adaptive professionals, and cultural curators demonstrate how women simultaneously drive economic value and safeguard cultural heritage. By transforming domestic knowledge and localized values into forms of cultural and symbolic capital, they contribute to the reinforcement of local identity within the broader landscape of modernization and globalization. These findings highlight gastronomic tourism not only as an economic field but also as a social arena where women negotiate identity, authority, and mobility.

Despite these substantial contributions, women continue to encounter structural barriers rooted in patriarchal norms, gendered stereotypes, and market-driven institutional dynamics. Balinese women respond with role negotiation, time management strategies, and community-based solidarity which enable them to navigate the intersection of domestic obligations, cultural expectations, and professional demands. Collectively, these strategies generate economic, social, and cultural impacts that position women as transformative agents capable of reshaping gendered roles in Bali's evolving socio-cultural structure.

The study also offers a theoretical contribution by illustrating how women's *habitus* undergoes transformation through the interaction of cultural capital, customary obligations, and the institutional rhythms of tourism industry. Through Bourdieu's practice theory, role theory, and social constructionism, this research expands current understandings of gender labour, cultural production, and women's agency in Southeast Asian gastronomic tourism. Future research may explore other regions or focus on how digital gastronomic ecosystem and younger generation further influence these role transformations.

These findings point to several key implications for strengthening women's roles in Balinese gastronomic tourism. At the policy level, alignment with SDG 5 and SDG 8 is necessary to address structural barriers that limit women's economic participation.



Expanding access to financial capital and developing certification mechanism for women-led culinary enterprises would enhance their legitimacy and competitiveness in the global tourism market. Within the tourism industry, associations and hospitality networks can support women's advancement through targeted training in management, digital literacy, and entrepreneurship, complemented by promotional collaborations that highlight women's cultural expertise in the global tourism market.

At the community level, the implications align with SDG 11 and SDG 5, emphasizing the need for more inclusive governance and equitable participation. Strengthening women's involvement in local communities can also build collective-based solidarity and foster fairer distribution of economic benefits, such as through women's culinary cooperatives (*Koperasi Perempuan Kuliner*) or village-based tourism groups (*Pokdarwis*). These strategies not only empower women economically but also strengthen the sustainability and authenticity of Balinese gastronomic tourism. These community-based strategies create more participatory and sustainable tourism environment in which women's agency is fully recognized and supported.

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ENHANCING INCLUSIVITY: A COMPARATIVE ANALYSIS OF ACCESSIBLE TOURISM PROVISIONS AT KUTA AND LEGIAN BEACHES, BALI

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| Article Info | Abstract |
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| <p>Keywords: accessible tourism, beach accessibility, inclusive tourism, Bali</p> <p>Received: September 08, 2025</p> <p>Approved: November 26, 2025</p> <p>Published: December 05, 2025</p> | <p>This article contributes to tourism studies by examining accessible tourism in a developing-country context, with Bali, Indonesia as the research locus. The study explores the accessibility conditions of two beaches in the southwest region of Bali—Kuta Beach and Legian Beach. The objectives of this research are as follows: (1) to identify the availability of accessible support services at both beach locations, and (2) to evaluate the current provision of accessible tourism services at Kuta and Legian. Guided by the broader concept of Universal Design, the research refers to regulatory guidelines issued by the Ministry of Tourism and Creative Economy, which specify three main accessibility criteria. In addition, twenty-two beach accessibility elements proposed by Mayordomo-Martínez et al. (2019) were employed. Beach accessibility facilities, facilitators, physical access, and supporting services at both locations were assessed. The findings reveal that although both beaches are internationally recognized tourist destinations, there remains a significant lack of accessible facilities to support tourism activities for persons with disabilities. Of the twenty-five evaluated indicators, Kuta Beach meets fifteen criteria, whereas Legian Beach meets only nine. These results highlight differences in accessible infrastructure provision between the two sites. The findings suggests that inclusive tourism can be a viable tool for collaboration across beach authority and provide opportunity for stakeholder's cooperation to established standardized beach service and facilities. Enhancing detailed accessibility provisions in beach environments has the potential to improve destination quality and promote wider involvement in tourism activities.</p> |

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INTRODUCTION

Tourism is a highly competitive industry, and accessible tourism has emerged as a strategic opportunity for enhancing destination competitiveness (Natalia et al., 2019; Rucci et al., 2022). Accessible tourism refers to tourism that provides access for people with disabilities, including those with physical, sensory, and cognitive impairments. Accessibility enables individuals with disabilities to become self-reliant and confident in utilizing tourism products and services (Mayordomo-Martínez, et al., 2019). Thus, accessibility involves more than just improving physical environments; it seeks to ensure that everyone, regardless of disability, can fully experience tourism offerings (Bindu & Devi, 2016).

To ensure that all members of society are able to participate in tourism, the Convention on the Rights of Persons with Disabilities (United Nations, 2022) promotes social participation and equality. Several tourism destinations in Bali have made changes to their infrastructure, for instance by providing pathways, ramps, and disability-friendly toilets. In addition, specialized travel agents and guides are available to assist the needs of tourists with disabilities. While this inclusive concept has been gradually implemented, in practice limited access frequently leads to decreased comfort and a reduced sense of safety for people with disabilities.

According to Darcy et al., (2020) many tourism providers continue to put limitation to this market. Current accessibility practices in tourism destinations are often based on assumptions made by service providers, which directly influence the actual accessibility conditions of the environment (McKercher & Darcy, 2018). While accessibility should not be seen solely from the perspective of the “needs and wants of people with disabilities” (Nicolaisen *et al.*, 2012, p. 210), issues of distribution and equitable access also require attention (Rucci & Porto, 2022). Contemporary research tends to focus predominantly on the demand side (Reindrawati et al., 2022; Rubio-Escuderos et al., 2024). Therefore, it is essential to address both supply and demand dimensions to create mutually reinforcing outcomes (Michopoulou et al., 2015). Moreover, tourism environments, recreational activities, and mobility-related factors form critical components of the accessibility chain. In this regard, beaches hold particular importance as major attractions for tourism (Nam-Jo et al., 2021; Stamatiadou et al., 2025).

Darcy et al. (2020) assert that accessible tourism is an evolving area of academic study; however, it is still in its infancy in some tourism destinations and can therefore be further developed toward more accessibility (Naniopoulos et al., 2016). Numerous studies on accessibility have been well established and have progressed positively in advanced economies, for instance in Europe (Domínguez, González & Darcy, 2019), Australia, and New Zealand (Gillovic & McIntosh, 2020). In stark contrast, the Asia region is still in the early stages of accessibility development (Nam-Jo et al., 2021), and the situation is particularly diverse in developing countries (Kamyabi & Alipour, 2022).

Tourism is considered an integral component of modern life, and tourism activities are crucial to be enjoyed by all members of society. While tourism has the potential to provide benefits for humanity, in practice it often remains exclusive in nature. Driven by the critical and moral turn in tourism studies, scholars have begun to promote human rights and social justice within the industry. Biddulph and Scheyvens (2018) propose a transformative form of tourism that ensures diverse groups of people can participate in and

benefit from tourism activities. This transformation includes reducing inequality, fostering understanding of minority situations, and overcoming the separation between people living in different places. Inclusive tourism is a broader concept that considers all forms of social and economic participation in tourism. This study utilizes the inclusive tourism framework to examine the existing situation of accessible tourism provision in Bali.

Bali is one of the islands located in the Indonesian archipelago, famous as a leading tourist destination and known for its prominent role in the tourism economy. A report from the Central Bureau of Statistics shows that from Bali's population of approximately 4.4043 million, around 22,297 people, or 19%, experience disability (Badan Pusat Statistik, 2024). Although the number of people with disabilities is increasing, the number of accessible tourism destinations remains limited. Previous studies on disability in Bali have stated that people with disabilities face barriers in accessing leisure and tourism activities (Simarmata & Arief, 2020). This group requires clear, concise, and up-to-date information provided by both private and public tourism organizations (Indrawati *et al.*, 2023).

The current study is located in Bali, which is popular for its sun-and-beach tourism. Beaches in Bali are major tourist attractions as well as sources of economic revenue. From philosophical and conceptual perspectives, beaches are open areas that also function as places for religious activities. Therefore, beaches play an important role in social and cultural development in the area. For instance, many sacred rituals are conducted on beaches. Despite these functions, beaches in Bali are also key assets of its tourism capital. Given this prominent role, beaches should provide essential attributes that ensure tourist safety and enhance visitor experience. Generally, in Indonesia, and specifically in Bali, the political will and legal framework to eliminate discrimination against people with disabilities began in 2011 through the ratification of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) under Indonesian Legislation No. 19/2011. As such, the political rights of people with disabilities have begun to be recognized (Hadi *et al.*, 2024). In addition, Article 21 of Indonesia's Tourism Law No. 10/2009 highlights that people with disabilities have equal rights to fully participate in tourism activities. Furthermore, in 2022 the Ministry of Tourism and Creative Economy issued Regulation No. 3, which outlines operational guidelines for infrastructure management in the tourism sector (Kemenparekraf, 2022). Through this regulation, the government has formally committed to supporting the provision of facilities for people with accessibility needs.

To date, the integration of the UNCRPD into related areas such as employment, health, accessibility, transportation, and education has begun to progress (Bella & Dartanto, 2018). Unfortunately, issues related to tourism facilities that have not fully met the needs of people with disabilities remain persistent. Furthermore, the growth of accessibility policies and their implementation is relatively slow (Palestho *et al.*, 2022). Although some research has been conducted, it has primarily focused on major locations, such as Taman Mini Indonesia Indah in Jakarta (Triana *et al.*, 2019) and West Java (Rochman *et al.*, 2022). Studies on accessible tourism destinations in Bali remain limited, with previous research focusing mostly on the experiences of senior tourists with disabilities (Indrawati, 2021). Therefore, the objective of the current study is to identify the availability of accessible support services at both beach locations and to evaluate the current accessible tourism services at Kuta and Legian Beaches. The following question was formulated to be answered: "To what extent do Kuta and Legian Beaches comply with the principles of



Universal Design?” This study will help develop an understanding of how beaches in Bali, specifically Kuta and Legian, respond, engage, accommodate, and provide an environment that supports accessible tourism.

The rest of the paper is structured as follows. The Methods section provides an illustration of how the study was conducted. The Results and Discussion section presents the accessibility support services at the two beaches and analyzes them using the Universal Design concept in combination with national legislation and the beach element assessment adopted from previous research. Finally, conclusions and recommendations for future research are presented in the final section.

METHODOLOGY

The study was conducted in 2024 in the southern part of Badung Regency, namely at Kuta and Legian Beaches. These two areas are widely known as central locations for tourism development on the island. Data show that Badung Regency, where Kuta and Legian Beaches are located, recorded 6.4 million tourist visits in 2024 (Badung Regency Tourism Office, 2024a). In addition, the area offers various tourism products that position it as a globally competitive destination (Ariana *et al.*, 2025).

Following Sugiyono (2015), his study adopts a qualitative method, in which the research focus is on natural settings and the researchers act as the primary research instruments. A qualitative approach was considered suitable for this study because it allows researchers to immerse themselves in the field, apply different interactive methods such as photographs and checklists, and interpret the findings. Multiple site visits were conducted once a week for three months, from September to December 2024. Through this process, we identified, checked, measured, calculated, and compared the results to global accessibility standards. Aligned with the aims of the study, qualitative research allows for in-depth explanation of the phenomenon under investigation through detailed and rigorous data (Phillimore & Goodson, 2004). Providing a descriptive account of the phenomenon under study offers insight into the current conditions and obstacles in the provision of accessible tourism at the selected tourist destinations (Lester *et al.*, 2020). From this point, it becomes possible to identify impediments to implementing accessible tourism.

Field research was carried out at Kuta and Legian Beaches from September to December 2024, followed by data analysis in January 2025. This period, between September and December, covered both the low and peak seasons. During each site visit, we observed that Kuta and Legian Beaches experienced an influx of visitors in December, particularly during the Christmas and New Year holidays. However, we did not observe a noticeable peak in visitation on weekdays during the preliminary observations. Therefore, the observations and measurements for data collection were conducted on a single day regardless of the day of the week. Prior to each field visit, the researchers prepared a checklist as a guideline and spent approximately five to six hours on site. Guided by Universal Design as a broader concept, a comprehensive compilation of accessible services and equipment was considered based on the national legislation issued by the Ministry of Tourism and Creative Economy (2022), specifically Article 3 on operational guidelines for tourism infrastructure, covering accessible pathways, food retailers/kiosks, and accessible toilets. Additionally, to address specific components of beach accessibility, this study adopted the beach accessibility elements introduced by Mayordomo-Martínez *et al.* (2019). These elements include: designated parking, ramps, walkways, curbs, private transport,



footpaths, street crossings, sand walkers, accessible showers, shaded areas, wheelchair sand access, changing rooms, wheelchair water access, beach wheelchairs, accessible playgrounds, hoists, equipment availability calendars, booking systems, adapted beach activities, personal assistance, mobility equipment, and car transfer services.

The accessibility assessment at the beaches was conducted in two stages. First, environmental aspects of beach access facilities were identified. Photographs were also taken to support data collection and were later used to validate findings (Rakić & Chambers, 2012). The photographs taken in this research were used specifically as visual evidence, as they provide realistic information about the accessible facilities at Kuta and Legian Beaches. The use of photographs in research is important as it provides interpretation of the phenomenon under study (Indrawati, 2022). Second, the beaches were evaluated based on the selected criteria compiled from the two main legislative sources.

This study also utilized secondary data obtained from literature reviews, academic journals, and UNWTO reports. The use of secondary data enabled the researchers to identify, compare, and contrast various facilities that meet the needs of people with disabilities. After completing data gathering and reviewing the checklist, the overall data were examined. A systematic process of data evaluation was undertaken to ensure that data from checklists, photographs, fieldnotes, and other materials were complete and capable of portraying accessibility conditions at the two tourist beaches. To fully review the facilities and services, the elements of accessibility were defined as follows:

The basic element of accessible provision is designated parking spaces for people with disabilities. These must be 5 m long and 2.20 m wide and include a transfer area of 1.50 m width, allowing room for both parallel and perpendicular parking. Next is the presence of accessible ramps leading to the beach, with an incline not exceeding 8% (1:12). Ramps must have a width greater than 1.80 m and a length of less than 10 m, as well as strong color contrast and tactile surfacing at all landings to warn users of elevation changes. The availability of walkways across the sand as part of an integrated access route is also an essential element, along with roll-up pathways that allow wheelchair users to reach the shoreline.

Another critical accessible facility is adapted toilets. These must be connected to an accessible route and equipped with washbasins, showers, and storage spaces. The toilet area must provide a turning space greater than 1.50 m to allow wheelchair maneuvering, and the door must be at least 0.80 m wide. Toilets must also be equipped with handrails positioned next to the toilet seat. Their location must be visible and easy to reach. Adapted showers should have a turning area of 1.50 m in diameter with grab bars and support seats in contrasting colors. A specific area of 0.80 × 1.20 m should be provided for wheelchair users. To complete accessible bathroom facilities, adapted changing rooms must include a turning area of at least 1.50 m, with doors that are wider than 0.80 m and either sliding or opening outward.

Shaded areas for relaxation must also provide enough space for wheelchair users to remain comfortably or to transfer to amphibious chairs. The shaded area should be at least 2.50 m long and 1.80 m wide. Additionally, support tools such as amphibious chairs and crutches must be usable both on land and in the water. All facilities and services provided for people with disabilities must be clearly marked with appropriate symbols for ease of recognition. Another important consideration is personnel assistance, including



scheduled service hours available to assist beachgoers with disabilities, especially during bathing. Services should be available at convenient times. Furthermore, adapted recreational activities should be provided at the beach.

All elements identified prior to fieldwork were cross-checked at each beach to determine whether accessible elements were compliant with beach accessibility standards and to assess overall beach usability.

FINDINGS AND DISCUSSION

An Overview of Kuta and Legian Beach

Formerly, Kuta and Legian beaches were fishing villages, and for the local community these places were primarily used for ritual activities. Along with tourism development, Kuta and Legian began to transform into areas for tourists to engage in beach-related activities such as sunbathing, surfing, and diving. Well-known for their white sandy beaches and stunning sunsets, these two areas have become popular among both international and domestic tourists. Numerous tourist attractions, entertainment venues, galleries, malls, as well as meeting, conference, and event facilities are available throughout the year. Various tourism products are easily found in these areas.

In 2015, Badung Regency, which includes the Kuta and Legian beach areas ranging from the south to the west of Denpasar, listed 49,790 guest rooms out of a total of 78,165 rooms on the island. According to the Bali Government Office, these rooms were distributed across 154 starred hotels, 472 non-starred hotels, and 441 guest houses/homestays (Badung Regency Tourism Office, 2024). Following the significant development of tourism in Badung Regency, the number of accommodations has increased significantly to 4,370 types of accommodation, and food and beverage businesses number approximately 5,351 (Badung Regency Tourism Office, 2024). Despite the substantial increase in the tourism and hospitality industry in the area, as well as other tourist attractions, the beaches are still lacking in the availability of safety-related systems (Hall *et al.*, 2019).

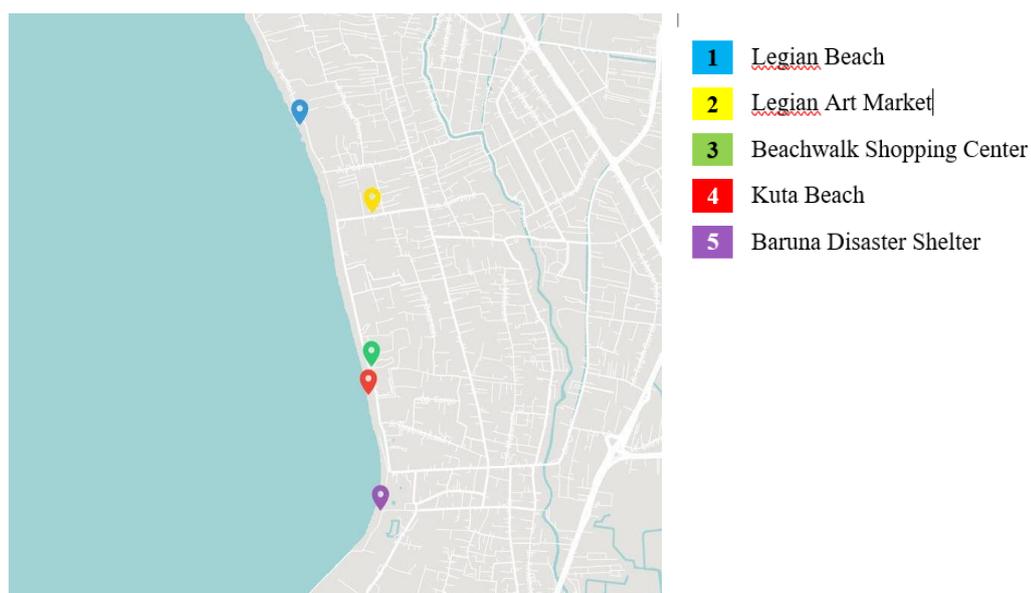


Figure 1. Study Area Location



Analysis of Accessible Facilities

As the main tourist attractions in the area, beaches should be free from unnecessary obstacles that hinder people with access needs, such as people with disabilities, seniors, pregnant women, or families with young children. Efforts to contribute to the provision of accessible facilities began along with the construction of tourism facilities in Kuta and Legian beaches in 2022. The availability of equipment, facilitators, and support services was reviewed. The first concern identified was the presence of essential features useful for people with access needs, and the second was the evaluation of facilities and services that must be supplied and allocated based on their functions.

As a result, it was found that some accessible components were available in the areas, while other elements were absent, as shown in Table 1. The first table indicates that Kuta and Legian Beaches fulfilled the beach accessibility facility requirements, with one exception: at Legian Beach, no street crossing was available in the area.

Table 1. Beach Accessible Facilities

| Part 1 | Compound Surrounding and Outdoor Areas | Kuta | Beach | Legian | Beach |
|--------|--|--------------------------|-------|--------------------------|-------|
| | Environment Factors | Yes | No | Yes | No |
| 1.1 | Ramp availability | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.2 | Footpath availability | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.3 | Curb accessibility | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.4 | Street crossing | <input type="checkbox"/> | | | x |
| 1.5 | Private transport | <input type="checkbox"/> | | <input type="checkbox"/> | |

Source: Research data, 2025

Ramps are categorized as one of the prominent features for accessible tourism. Following the international guidelines introduced by Mayordomo-Martínez et al. (2019), ramps should have a width greater than 1.80 m and a length of less than 10 m, and must be equipped with contrasting color and tactile contouring (Figure 2). Curbs are available at both beach locations, and private accessible transportation is available upon request, provided by private tourism transport companies. However, safe street crossing areas are available only at Kuta Beach and are absent at Legian Beach.

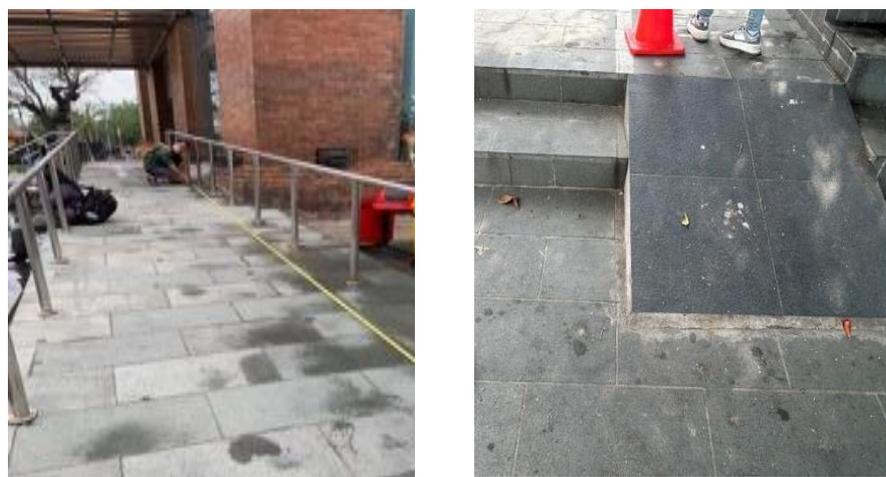


Figure 2. Ramps Access at Kuta and Legian beach

The footpaths in Kuta and Legian were established in 2022 and constructed by the Badung Regency Government. In Kuta, the footpaths stretch approximately 4 km, divided into three sections: Sekeh, Jerman, and Kuta Beach. These accessible footpaths comply with national legislation that requires internal pedestrian pathways to be at least 1.2 m wide and equipped with tactile paving for people with visual impairments (Figure 3).



Figure 3. Footpath Availability at Kuta and Legian beach

The second assessment of accessible tourism components in Kuta and Legian beaches relates to physical access to the beach. Accessible toilets, showers, changing rooms, accessible parking near beach entrances, and nearby food retailers are available at both beaches. However, neither beach has accessible pathways leading directly onto the sand, sand walkways, wheelchair-accessible beach access mats, water-accessible wheelchairs, push beach wheel walkers, or hoists (Table 2). The absence of some components related to physical access to the beach contradicts the Universal Design principle of equitable use for people with disabilities.

Table 2. Facilitators – Physical Access to the Beach

| Compound | | Kuta | Beach | Legian | Beach |
|----------|--|--------------------------|-------|--------------------------|-------|
| Part 1 | Surrounding and Outdoor Areas | Yes | No | Yes | No |
| 1.1 | Environment Factors | | | | |
| 1.1 | Accessible lead-up pathways to beach | | x | | x |
| 1.2 | Sand walkways/access mat | | x | | x |
| 1.3 | Accessible parking close to beach access | | x | <input type="checkbox"/> | |
| 1.4 | Accessible toilet | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.5 | Accessible shower | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.6 | Accessible shaded recreational areas | <input type="checkbox"/> | | | x |
| 1.7 | Wheelchair sand access | | x | | x |
| 1.8 | Accessible changing room | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.9 | Wheelchair water access | | x | | x |
| 1.10 | Pushed beach wheeled walker | | x | | x |
| 1.11 | Food retail services <150 m | <input type="checkbox"/> | | <input type="checkbox"/> | |
| 1.12 | Accessible playground | <input type="checkbox"/> | | | x |
| 1.13 | Hoist availability | | x | | x |

Source: Research data, 2025

Related to parking space, on one hand, it exists within the Kuta Beach area; a parking spot close to the beach is available, however, there is no signage indicating designated parking for persons with disabilities. On the other hand, at Legian Beach, an accessible parking space is provided; however, it is designed specifically to accommodate motorcycles (Figure 4). Motorcycles are one of the most commonly used modes of transportation in Bali and are widely utilized for daily mobility, including tourism activities (Aryasih *et al.*, 2024). Considering the indicators of facilitators for physical access to the beach, in general, Kuta shows greater attention to accessible beach access, as the beach is also equipped with shaded recreational areas and an accessible playground for family activities.

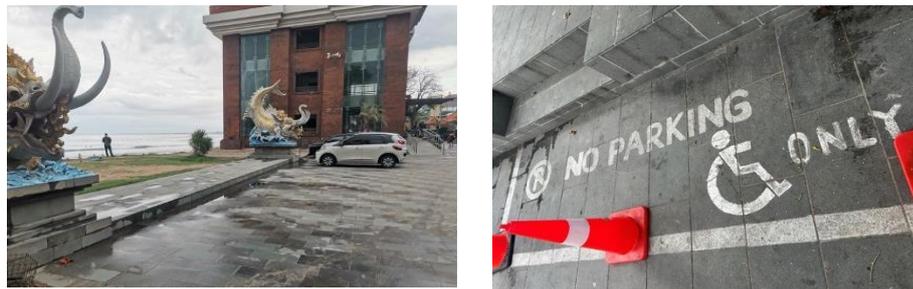


Figure 4. Accessible Parking Area

The provision of accessible toilets at touristic beaches such as Kuta and Legian is evident in this research. For ease of access and maneuverability, the minimum requirement for an accessible toilet includes an unobstructed turning space of at least 150 cm × 150 cm. Based on field observation and measurements, the accessible toilet at Kuta Beach measures 200 × 245 cm, with a horizontal turning space of 160 × 200 cm, while the accessible toilet at Legian Beach measures 183 × 150 cm. Thus, both facilities meet the national legislation standards for accessible toilet dimensions.

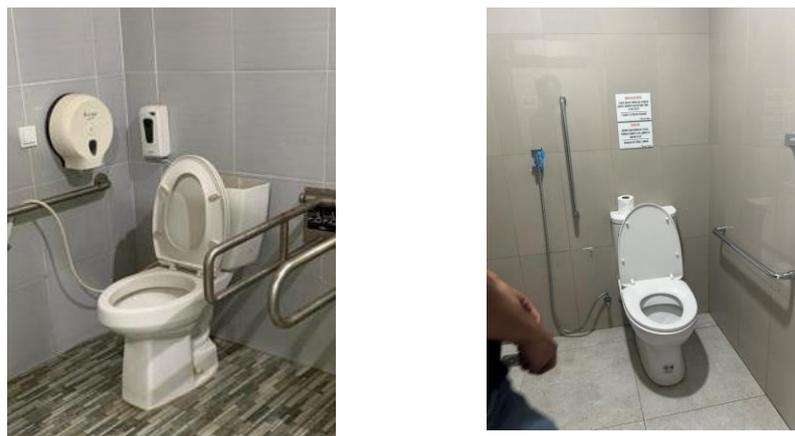


Figure 5. Accessible Toilets at Kuta and Legian Beach

The next finding from the component analysis of service support for beach use shows that neither beach provides a schedule for equipment availability, nor accessible activities for persons with disabilities, nor physical assistance for beach-related activities. In addition, physical assistance services—such as mobility equipment transfer, car transfer, and personal care—are available only upon request (Table 3).

Table 3. Services to Support Beach Use

| Compound Surrounding and Outdoor Areas | | Kuta | Beach | Legian | Beach |
|--|--|------|-------|--------|-------|
| | | Yes | No | Yes | No |
| 1.1 | Calendar of equipment availability and accessible activities | | x | | x |
| 1.2 | Booking system for accessible equipment | | x | | x |
| 1.3 | Accessible beach events and activities | √ | | | x |
| 1.4 | Physical assistance – beach activities | | x | | x |
| 1.5 | Physical assistance – mobility equipment transfer | √ | | | x |
| 1.6 | Physical assistance – car transfer | √ | | | x |
| 1.7 | Physical assistance – personal care activities | √ | | | x |

Source: Research data, 2025

Discussion

Bali is a small island that relies heavily on tourism as its main economic sector. Currently, accessible tourism is growing and becoming an advantageous market segment. To attract this market, destination management must have a clear understanding of the environments required by tourists with access needs. Traditionally, disabilities have been viewed as medical or interpersonal problems rather than structural impediments. However, the shift from the medical paradigm to the social model has created opportunities to prioritize supportive environments rather than focusing solely on impairments. For instance, people with access needs are able to visit tourism destinations or participate in tourism activities when suitable infrastructure and facilities are provided.

This research provides an understanding of how accessible features are presented in two tourism areas in Bali. Previous studies highlighted that features such as entrances, parking lots, ramps, handrails, curbs, footpaths, accessible toilets, and other facilities are essential for people with access needs (Badawy *et al.*, 2020). As mentioned in the literature, beyond attitudes and behavior, structural constraints act as barriers that restrict the movement of people with disabilities and affect their safety. From this study, it can be observed that out of twenty-five indicators, Kuta Beach complies with fifteen criteria as shown in the tables (see Table 1; Table 2; Table 3). Meanwhile, Legian Beach meets only nine criteria. Nevertheless, it was found that of the five beach accessibility indicators, both Kuta and Legian Beach follow the minimum design standards for accessible beaches, with only one indicator—street crossing—lacking at Legian Beach (Table 1). The results of this study illustrate that beach management views accessibility provision as optional rather than an integrated element of the service. Moreover, the lenient implementation of legal mandates and weak monitoring and assessment have contributed to disparities in service standards and quality between the two beach locations.

Additionally, the investigation revealed that although ramps are present, the slopes exceed the recommended maximum of 8%. The ramp slopes in both Kuta and Legian Beach were 17%, and the ramp width was 1.20 m, which is smaller than the standard 1.50

m. Another finding was the absence of strong color contrasts on ramps, which are typically used to alert users to changes in elevation. Furthermore, designated landing and boarding areas to accommodate wheelchair users were also unavailable. The absence of such components may influence the sense of safety at tourism destinations (Hall *et al.*, 2019) and create impediments that reduce the desire of people with disabilities to engage in tourism activities (Natalia *et al.*, 2019). The inappropriate sizes of ramps may hinder the movement of people with disabilities around beach areas, and beach management should carefully address such constraints. Accordingly, this study shows that the industry itself faces difficulties in implementing inclusive practices, which may result from a lack of knowledge about the needs of people with disabilities. Therefore, inclusive tourism offers opportunities for collaboration with local disability communities to gain a better understanding of accessible tourism provisions at the destination level.

Another notable finding involves the width of the footpaths. Although both beaches are located along the same coastline, their footpath widths differ. The national standard requires a width greater than 1.2 m. In this study, Kuta Beach had a footpath width of 2.35 m, while Legian Beach had 3.3 m. This indicates that both beaches exceed the minimum design standard, which supports greater comfort and inclusion for people with disabilities. This aligns with previous research emphasizing the importance of improving beach accessibility as a means of commercial differentiation and enhancing tourism quality (Santana-Santana *et al.*, 2020).

The next assessment relates to facility support for beach access. It was found that among thirteen criteria, only four components met the requirements in both locations: accessible toilets, accessible showers, accessible changing rooms, and the presence of food retailers within 150 meters. Both beaches provide adapted toilets and shaded areas; however, these shaded areas are not equipped with essential supporting equipment, such as amphibious chairs. The adapted toilets are fitted with handrails and meet standard measurement requirements. This suggests that the destinations are beginning to recognize the importance of providing support facilities for people with disabilities and acknowledging diverse market needs. In highly accessible beaches, technical equipment such as amphibious chairs and crutches is commonly available (Mayordomo-Martínez *et al.*, 2019). Unfortunately, such facilities were absent at both Kuta and Legian Beach. This reflects a lack of comprehensive understanding of accessible tourism facilities as an interconnected ecosystem that influences the overall experience of people with disabilities (Indrawati *et al.*, 2022).

The final assessment examines services to support beach use. In Kuta Beach, services such as physical assistance, personal care, car transfers, and mobility support were available only upon request, while no such services were available at Legian Beach. This study highlights that despite the existence of international and national disability regulations, there is an absence of standardized municipal-level implementation. This demonstrates a lack of a coordinated accessibility management framework between the beach authorities at Kuta and Legian Beaches. Each location appears to have developed its accessible facilities independently, resulting in inconsistent adherence to formal standards. This finding suggests limited coordination and inadequate control regarding accessible facility requirements. Parallel findings from other countries also show varying degrees of beach accessibility (Mayordomo-Martínez *et al.*, 2019; Santana-Santana *et al.*, 2020).



Through the results obtained in this study, improvements in beach accessibility can be recommended based on the following priority: for a short-term improvement (e.g., appropriately designated parking areas; providing pathways to the beach; push beach walkers; sand walkers; and personal assistance for beach activities. In addition, for a long-term enhancement (e.g., booking system development; hoist installation on the beach. Moreover, specific criteria, such as expanding ramp width, reducing slope angles, and adding high-contrast markers, can help address accessibility challenges at the beaches. Additionally, enhancing the comfort of walking between Kuta and Legian Beach by widening the footpaths may increase connectivity between the two beaches. Pedestrian connectivity in beach areas can attract tourists, as walking is often considered a preferred way to explore a destination. Furthermore, support facilities such as amphibious chairs and crutches may enhance the experience of tourists with disabilities. Ultimately, providing comprehensive access within the beach environment can improve the quality of the beaches as tourism destinations and contribute to increasing the competitiveness of the destinations within the regional area (Rucci et al., 2022). Knowledge and understanding of design structures that are inclusive for all are central to tourism development. Therefore, the principles of universal design create sustainable results not only for people with disabilities but for society as a whole, including parents with strollers, pregnant women, and elderly people.

CONCLUSION

Bali province, with its renowned tourist beaches such as Kuta and Legian, needs to adopt approaches that accommodate the demand of the accessible tourism market and engage in actions to attract this market within inclusive tourism. Despite the popularity of Kuta and Legian among tourists and locals, the beaches remain only partially accessible. Providing access that meets the needs of people with disabilities can serve as a viable strategy to demonstrate social responsibility in accessible tourism development. As the largest sector on the island, the tourism industry in Bali has historically given limited attention to the local disabled population, resulting in insufficient development of accessible facilities. In the future, development efforts will need to shift perspectives to view accessible tourism as a “social force” rather than merely an industry. Stakeholder engagement is crucial for working collaboratively to improve accessibility. National and local governments hold responsibility for creating the legal framework for planning, evaluating, monitoring, and making changes to how tourism destinations are presented.

This research is grounded in the initial examination of beach accessibility, particularly assessing accessible facilities, physical access to the beach, and service support for beach users. The assessment highlights disparities in accessible facilities between Kuta and Legian Beach. Out of twenty-five indicators, Kuta Beach meets sixty percent of the criteria, whereas Legian Beach fulfills thirty-six percent. The evaluation identified several inadequacies, including insufficient parking spaces, limited beach access, and the absence of technical and human support. Regardless of location, tourist destinations such as beaches are obliged to provide accessible entrances for all visitors. Accessible facilities are essential and should be integrated into tourism destinations, especially in Bali, where beaches are major tourist attractions.

Despite the findings, this study has limitations related to the scope of the research area. Bali is not only famous for Kuta and Legian Beach, but also for numerous other



beaches; therefore, future research should expand to include other beaches across the island. Additionally, future studies could involve the local disabled community to gather more information about accessibility and their experiences as users of existing facilities. Additionally, to understand the needs and expectations of people with disabilities in tourism activities, a more participatory approach involving the local disabled community can be implemented in the future. The active participation of the local disabled community in planning and decision-making regarding accessible provisions helps them enjoy the benefits of tourism and, more importantly, has the capacity to minimize the constraints experienced by this group. Moreover, the participation of local disability groups is essential for developing inclusive models of accessible tourism.

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APPENDIX

| No | | National | International | Kuta | Legian |
|----|--|-----------|---------------|-----------|-----------|
| 1 | Ramp availability | | 1.5m | 1.2m | 1.2m |
| 2 | Footpath availability | 1.2m | | 2.35m | 3.3m |
| 3 | Curb accessibility | | √ | √ | √ |
| 4 | Street crossing | | √ | √ | x |
| 5 | Private transport | | √ | √ | √ |
| 6 | Accessible lead-up pathways to beach | | √ | x | x |
| 7 | Sand walkways/access mat | | √ | x | x |
| 8 | Accessible parking close to beach access | | √ | x | √ |
| 9 | Accessible toilet | 175 x 200 | | 200 x 245 | 183 x 150 |
| 10 | Accessible shower | | √ | √ | √ |
| 11 | Accessible shaded recreational areas | | √ | √ | x |
| 12 | Wheelchair sand access | | √ | x | x |
| 13 | Accessible changing room | | √ | √ | √ |
| 14 | Wheelchair water access | | √ | x | x |
| 15 | Pushed beach wheeled walker | | √ | x | x |
| 16 | Food retail services <150 m | √ | | √ | √ |
| 17 | Accessible playground | | √ | √ | x |
| 18 | Hoist availability | | √ | x | x |
| 19 | Calendar of equipment availability and accessible activities | | √ | x | x |
| 20 | Booking system for accessible equipment | | √ | x | x |
| 21 | Accessible beach events and activities | | √ | √ | x |
| 22 | Physical assistance – beach activities | | √ | x | x |
| 23 | Physical assistance – mobility equipment transfer | | √ | √ | x |
| 24 | Physical assistance – car transfer | | √ | √ | x |
| 25 | Physical assistance – personal care activities | | √ | √ | x |

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