

*International Journal of Green Tourism  
Research and Applications*

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**International Journal of Green Tourism Research and Applications**

is, as the name implied, focused on green tourism research and applications. Its scope covers philosophies, theories, science and technology, practices, and applications of responsible, sustainable, and green tourism; eco-, natural, and village/rural tourism; cultural, religious, and alternative tourism; community-based tourism; all tourism businesses and tourist activities which are ecologically/environmentally and socio-culturally friendly.

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# Green Ethic Behavior, Balinese Culture, and Green Marketing for Sustainable Tourism in Bali

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**Abstract:** This study explores the integration of green ethical behavior, Balinese culture, and green marketing strategies in sustainable tourism development in Bali through a comprehensive literature review. Employing a qualitative research design, the study analyzed 23 peer-reviewed journal articles published between 2019 and 2024, retrieved from reputable academic databases. The selected literature centered around three key themes: the role of environmental ethical behavior in tourism, incorporating Balinese cultural values in sustainable practices, and applying green marketing within the tourism sector. A systematic search was conducted using targeted keywords such as “green tourism,” “ethical behavior,” and “cultural preservation in Bali,” ensuring the relevance and quality of the sources. A narrative synthesis approach was applied to examine and interpret the data, allowing for the identification of recurring patterns, relationships, and inconsistencies. The results were organized into five overarching themes: implementation models, strengths and benefits, challenges and weaknesses, future opportunities, and policy implications. The findings suggest that Bali has cultivated a unique model of sustainable tourism by harmonizing traditional cultural philosophies with contemporary environmental initiatives. While this integration has yielded positive outcomes in promoting responsible tourism and community involvement, several obstacles remain, particularly in resource management, stakeholder coordination, and policy enforcement. This study offers valuable insights into the potential of culturally grounded strategies for advancing sustainable tourism and underscores the need for continued improvement in regulation, education, and cross-sector collaboration.

**Keywords:** Balinese culture, environmental management, green ethical behavior, green marketing, sustainable tourism.

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## Introduction

As one of the world’s leading tourism destinations, Bali is renowned for its breathtaking natural beauty, rich culture, and deep-rooted traditions. The island not only attracts tourists from all corners of the globe but also faces significant challenges related to the environmental impact of mass tourism. In recent years, attention to sustainability and environmentally friendly tourism practices has increased substantially, driving the development of green tourism concepts aimed at protecting the environment while delivering satisfying experiences for visitors (Magfiroh, 2024; Rachmawati, 2023).

Green tourism in Bali focuses on reducing negative environmental impacts, preserving local culture, and empowering communities. With growing awareness of environmental issues, tourists increasingly prefer to participate in practices that support

sustainability, such as choosing eco-friendly accommodations and supporting local products (Tan et al., 2022; Majeed et al., 2022). Therefore, stakeholders in Bali must adopt a more sustainable approach to tourism management, encompassing the implementation of green ethical behavior and green marketing.

The need for green tourism is becoming increasingly urgent, particularly amid global challenges such as climate change, biodiversity loss, and pollution. As a destination heavily dependent on tourism, Bali must adapt to these changes to ensure its long-term sustainability (Pancić, 2023). Green marketing has emerged as a crucial tool in achieving this goal, as it can help raise consumer awareness about environmentally friendly products and services while encouraging more responsible consumer behavior (Asyhari & Yuwalliatin, 2021).

Green marketing not only attracts environmentally conscious tourists but also builds a positive image for tourism brands and destinations. By promoting sustainability values and green ethics, Bali can attract a broader market segment, which in turn can increase revenue and support the local economy (Wang, 2023; Kurnia et al., 2022). Furthermore, the effective implementation of green marketing can provide long-term benefits for both the environment and society, creating synergy between tourism and cultural preservation (Jonathan, 2023).

In the context of Balinese culture, applying the Tri Hita Karana principle, which emphasizes balance between humans, nature, and God, can serve as a strong foundation for green marketing strategies. By integrating these cultural values into marketing practices, Bali can create authentic and sustainable tourism experiences (Ćalasan et al., 2021). Previous research indicates that green marketing aligned with local values can enhance consumer trust and promote more environmentally friendly purchasing behavior (Denisenko et al., 2021).

Although extensive research has been conducted on green marketing, there remains a gap in the literature examining specific applications within the context of Balinese tourism. This research aims to fill this gap by exploring how green ethical behavior, Balinese culture, and green marketing can interact to support sustainable tourism. Thus, the research question proposed is: "How can green ethical behavior and Balinese culture be integrated into green marketing strategies to support sustainable tourism in Bali?"

## Methodology

This research employs a literature review approach to explore the dynamics of green ethics behavior, Balinese culture, and green marketing strategies in the context of sustainable tourism businesses in Bali. Literature Review is a method used to identify, evaluate, and synthesize findings from studies relevant to the research topic (Snyder, 2019). This approach was chosen for its ability to provide a comprehensive overview of existing literature, allowing for conclusions to be drawn and gaps in current research to be identified.

The literature review examined scholarly works published between 2019 and 2024, focusing on the most recent developments in the field. Through a systematic search of academic databases, 23 relevant peer-reviewed journal articles were identified and selected for analysis. These articles were chosen based on specific criteria, including a focus on Green Ethic behavior, Balinese culture, or Green Marketing strategies in the context of sustainable tourism, and publication within the specified four-year timeframe.

The selected articles were then thoroughly analyzed to extract important information such as research objectives, methodology, key findings, and conclusions. The analysis process involved carefully reading and documenting each article's



contributions to understanding the research topic. Findings from the analyzed studies were then synthesized using a narrative approach. Results are presented based on key themes or concepts from the analysis, emphasizing patterns, relationships, and new insights relevant to the research question.

Finally, limitations and implications of the findings are discussed, along with recommendations for future research. This Literature Review approach allows researchers to provide a comprehensive overview of the state-of-the-art research on Green Ethics, Balinese culture, and Green Marketing in the context of sustainable tourism in Bali.”

## Results and discussions

### Results

The analysis of 23 research articles published between 2019 and 2024 yielded significant findings regarding the dynamics between Green Ethic behavior, Balinese culture, and Green Marketing strategies in the context of sustainable tourism businesses in Bali. The analyzed articles encompass various research methodologies, ranging from surveys, interviews, and focus group discussions to quantitative analysis, providing a comprehensive perspective on the studied topics. The key findings from each study are summarized in Table 1.

**Table 1.** Key Findings From Reviewed Research Studies

| Authors (Year)        | Methodology  | Main Findings                                                                                                                                                                                                   |
|-----------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adyatma et al. (2022) | Qualitative  | This study found that the understanding of green accounting among business actors in Bali is related to local culture, where the concept of <i>punia</i> (giving) is part of green accounting practices.        |
| Alam et al. (2023)    | Quantitative | The research shows that consumer environmental ethics significantly influence the intention to use green products, with green self-identity acting as a mediator.                                               |
| Khan et al. (2022)    | Quantitative | The findings highlight that ethical leadership positively impacts employees' green behavior in the hospitality industry, with green HR practices serving as a mediator.                                         |
| Majeed (2024)         | Quantitative | This study emphasizes the importance of green branding in the tourism industry, indicating that employees' green behavior contributes to engagement and workforce sustainability.                               |
| Ali & Hassan (2023)   | Quantitative | The research found that green management practices and ethical leadership significantly influence employees' green behavioral intentions in the tourism sector, with organizational trust as a mediator.        |
| Dewi et al. (2021)    | Qualitative  | This study examines how the philosophy of <i>Tri Kaya Parisudha</i> influences individual ethical behavior in the context of tourism in Bali, showing that local cultural values support sustainable practices. |
| Kurnia et al. (2022)  | Quantitative | The research indicates that green marketing communication positively impacts brand image and consumer purchase intentions, which is crucial for sustainable tourism.                                            |



|                               |                              |                                                                                                                                                                                                                                  |
|-------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Saleem et al. (2021)          | Quantitative                 | The findings show that ethical leadership can enhance employees' green behavior through a positive influence on organizational culture that supports sustainability.                                                             |
| Jalees et al. (2021)          | Quantitative                 | The study reveals that ethical green advertising contributes to consumer satisfaction and green purchase behavior                                                                                                                |
| Ahmad et al. (2021)           | Quantitative                 | The research demonstrates that ethical leadership has a significant positive impact on employees' green behavior, with environmental knowledge acting as a mediator                                                              |
| Cahigas et al. (2022)         | Structural Equation Modeling | Factors affecting visiting behavior during the COVID-19 pandemic were analyzed, revealing that tourism stakeholders are enhancing services and leisure activities despite negative sentiments.                                   |
| Putra et al. (2022)           | Qualitative                  | This study discusses sustainable and spiritual tourism aspects at Pura Luhur Tamba Waras, emphasizing Bali's commitment to green tourism development                                                                             |
| Yamamoto et al. (2021)        | Environmental Science        | The impact of rapid tourism growth on water scarcity in Bali is discussed, emphasizing the need for sustainable water management in tourism development.                                                                         |
| Dwiatmadja et al. (2019)      | Qualitative                  | The views of tourism village managers on the green event concept in Bali are explored, emphasizing the cultural roots of tourism and the role of Tri Hita Karana.                                                                |
| Nurjaya (2022)                | Qualitative                  | The study discusses global principles of sustainable tourism development, emphasizing the preservation of local cultural traditions in Bali                                                                                      |
| Adyatma et al. (2023)         | Quantitative                 | The effect of community empowerment on the sustainability of ecotourism in Bongkasa Village is studied, highlighting the importance of local wisdom.                                                                             |
| Rahmawati et al., (2019)      | Qualitative                  | The investigation of soil erosion in agro-tourism areas provides guidelines for environmental conservation planning in Bali                                                                                                      |
| Budarma et al. (2020)         | Qualitative                  | The study highlights that five-star hotels in Bali are integrating sustainable initiatives and green marketing as core values to enhance their competitive advantage in response to increasing public interest in green products |
| Pakpahan et al. (2022)        | Qualitative                  | The research explores the implementation of green hotel practices at Novotel Bali Ngurah Rai Airport, emphasizing the importance of sustainable operations in attracting environmentally conscious tourists.                     |
| Prawitasari & Suardana (2019) | Qualitative                  | This study investigates the impact of green marketing strategies on resort spas in Bali, highlighting how these strategies can reduce negative environmental impacts and promote sustainable tourism.                            |
| Widhiarini et al. (2023)      | Quantitative                 | The research examines the impact of green marketing on stay decisions in Bali, finding that green consumer behavior mediates the relationship between marketing strategies and customer choices                                  |
| Gede (2023)                   | Quantitative                 | This study explores the indirect correlation between hotel environmental policies and performance, emphasizing the role of employees' environmental abilities in enhancing sustainability in Bali's hospitality sector           |

|               |             |                                                                                                                                                          |
|---------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Winata (2023) | Qualitative | The study highlights the importance of green purchasing practices in promoting environmental awareness and sustainability within the hospitality sector. |
|---------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

Source: (Widiantara, et al., 2025)

Analysis of 23 research article collections reveals several key findings categorized into significant aspects:

#### 1. Environmental Ethical Behavior in Tourism Business Practices

The tourism sector in Bali has significantly developed in adopting environmentally ethical behavior. Research reveals that environmentally oriented ethical leadership positively influences a green psychological climate and employees' eco-friendly behavior in the hospitality industry. This leadership style proves effective primarily when supported by green human resource management systems. Studies also found that when combined with the local Tri Kaya Parisudha philosophy, ethical sensitivity contributes positively to the ethical behavior of tourism business practitioners.

#### 2. Balinese Cultural Contribution to Sustainable Tourism

Balinese culture plays an integral role in supporting sustainable tourism practices. Research shows that cultural values embraced by Balinese society naturally encourage environmental conservation through the concept of harmony with nature, fellow humans, and God. The *punia* concept in Balinese culture strongly correlates with green accounting implementation. Furthermore, local wisdom effectively mediates between community empowerment efforts and sustainable tourism development.

#### 3. Green Marketing Strategies in the Tourism Industry

Green marketing implementation shows positive results in Bali's tourism industry. Studies confirm that green marketing communication positively contributes to brand image formation and increased consumer purchase interest. In the hotel sector, green marketing influences tourists' stay decisions, with green consumer behavior as a mediating variable. Five-star hotels in Bali have successfully integrated local cultural values and ecological aspects into their green marketing strategies.

#### 4. Challenges in Sustainable Tourism Implementation

Despite positive developments, sustainable tourism implementation in Bali still faces several serious challenges. Water scarcity due to rapid tourism sector growth remains a major issue. Operationally, green purchasing system implementation is still constrained by several factors, including the absence of clear implementation guidelines, high costs of environmentally friendly products, and limited availability of products meeting sustainability standards.

#### 5. Stakeholder Collaboration Aspects

Research reveals the importance of stakeholder collaboration in realizing sustainable tourism. Corporate social responsibility implemented through cooperation with various parties effectively enhances community adaptive capacity. Successful hotels that implement green hospitality practices in Bali demonstrate the ability to integrate local value systems with international standards, resulting in competitive advantages in the global market.

These research findings indicate a strong interconnection between green ethical behavior, Balinese culture, and green marketing strategies in shaping a sustainable tourism ecosystem in Bali. In the discussion section, these findings will be further discussed, as well as their implications for sustainable tourism development in Bali.

## Discussions

Based on the systematic review of 23 research studies conducted between 2019 and 2024, several interconnected themes and patterns emerge regarding sustainable tourism development in Bali. This discussion synthesizes these findings by examining their correlations, comparisons, and potential contradictions.

## Models of Implementation and Integration

The successful integration of local wisdom with modern sustainability practices in Bali's tourism sector represents a sophisticated approach that merges traditional values with contemporary environmental management. This integration manifests through several interconnected dimensions that create a unique sustainability framework.

The first dimension centers on environmental-specific ethical leadership, as demonstrated by Khan et al. (2022) and Ahmad et al. (2021). Their research reveals how leadership practices that explicitly incorporate environmental considerations create a favorable organizational climate that encourages sustainable behaviors. This leadership approach proves particularly effective because it aligns traditional Balinese hierarchical respect with modern environmental stewardship, creating a culturally resonant framework for sustainability initiatives.

The second dimension involves integrating traditional Balinese concepts with modern business practices. Adyatma et al. (2022) provide a compelling example through their analysis of how the traditional concept of *punia* (merit-making through good deeds) naturally aligns with green accounting principles. This alignment suggests that traditional Balinese values can be powerful cultural anchors for modern sustainability practices. When businesses frame environmental responsibility through the lens of *Punia*, they tap into deeply held cultural values that motivate sustainable behavior beyond mere regulatory compliance.

Dwiatmadja et al.'s (2019) research further strengthens this integration model by highlighting the fundamental harmony between Balinese cultural values and environmental stewardship. Their findings demonstrate how the Balinese philosophical concept of *Tri Hita Karana* (three causes of well-being), which emphasizes harmony between humans, nature, and the divine, provides a natural foundation for sustainable tourism practices. This cultural-environmental harmony creates a unique advantage for Bali in implementing sustainable tourism initiatives, as environmental protection is already embedded within the cultural worldview.

The integration model that emerges from these studies suggests a three-tiered approach to sustainable tourism:

- a. Cultural Foundation: Traditional values and concepts provide the philosophical underpinning for sustainability initiatives
- b. Leadership Implementation: Environmental-specific ethical leadership translates these cultural values into organizational practices
- c. Operational Integration: Modern business practices like green accounting are aligned with and reinforced by traditional concepts

This unique Balinese approach offers valuable lessons for other tourism destinations seeking to develop culturally appropriate sustainability frameworks. Bali's success demonstrates that effective sustainable tourism does not require choosing between tradition and modernity but rather can leverage cultural values to enhance the implementation of modern sustainability practices. This integration creates a more resilient and culturally authentic approach to sustainable tourism that other destinations with strong cultural traditions could adapt.

However, the effectiveness of this integration depends heavily on a deep understanding of local cultural values and careful attention to how these values can be authentically aligned with modern sustainability practices. The Balinese example suggests that successful integration requires superficial cultural references and genuine engagement with fundamental cultural principles and values.

This model also highlights the importance of viewing sustainability not as an imported concept, but as an extension of existing cultural values and practices. By recognizing and building upon these cultural foundations, destinations can develop more effective and culturally resonant approaches to sustainable tourism development.

### *Strengths and Benefits in Bali's Sustainable Tourism Approach*

The research synthesis reveals three interconnected strengths that characterize Bali's approach to sustainable tourism. Each contributes to a comprehensive framework for environmental stewardship in the tourism industry.

a. Cultural Foundation as a Competitive Advantage

Budarma et al.'s (2020) research demonstrates how integrating Balinese cultural elements into green hospitality practices creates a distinct competitive advantage. This advantage manifests in several ways. First, incorporating local cultural values into environmental practices creates authenticity that resonates with staff and guests. Second, cultural integration helps hotels differentiate themselves in the global market while maintaining environmental standards. The study shows that hotels successfully implementing this cultural-environmental integration have achieved local and international recognition for their green initiatives, leading to increased demand from environmentally conscious travelers seeking culturally authentic experiences.

b. Market Response and Consumer Behavior

The positive market response to green initiatives represents another significant strength of Bali's sustainable tourism approach. Kurnia et al. (2022) prove that green marketing communication positively influences brand image and consumer purchase intentions. This finding is further reinforced by Widhiarini et al.'s (2023) research, which identifies a direct relationship between green marketing practices and consumers' decisions to stay at eco-friendly accommodations. These studies build upon Prawitasari and Suardana's (2019) earlier work on green marketing effectiveness, creating robust evidence that suggests environmentally conscious practices benefit the environment and create measurable business value. The consistency across these studies, conducted over several years, indicates a sustained and growing consumer preference for environmentally responsible tourism offerings in Bali.

c. Stakeholder Engagement and Community Development

The third strength lies in Bali's approach to stakeholder engagement and community involvement. Rahmawati et al.'s (2019) research reveals how collaborative approaches to stakeholder engagement enhance community adaptive capacity, particularly in response to environmental challenges. This finding gains additional significance when considered alongside Gede and Sulistyaningsih's (2023) research on employee environmental abilities. Together, these studies demonstrate that effective stakeholder engagement creates a virtuous cycle: as communities become more environmentally aware and capable, they contribute more effectively to sustainable tourism initiatives, strengthening community resilience.

d. Synergistic Benefits

These three strengths work together to create synergistic benefits. The cultural foundation provides authenticity and distinctiveness to green initiatives, which enhances market appeal. Strong market response, in turn, encourages greater stakeholder engagement and investment in sustainable practices. Meanwhile, effective stakeholder engagement ensures that cultural values remain central to sustainability initiatives while building community capacity for environmental stewardship.

e. Long-term Implications

Combining these strengths suggests a sustainable competitive advantage for Bali's tourism industry. Integrating cultural values with environmental practices creates barriers to imitation that other destinations may find difficult to replicate. Additionally, the positive market response indicates that investments in sustainable practices can generate both environmental and economic returns, creating a business case for continued investment in green initiatives.

This analysis suggests that Bali's approach to sustainable tourism has created a robust framework that could serve as a model for other destinations seeking to develop environmentally responsible tourism practices while maintaining cultural authenticity and generating economic benefits. The success of this approach demonstrates that environmental sustainability, cultural preservation, and economic viability can be mutually reinforcing rather than competing objectives in tourism development.

### *Challenges and Weaknesses in Bali's Sustainable Tourism*

A comprehensive analysis of research findings reveals several significant challenges in implementing sustainable tourism in Bali while also highlighting promising opportunities for future development.

a. Resource Management Challenges

The most pressing challenge identified in the research concerns resource management, particularly water scarcity. Yamamoto et al.'s (2021) study presents concerning findings about water availability in Bali's tourism sector, revealing that tourism water demand increased by 295% over 25 years. This dramatic increase creates tension between tourism development and environmental sustainability. Interestingly, this challenge exists despite Budarma et al.'s (2020) documentation of successful green practices in luxury hotels, suggesting a disconnect between individual property initiatives and destination-wide resource management.

b. Implementation Barriers and Operational Challenges

Research reveals multiple barriers to implementing sustainable practices, particularly among smaller tourism businesses. Winata et al.'s (2023) investigation into green purchasing practices identifies three critical operational challenges: the absence of clear implementation guidelines, prohibitive costs of environmentally friendly products, and limited availability of sustainable supplies. These findings align with Adyatma et al.'s (2022) research, which highlights how small businesses, often operating with traditional management approaches, struggle to adopt green practices despite understanding their importance. This creates a two-tiered system where larger businesses can implement sustainable practices while smaller ones fall behind.

c. Standardization and Certification Issues

The lack of standardization is a significant weakness in Bali's sustainable tourism framework. Prawitasari and Suardana's (2019) research highlights the absence of comprehensive green certification standards, a concern that continues

to echo in more recent studies. This standardization gap creates challenges in quality assurance, market recognition, and implementation guidance, particularly for businesses seeking sustainable practices.

### *Future Directions and Opportunities*

#### a. Leadership Development and Cultural Integration

Building on the foundational work of Khan et al. (2022) and Saleem et al. (2021), a significant opportunity exists to develop leadership models that integrate environmental stewardship with Balinese cultural values. Such models could bridge the gap between traditional management practices and modern sustainability requirements, creating culturally appropriate pathways for implementing green initiatives. This approach could be particularly valuable for smaller businesses struggling with implementation.

#### b. Resource Innovation and Management Solutions

Addressing the water scarcity issues identified by Yamamoto et al. (2021) requires innovative approaches to resource management. Opportunities exist to develop integrated water management systems, implement water-efficient technologies, and create destination-wide resource management frameworks. These innovations could help balance tourism growth with environmental sustainability while creating new markets for sustainable technologies and services.

#### c. Market Development and Green Product Innovation

The positive consumer response to green initiatives, documented by Kurnia et al. (2022) and Widhiarini et al. (2023), suggests significant potential for market expansion in sustainable tourism products and services. This market opportunity could drive innovation in several areas:

- 1) Development of affordable, sustainable products for smaller businesses
- 2) Creation of standardized green certification programs
- 3) Expansion of eco-friendly accommodation options
- 4) Innovation in sustainable tour packages and experiences

#### d. Moving Forward: Integration of Challenges and Opportunities

The path forward requires addressing these challenges while capitalizing on emerging opportunities. This could involve:

- 1) Creating tiered implementation standards that accommodate businesses of different sizes and capabilities
- 2) Developing support systems for smaller businesses to adopt sustainable practices
- 3) Establishing destination-wide resource management frameworks
- 4) Investing in research and development for sustainable tourism innovations
- 5) Building capacity for cultural and environmental leadership

These findings suggest that while Bali faces significant challenges in implementing sustainable tourism, there are clear opportunities for addressing these challenges through innovative approaches that build on existing cultural strengths and market demands. Success will require coordinated effort across stakeholders and careful attention to both environmental and cultural sustainability.

### *Policy Implications and Strategic Direction for Sustainable Tourism in Bali*

The synthesis of research findings reveals several critical policy implications that must be addressed to ensure the successful development of sustainable tourism in Bali.

These implications span multiple areas of governance and implementation, requiring careful consideration and coordinated action from various stakeholders.

a. Standardization and Implementation Framework

Building upon Winata et al.'s (2023) research on implementation challenges, there is a pressing need for comprehensive standardization policies. The lack of standardized guidelines creates uncertainty and inconsistency in sustainable practice adoption across the tourism sector. A well-structured policy framework should address several key areas: First, policies must establish clear, measurable standards for sustainable tourism practices that can be applied across different types and sizes of tourism businesses. These standards should consider variations in business capacity while maintaining meaningful environmental impact. Second, implementation guidelines that provide step-by-step guidance for businesses transitioning to sustainable practices must be developed. Third, certification systems should be established to recognize and reward businesses that meet or exceed sustainability standards.

b. Resource Management and Environmental Protection

Yamamoto et al.'s (2021) findings on water scarcity highlight the urgent need for robust resource management policies. Effective resource management policies should encompass several critical elements: The priority should be developing comprehensive water management regulations that balance tourism development with environmental sustainability. This includes policies for water usage monitoring, conservation requirements, and allocation systems. Additionally, policies should address broader environmental impacts, including waste management, energy consumption, and ecosystem protection. These policies must be supported by enforcement mechanisms and incentive structures that encourage compliance and innovation in resource conservation.

c. Stakeholder Coordination and Collaborative Governance

Rahmawati et al.'s (2019) research on stakeholder collaboration provides a foundation for developing policies that promote effective coordination among tourism stakeholders. Policy frameworks should facilitate the following: First, the establishment of formal mechanisms for stakeholder engagement and collaboration, ensuring all voices are heard in tourism development decisions. Second, creating platforms for knowledge sharing and best practice exchange among tourism businesses, community organizations, and government agencies. Third, the development of incentive structures that encourage collaborative approaches to sustainable tourism development.

d. Integration of Cultural Values in Policy Framework

A unique aspect of Bali's policy needs is the integration of cultural values into formal regulatory frameworks. Policies should:

- 1) Recognize and protect traditional environmental management practices
- 2) Support the integration of cultural elements in sustainable tourism initiatives
- 3) Ensure that standardization efforts respect and incorporate local wisdom
- 4) Promote cultural preservation alongside environmental protection

e. Implementation and Enforcement Considerations

To be effective, policies must address practical implementation challenges:

- 1) Creating tiered compliance requirements that accommodate businesses of different sizes
- 2) Establishing precise monitoring and enforcement mechanisms
- 3) Providing support systems for businesses transitioning to sustainable practices
- 4) Developing funding mechanisms for sustainability initiatives



#### f. Future Direction and Strategic Priorities

The success of sustainable tourism in Bali will depend on how effectively these policy implications are addressed. Priority areas for action include:

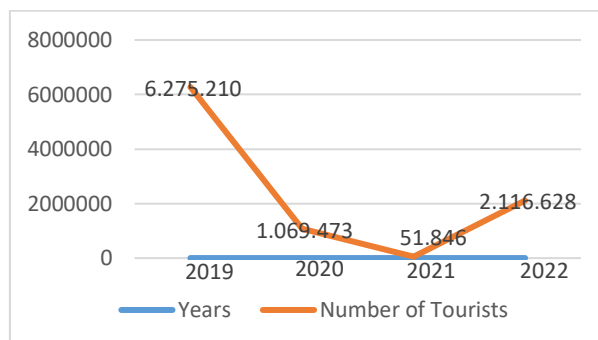
- 1) Developing a comprehensive sustainable tourism policy framework that integrates environmental, cultural, and economic considerations
- 2) Establishing clear implementation guidelines and support systems
- 3) Creating effective mechanisms for stakeholder coordination and collaboration
- 4) Ensuring robust resource management and environmental protection measures
- 5) Building capacity for policy implementation and enforcement

The path forward requires careful balancing of various stakeholder interests while maintaining focus on long-term sustainability goals. Success will depend on the ability to create policies that are both ambitious in their environmental protection goals and practical in their implementation requirements. These policies must build upon Bali's existing strengths in cultural integration and stakeholder engagement while addressing current challenges in standardization, resource management, and implementation.

The development of such comprehensive policy frameworks represents a critical step in ensuring that Bali's tourism industry can continue to grow while maintaining environmental sustainability and cultural authenticity. This balanced approach will be essential for preserving Bali's unique cultural and natural heritage for future generations while supporting current economic development needs.

The research also reveals several critical gaps that warrant further investigation. While current studies provide valuable insights into specific aspects of sustainable tourism in Bali, there remains a need for: Longitudinal studies examining the long-term effectiveness of cultural integration in sustainable tourism practices. Comprehensive economic impact assessments of green initiatives across different scales of tourism operations. Comparative analyses of sustainable tourism implementation across different regions in Bali. Investigation of technology's role in promoting and supporting sustainable tourism practices.

The importance of developing sustainable tourism in Bali is increasingly relevant given the vital role of the tourism industry in the regional economy. Bali has become a leading tourist destination attracting millions of visitors annually. However, the COVID-19 pandemic has had a significant impact on the number of tourist visits to Bali, as shown in the following figure:



Source: Bali Province Statistics Agency (2021, 2022, 2023)

**Figure 1.** Number of Tourist Visits to Bali

From this data, it is evident that the number of tourist visits to Bali experienced a drastic decline in 2020 and 2021 due to the COVID-19 pandemic. Although the number

of visits began to increase again in 2022, Bali's tourism industry still faces challenges in recovery and reaching pre-pandemic levels of tourist arrivals.

In this context, the implementation of Green Marketing strategies that align Green Ethic behavior and Balinese cultural values becomes increasingly important to ensure the long-term sustainability of the tourism industry. By adopting sustainable and responsible tourism practices, Bali can build resilience and competitiveness in facing future challenges, while preserving its environment and cultural heritage.

This literature review provides an important contribution to the development of sustainable tourism in Bali by highlighting the dynamics between Green Ethic behavior, Balinese culture, and Green Marketing strategies. These findings can inform the development of more effective policies and strategies that align cultural values, pro-environmental behavior, and marketing practices to achieve long-term sustainability. However, further research is needed to address the limitations of this review, including the narrow focus on the hospitality industry and the lack of exploration of other contextual factors that may influence the adoption of sustainable tourism practices in Bali.

## Conclusions

The research synthesis reveals that Bali has developed a distinctive approach to sustainable tourism by successfully integrating traditional cultural values with modern environmental practices. This integration manifests through environmental-specific ethical leadership, alignment of traditional concepts with green business practices, and effective stakeholder engagement, creating competitive advantages in the global tourism market. However, significant challenges persist, particularly in resource management, standardization of green practices, and implementation barriers for smaller businesses.

Based on these findings, several key recommendations emerge for strengthening sustainable tourism in Bali. First, policymakers should develop comprehensive frameworks that standardize sustainable practices while accommodating businesses of different sizes and capabilities. Second, innovative solutions for resource management, particularly water conservation, should be prioritized through collaborative efforts between government, industry, and local communities. Finally, support systems should be established to help smaller businesses adopt sustainable practices, potentially through mentorship programs, financial incentives, and technical assistance.

These efforts should continue to build upon Bali's unique cultural foundation while addressing contemporary environmental challenges. The success of sustainable tourism in Bali can serve as a model for other destinations seeking to develop culturally authentic and environmentally responsible tourism practices, demonstrating that traditional values and modern sustainability can be mutually reinforcing rather than competing objectives.

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## Contribution of Ecotourism Implementation to Environmental Sustainability Waterfall Nature Tourism in Banjar Bhuana Sari, Wanagiri Village

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**Abstract:** The concept of ecotourism presents a suitable approach to tourism management in Bali, given its abundant natural attractions. One such attraction is the Banjar Bhuana Sari Waterfall in Wanagiri Village, Sukasada District, Buleleng Regency, Bali Province. This study aims to identify and analyze the potential of this natural site for ecotourism development by examining three key aspects: (1) the tourism potential of the site, (2) the level of community participation, and (3) the contribution of tourism to the local area. Data was collected through observation, interviews, questionnaires, and literature review. The data were then analyzed using a rating or scoring system to classify each indicator. The findings reveal that Banjar Bhuana Sari Waterfall possesses substantial potential for ecotourism development. High levels of community participation play a significant role in maintaining the site's sustainability. However, while the natural environment is generally well-preserved, further improvement is needed regarding tourism facilities and infrastructure. Additionally, the economic and social contributions of tourism to the local community, although present, require enhancement to ensure a more impactful and sustainable tourism model. Overall, the research highlights the importance of strengthening both environmental management and tourism benefits to support the long-term development of ecotourism at Banjar Bhuana Sari Waterfall.

**Keywords:** ecotourism, environmental sustainability, nature tourism, waterfall.

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### Introduction

The island of Bali is blessed with its culture and beautiful natural potential (Utama, 2016). Apart from unique culture and close synergy with nature, these potentials have many opportunities to be preserved and developed, including ecotourism-based management (Arida, 2017). One area that has excellent opportunities in ecotourism development is Buleleng Regency. Buleleng Regency has natural potential, one of which is a waterfall (Rahman & Citra, 2018; Citra et al, 2020; Yanti et al, 2022). Topographic characteristics with geomorphological conditions (Wahyuni et al, 2020) give Buleleng Regency the potential for many waterfalls to spread across the region (Rahman & Citra, 2018). One of the villages in Buleleng Regency with these topographic characteristics is Wanagiri Village, which is

administratively located in Sukasada District. Wanagiri Village is located in the Upland area (Astawa, 2022; Yanti et al, 2022; Bharata et al, 2023) and has a variety of potential waterfalls. One of the locations in the administrative unit at the Banjar level, namely Banjar Bhuana Sari, has the potential for waterfalls spread over one site area as a tourist attraction that has the potential to be developed for ecotourism (Yanti et al, 2022).

The concept of ecotourism management, which also often refers to natural tourism objects (Arida, 2017; Suditha & Citra, 2014; Citra, 2015; Citra, 2017; Wisnawa, 2017; Khairuddin et al, 2019; Sriartha et al, 2021), especially the waterfall (Citra, 2015; Khairuddin et al, 2019). Ecotourism itself is a sustainable tourism concept that focuses on experience and education about nature, managed with a particular management system and has the lowest possible negative impact on the environment, is not consumptive and oriented locally in terms of control, the benefits that can be taken from business activities that are also easy for stakeholders to understand (Ross & Wall, 1999; Libosada Jr, 2009; Arida, 2017). The nature of ecotourism involves preserving and utilizing nature and community culture (Citra, 2015). This is because ecotourism does not exploit nature but focuses on using ecosystem services (Prasetyo et al, 2017) (Nair et al, 2018; Ramdan et al, 2021) and society (Citra, 2015; Arida, 2017) in meeting the need for physical and psychological knowledge of tourists. Existing research in one area also shows that tourist perceptions of ecotourism show that ecotourism has more positive impacts than negative impacts (Olubunmi-ojo et al, 2022).

Ecotourism is vital as a management model for maintaining natural sustainability, especially in tourist destinations such as waterfalls that naturally already preserve the sustainability of the environment around them (Citra et al, 2023). This is also because waterfalls are often located in areas with high biodiversity, such as rainforests or mountain ecosystems (Jiménez & López, 2023). Managing a waterfall destination with the concept of ecotourism requires good environmental management to preserve the surrounding ecosystem (Hien & Chu, 2024).

The evaluation based on concept and indicator of ecotourism in Bali, especially in Wanagiri Village, is essential because Bali, as an island, is facing major environmental problems that stem from tourism implementation (Utama et al, 2021; Mahendra, 2024). This is due to the tourism mindset being more accommodating of the mentality of mass tourism rather than tourism based on sustainability and ecologically based management, such as ecotourism (Marzouki et al, 2012). The impact of mass tourism in Bali is enormous, from environmental dimensions such as the plastic waste problem (Putrajaya & Antara, 2014; Febrianto et al, 2018; Sutrisnawati & Purwahita, 2018; Chong, 2020), building density, overcrowded beaches, traffic congestion (Antonio & Alamsyah, 2024), and unclear land management regulations that lead to violations (Yasa & Sunarta, 2019; Suparta & Suciati, 2021; Suryana et al, 2022; Jayswara & Sudiana, 2024). Not only the environment, but also the Social and Cultural impact that makes Balinese accustomed to the commodification of culture, disconnection and superficial understanding of Balinese culture, the expense of traditional values, and erosion of cultural identity and social cohesion (Chong, 2020; Mahendra, 2024). Economically, this impacts the regional income due to taxpayers from tourism accommodation such as Hotels and Villas (Adnyani, 2014), but little in contributing to the environmental sustainability and commonly compromising the externality of the economy generated by this tourism model.

If we look closely and locally in Wanagiri Village, this area is vital because of its water status is already unsustainable, meaning the function of ecosystem services can



support the provision of water for human activities above it, but the use of water for human activities can have a significant impact or be unsafe for the ecosystem (P3E Bali Nusra, 2021). In his history, the Wanagiri Village is also the location of the deadliest natural disaster recorded in Balinese History, which is known as *Gejer Bali* (Faral et al, 2024). Research by Tamonob et al (2021) showed that over 1.165,62 hectares or 71,64 % of Wanagiri Village is considered high landslide hazard potential. These environmental conditions make Wanagiri Village vulnerable if any significant changes or development happen in this rural part of the area, which makes ecotourism-based management and evaluation important in ensuring the sustainability of one of the water sources in the central part of North Bali.

Based on previous research, waterfalls in Wanagiri Village have low to moderate potential (Rahman & Citra, 2018), but have not been considered in understanding ecotourism development in the area. Another research conducted is Wijana & Mulyadiharja (2020), which focuses on forest tourism in Taman Gumi Banten in Wanagiri Village. Rahmawati et al. (2020) describe the potential of tourism and the general challenges that exist in Wanagiri Village. Laksemi et al (2019) evaluated the social forestry management in the Wanagiri Village Forest, namely the principles of a sustainable environment (environmental aspects), improving community welfare (socio-economic elements), and improving forest governance (institutional aspects).

Based on the previous research above, although ecotourism is often considered an environmentally friendly approach, previous studies tend to focus more on the potential of nature tourism without examining its contribution to environmental sustainability. Ecotourism is discussed more from the economic and community participation aspects. At the same time, its impact on local ecosystems and its potential to mitigate environmental degradation are still rarely explored. From a methodological perspective, most studies use a descriptive approach without integrating more comprehensive spatial assessments and environmental policy analysis. In addition, many studies rely on ranking or scoring methods that focus more on economic and social aspects but have not assessed ecosystem sustainability quantitatively. From an empirical perspective, research on ecotourism in Bali generally focuses on popular destinations with high visitor numbers.

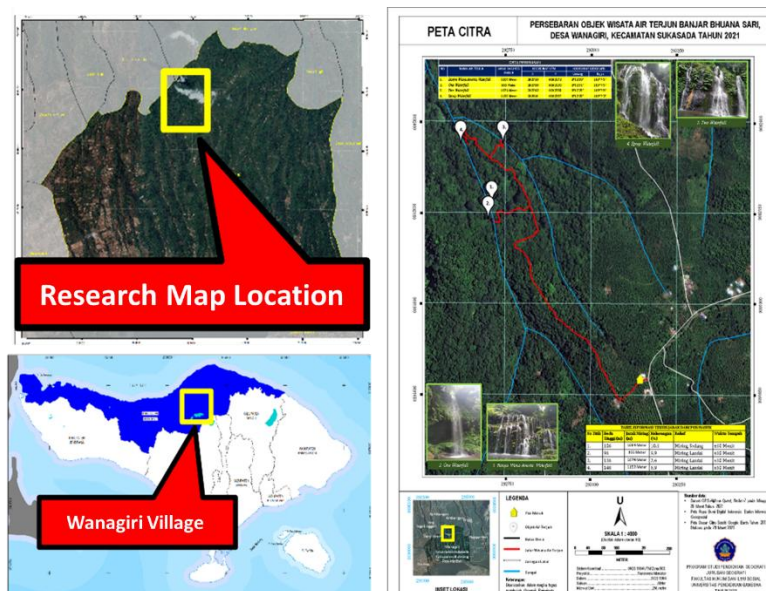
In contrast, the potential for ecotourism in Banjar Bhuana Sari has not received much attention. In particular, the impact of ecotourism on spatial patterns and environmental degradation in the waterfall area is still an aspect that has not been widely studied. Another gap is seen in policy implementation, where the absence of precise spatial planning in Banjar Bhuana Sari can threaten environmental sustainability, but this has not been widely highlighted in previous studies. In addition, although the importance of community participation in ecotourism is often mentioned, studies discussing how the economic contribution of ecotourism can improve the welfare of local communities sustainably are still minimal. What distinguishes this research from previous research is the location, which focuses on Banjar Bhuana Sari in Wanagiri Village and describes the Contribution of Ecotourism Implementation to the Environmental Sustainability of Waterfall Nature Tourism in Banjar Bhuana Sari, Wanagiri Village. Based on the argument above, this study aims to examine how implementing ecotourism contributes to the environmental sustainability of the waterfall tourism site in Banjar Bhuana Sari.

## Methodology

This research design is descriptive research, with the method of collecting data through interviews on qualitative information (Harahap & Effendi, 2020), and

supported by observation (Citra, 2015; Rahman & Citra, 2018). The information extracted in this study covers aspects of ecotourism, namely the potential for the tourism environment, community participation, and tourism contributions (Citra, 2015; Arida, 2017), and is analyzed using an ecological approach. The informant we interviewed included Mr. Ketut Rinta as the Bhuana Sari Waterfalls Destination chief, Mr. Natih as finance manager, and I Wayan Surya Wibawa as entry post guard.

This research is located in the natural tourist attraction site of Banjar Bhuana Sari waterfall, Wanagiri Village, Sukasada District, Buleleng Regency, Bali Province (Figure 1). The time of the research was carried out from March to April 2021. Determination of the sample in the community is carried out purposively at the location of tourist objects that can meet the requirements or represent the interests of research and can represent the completeness of the elements to be observed and assessed related, which is carried out employing observation, interviews, open questionnaires and document study (Citra, 2015; Harahap & Effendi, 2020). Data is processed through ratings or scoring on each indicator to determine the class of each (Muta'ali, 2015).



**Figure 1.** Research Location Map  
(Source: Data visualization, 2021)

## Results and discussions

### Results

#### *Analysis of the Contribution Level of Application of Ecotourism Tourism Banjar Bhuana Sari Waterfall*

The analysis of the ecotourism aspects in the Banjar Bhuana Sari Waterfall tourist attraction encompasses three main components: tourism environmental potential, community participation, and tourism contribution. The ratings or scoring on each indicator to determine each class from the tourism environmental potential aspect has a value range of 14 to 42, with three courses, resulting in an interval of 9.3. The classification categories are low (14-23.3), medium (23.3-32.6), and high (32.6-42). The total score obtained for this aspect is 36, which falls into the high category. Community participation has a lowest value of 13 and a highest value of 39, with an interval of 8.6. The classification categories are low (13-21.6), medium (21.6-30.2),

and high (30.2-39). The total score of 39 indicates that community participation is also in the high category. The tourism contribution aspect has a lowest value of 6 and a highest value of 18, with an interval of 4.6. The classification categories are low (6-10), medium (10-14), and high (14-18). The total score is 15, placing tourism contribution in the high category.

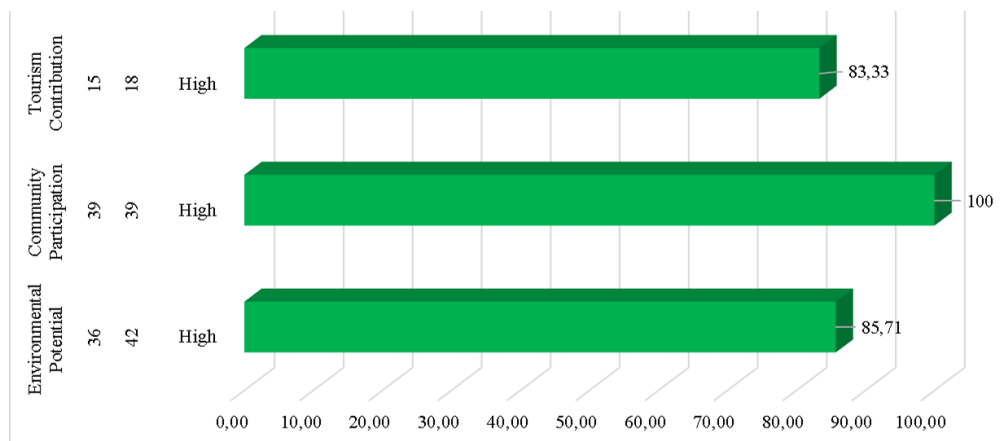
**Table 1.** Data Result and Analysis of Bhuana Sari Waterfalls Nature Tourism Based on Ecotourism Contribution perspective

| Aspects                         | Variable                                  | Indicators                                           | Result                                           | Value |
|---------------------------------|-------------------------------------------|------------------------------------------------------|--------------------------------------------------|-------|
| Tourism Environmental Potential | Tourism Attraction                        | Main Attraction                                      | Existing and preserved/maintained                | 3     |
|                                 |                                           | Supporting Attraction                                | Exist and preserved                              | 3     |
|                                 | Accessibility                             | Road Condition inside Destination                    | Good (no holes or cracks)                        | 3     |
|                                 |                                           | Distance from City/District                          | Very Far >10 Km                                  | 1     |
|                                 |                                           | Transportation Availability                          | None                                             | 1     |
|                                 | Facility                                  | Accommodation                                        | Many (>1)                                        | 3     |
|                                 |                                           | Health Post                                          | None                                             | 1     |
|                                 |                                           | Security Post                                        | Exists and operating                             | 3     |
|                                 |                                           | Information Center                                   | Exists and operating                             | 3     |
|                                 |                                           | Management                                           | Government, Private, Traditional Village         | 3     |
|                                 | Institutional                             | Organizational structure                             | Exists and are according to management standards | 3     |
|                                 |                                           | Rules ( <i>awig-awig</i> ) of preservation           | It exists and is implemented                     | 3     |
|                                 | Environmental preservation                | Maintaining environment preservation and cleanliness | Routine (scheduled)                              | 3     |
|                                 |                                           | Waste Management                                     | Exist                                            | 3     |
| Community Participation         | Planning                                  | Meeting and Discussion                               | Always involved                                  | 3     |
|                                 |                                           | Decision-making                                      | Always involved                                  | 3     |
|                                 |                                           | Identify the problem                                 | Always involved                                  | 3     |
|                                 |                                           | Tourist Destination Promotion                        | Always involved                                  | 3     |
|                                 | Monitoring                                | Monitoring/supervisory team                          | Always involved                                  | 3     |
|                                 | Management                                | Parking attendant                                    | Always involved                                  | 3     |
|                                 |                                           | Security officer                                     | Always involved                                  | 3     |
|                                 |                                           | Tour guide                                           | Always involved                                  | 3     |
|                                 |                                           | Cleaning services                                    | Always involved                                  | 3     |
|                                 |                                           | Employee                                             | Always involved                                  | 3     |
|                                 | Ecotourism entrepreneurs/ economic actors | Accommodation                                        | Always involved                                  | 3     |
|                                 |                                           | Transportation Services                              | Always involved                                  | 3     |
|                                 |                                           | Restaurant/Food House                                | Always involved                                  | 3     |
| Institutional                   | Social-                                   | Increased income                                     | Sometimes                                        | 2     |

| Aspects | Variable                | Indicators                              | Result                              | Value |
|---------|-------------------------|-----------------------------------------|-------------------------------------|-------|
| aspects | Economy                 | Employment Opportunity                  | There are easy conditions           | 3     |
|         | Physical Infrastructure | Infrastructure (roads in tourist areas) | Good condition (wide and undamaged) | 3     |
|         |                         | Spatial planning of tourist areas       | There are no spatial planning       | 1     |
|         |                         | Hotel/Villas                            | Many >1                             | 3     |
|         |                         | Restaurant/Food House                   | Many >1                             | 3     |

Source: Data analysis (2021)

Based on Table 1 above, the results have been classified based on each aspect of ecotourism. There are 14 indicators for the potential of the tourism environment, with the highest value being 42. Community participation in nature tourism has 13 indicators, with the highest value being 39. The contribution of nature tourism is divided into six indicators, with the highest value being 18. Each aspect will be calculated with the interval first, with the highest value minus the lowest value divided by the number of classes, so that each element of ecotourism gets an interval and class classification level. Thus, a classification level can be made from the level of ecotourism potential that can be seen, namely (low = 33 - 55, medium = 55 - 77, and high = 77 - 99). Based on the results, the ecotourism aspect of the natural tourist attraction of the Banjar Bhuana Sari waterfall was assessed based on tourism environmental potential, community participation, and tourism contributions. The total potential of the waterfall tourism environment for ecotourism development in Banjar Bhuana Sari is 84, which is classified as high, as shown in Figure 2 at the percentage level to be better visualized.



**Figure 2.** Diagram of the Percentage Level of Contribution to the Implementation of Ecotourism Tourism Banjar Bhuana Sari Waterfall  
(Source: Data analysis, 2021)

## Discussions

### *Environmental Potential of Banjar Bhuana Sari Waterfall Tourism*

Waterfalls are the main tourist attraction in Banjar Bhuana Sari. This is because there are four waterfalls in the area of the waterfall tourist attraction in Banjar Bhuana Sari. The four waterfalls are Banyu Wana Amerta Waterfall, One Waterfall, Two Waterfall, and Spray Waterfall (Yanti et al, 2022). From its attractions, the main tourist

attraction in Banjar Bhuana Sari, namely the existing waterfall, has been well preserved. The existing supporting attractions are well-maintained and cared for, so the location is well-organized. In terms of accessibility, the condition of the road leading to the waterfalls in Banjar Bhuana Sari is also excellent, with no holes and cracks. The distance from the city center in Buleleng district is far, more than 10 km in Singaraja City, Buleleng District.

There is transportation to the waterfall tourist attraction in Banjar Bhuana Sari, but only to the main post, because the road to the waterfall must be walked. From the facilities, the accommodations at the waterfall tourist attraction are also quite numerous, such as toilets, information boards, road signs, stair railings, and food stalls. Security is also maintained because the entry post also functions as a security post, where the guards and managers also play a role in security. Institutionally, managing the natural tourist attraction of waterfalls in Banjar Bhuana Sari involves the government, especially the Village, Private, and Traditional Villages. The organization is maintained and meets management standards with each section's chairman, treasurer, secretary, and members. Environmental conservation is also reasonably good because in the management, there are rules (*awig-awig*) where every scheduled Friday cleaning is always carried out. In the tourist attraction environment, there is also a place to manage waste, especially garbage. Also similarly, Nurfatriani et al (2023) emphasize that effective village-level institutions are crucial for sustaining ecotourism in forest-edge communities in Upstream Citarum Watershed, West Java, Indonesia. The community manages the institution in ensuring the natural sustainability of the waterfalls and its environment, also proven by another study around the world, such as in Kenya (Guthiga & Mburu, 2006), Burkina Faso (Bouda et al, 2011), and the Taita Hills forests (Wekesa et al, 2021).

### *Community Participation in Banjar Bhuana Sari Waterfall Tourism*

In the process of planning an activity at the natural tourist attraction of the Banjar Bhuana Sari waterfall, activities such as meetings, decision-making, problem identification, and promoting natural waterfall tourism are always involved. Monitoring activities or monitoring by forming a supervisory team in tourism management are also always involved. From management, community involvement in being parking attendants, security officers, tour guides, cleaners, and employees is always involved. Entrepreneurs or ecotourism economic actors are also involved. Both accommodation, transportation services, and restaurants/restaurants are engaged in natural waterfall activities in Banjar Bhuana Sari. Community participation in ecotourism can make tourism sustainable for the long term if stakeholders, destination management, and key stakeholders understand and are involved in planning, decision-making, and ecotourism management in tourist destinations (Salman et al, 2020; Salman, 2021). Although the results can be considered good as the method used in this research, it is still unknown how much impact this community participation has on nearby households (Kandel et al, 2020), such as the waterfall tour. The high level of community participation can be attributed to tourism awareness groups (*pokdarwis*), which have a strong social influence in the community. This shows that local institutional support plays an essential role in the success of ecotourism management. This finding is also in line with the research results of Nierras (2022) in the Philippines, which showed that the involvement of village communities in managing waterfall tourism increased awareness of water conservation and preservation. This community involvement shows a sense of ownership and a desire to maintain the sustainability of ecotourism.

### *Tourism Contribution to Banjar Bhuana Sari Waterfall*

Socio-economically, the increase in income is uncertain, as the decrease in the number of visitors due to the COVID-19 pandemic has an impact on the tourism sector. Job opportunities for the surrounding community to be involved in tourism activities in the natural tourist attraction of the Banjar Bhuana Sari waterfall are open on conditions and are available easily. From the physical appearance of the natural tourist attraction of the Banjar Bhuana Sari waterfall, the infrastructure and roads in the tourist attraction area are maintained in good condition. From the spatial arrangement of the tourist area, there is no spatial arrangement for the natural tourist attraction of the Banjar Bhuana Sari waterfall. If this spatial plan still does not exist, it will potentially threaten land conversion and degradation of the natural environment in tourist areas (Olaniyi & Atalor, 2018) (Olaniyi et al, 2018). There are several hotels or villas as well as restaurants or restaurants that support tourist activities even though they are outside the natural tourist attraction of the Banjar Bhuana Sari waterfall which is scattered in Wanagiri Village because Wanagiri Village is a village that has many tourist attractions and other supporting tourism (Rahmawati et al, 2020).

From the potential of the tourism environment, the natural tourist attraction of Banjar Bhuana Sari waterfall has a value of 36, which is classified as high. This is because of the attractiveness indicators, both primary and supporting, road conditions, accommodation, security, information centers, well-available institutions, and efforts to preserve the environment. From the participation of the community, the natural tourist attraction of the Banjar Bhuana Sari waterfall has a high value of 39. This is because, from the indicators of planning, monitoring, and management, to the involvement and participation of the community, the entrepreneurs/economic actors of ecotourism are always involved. From the contribution of tourism, the natural tourist attraction of Banjar Bhuana Sari waterfall has a value of 15, which is also relatively high. This is due to indicators of easy job opportunities, infrastructure such as roads in good tourist attraction areas, hotels and villas, restaurants, and other facilities. The impetus for the high potential in ecotourism development of a waterfall is also due to its beautiful visuals (Khairuddin et al, 2019). There are shortcomings in this study, which does not explore how other livelihoods, in particular, are the potential types of vegetables and food that exist and are cultivated around tourist areas, especially those in Banjar Bhuana Sari, Wanagiri Village itself. Vegetables and food that are cultivated around the tourist area if they have a high value are also able to encourage the potential value of the environment such as the development of local home industries in the vicinity which of course must not disturb the nature around the tourist area (Nierras, 2022; Rana & Bisht, 2023; Rana et al, 2024).

Even though it is classified as high class, several things become challenges in developing ecotourism in the natural tourist attraction of Banjar Bhuana Sari waterfall. From the potential of the tourism environment at a distance to the city center, which is far away, especially in Singaraja, as the city center in the Buleleng district, transportation is not yet available, and there is no health post. From the participation of the community in general, the community is very involved. Based on his contribution to the community during the COVID-19 pandemic, income is uncertain, and there are no rules in spatial planning areas.

Effective ecotourism management requires careful planning because it allows ecotourism managers to understand and manage space effectively, identify the most suitable locations for ecotourism development (Ambecha et al, 2020; Chaudhary et al, 2022), and avoid conflicts with other activities (Wiratno et al, 2022). Thus, spatial planning can help ecotourism managers to develop appropriate infrastructure (Choy et



al, 2017), integrate ecotourism activities with other activities in the area (Bharata et al, 2021; Bharata et al, 2023; Bharata et al, 2024), and achieve the goals of preserving the environment (Bharata et al, 2021; Bharata et al, 2023) and improving the welfare of local communities (Solly, 2021).

Its high potential shows that the manager has implemented good management. Of course, this good management also needs to maintain the environmental area of supporting objects and the preservation of natural tourist attractions as the main object (Idajati & Widiyawahwati, 2018), in particular, the role of Indigenous peoples and local communities needs to be maintained for land conservation efforts and protecting land from the threat of land degradation and deforestation either naturally or as a result of human activity itself (Olaniyi & Atalor, 2018; Olaniyi et al, 2018; Sarhan et al, 2016; Christiawan, 2017) because it can have environmental impacts and disasters (Olaniyi & Atalor, 2018; Olaniyi et al, 2018; Christiawan, 2018; Eshun & Tichaawa, 2020). Due to the COVID-19 pandemic, promotions are also needed, such as through social media, which also considers and strictly monitors health protocols.

Based on the description above, it can be stated that the results of identifying tourism potential that are applied to the development of ecotourism in the natural tourist attraction of Banjar Bhuana Sari waterfall are classified as high. This is due to the strong potential of the tourism environment and high community participation, as well as the contribution of tourism to the community. The existence of natural waterfall tourism per the concept of ecotourism management in Banjar Bhuana Sari can improve the community's welfare (Hardanto et al, 2021).

## Conclusions

The results showed (1) the potential of the tourism environment was 36 (high), (2) community participation was 39 (high), and (3) the contribution of tourism was 15 (medium). The natural tourism potential of waterfalls for ecotourism development in Banjar Bhuana Sari is high, totaling 84 (high). Based on the description above, it can be stated that the results of identifying tourism potential that are applied to the development of ecotourism in the natural tourist attraction of Banjar Bhuana Sari waterfall are classified as high. This is due to the strong potential of the tourism environment and high community participation, as well as the contribution of tourism to the community. Based on the results of research that has been carried out at the location of the natural tourist attraction of the Banjar Bhuana Sari waterfall, the suggestions that can be given from the results of this study are, that tourism managers need to arrange spatial planning, especially with the preparation of the site of the tourist attraction area with details on the location of any object that is required and mitigate threat of land conversion and degradation of the natural environment in tourist areas. Further researchers can assess the waterfall landscape and compile a site for a tourist area to help complete spatial information, spatial location, landscape assessment, and tourism willingness to pay. These findings indicate the importance of designing community-based ecotourism governance that strengthens local institutions and considers environmental sustainability. Village governments and tourism managers are advised to develop local spatial plans that include protection zones, establish cross-stakeholder collaborative forums, and provide ecotourism training for the community.

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## Analysis of Community Participation in the Development of Riangsunge Beach as a Tourist Attraction in Ritaebang Village, East Flores Regency

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**Abstract:** Riangsunge Beach a tourist destination in East Flores Regency, has been developing and developing in recent years. The development and development were carried out significantly by the Regional Government through the Tourism Office. This research is motivated by the minimal involvement of the community in the development of Riangsunge Beach as a tourist attraction in Ritaebang Village, West Solor District, East Flores Regency. This study aims to examine the participation of the local community in the development of tourism in Riangsunge Beach. This study uses a qualitative descriptive approach. Data were obtained through in-depth interviews, surveys, and observations. The informants in this study were the former head of the TANPAR Pokdarwis, Pokdarwis members (2 people), 1 new manager, and 2 community leaders. The data obtained is then analyzed rationally based on certain logical thinking patterns. The results of the study show: 1). Community participation in the planning stage is very minimal; 2). Not involving the entire community in the implementation stage; 3). Community participation in decision-making is still very minimal; but 4). Community participation in the evaluation stage is considered quite high. Overall, in the tourism development process, the role of the government in this case the Government tourism office is still very dominant.

**Keywords:** community participation, tourist attractions, tourist attraction development.

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### Introduction

Tourism destinations or tourist attractions have experienced significant development. In the development process, each destination tries to show the superiority of tourism products. The goal is to win the competition (Dwyer and Kim, 2003; Enright and Newton, 2005; Hudson, Ritchie, and Timur, 2004). The way to win the competition is through the best service quality so as to provide a quality experience to tourists (Crouch, 2011; Damanik, 2013). This dynamic leads to an increase in the number of tourists and length of stay (Hudson, Ritchie, and Timur, 2004). The development of a tourist destination or tourist attraction is influenced by many factors. One important factor is stakeholders. Stakeholders themselves consist of several elements, namely society or community, government, academics, business actors, and the media. These four elements are called pentahelix in other languages. Meanwhile, in relation to the success of tourism development, especially the implementation of sustainable tourism development, stakeholder support is important (McComb, Boyd & Boluk, 2017).

Riangsunge Beach a tourist destination in East Flores Regency, has been developing and developing in recent years. The development and development were carried out significantly by the Regional Government through the Tourism Office. The development in question includes gates, toilets, lopo-lopo, stages, homestays, parking lots, stalls for selling, and the installation of signs that say Riangsunge beach tourism. In addition, the Tourism Office also formed a Podkarwis consisting of local people. The name of this Pokdarwis is Tani Penggerak Pariwisata Riangsunge (TANPAR). Development and development aim to increase the number of visits.

In this development and development, the local community as one of the pentahelix models seems to be ignored. The Tourism Office seems to do everything independently without involving the community. The absence of the community in the process of developing the Riangsunge Beach tourist attraction is correlated with community participation in the development itself.

Therefore, a study of local community participation in the development and construction of Riangsunge Beach as a tourist attraction is important to do. Based on these considerations, the author conducted a study to examine local community participation in the development and construction of Riangsunge Beach as a tourist attraction to be urgent.

A tourist destination is a place that is the destination of tourists in carrying out tourism activities. What is meant by a place in an area, city, region, province, or country. A place must have certain limitations such as tourist attractions, supporting facilities, tourism or facilities, infrastructure, and most importantly management (Nurdin, 2019:4). In addition, a tourist destination must-have elements of tourist attraction such as natural beauty (beaches, mountains, rice fields, and rivers), tourist facilities (transportation, information centers, toilets, restaurants, and tour guides), public facilities (places of worship, financial facilities, and health facilities), and accessibility (Prasiasa, 2013).

Meanwhile, according to Law No. 10 of 2009 concerning Tourism, a tourist destination is a geographical area located in one or more administrative areas in which there are tourist attractions, public facilities, tourism facilities, accessibility, and communities that are interrelated and complement the realization of tourism.

In relation to tourist destinations, Nurdin (2019:5) divides them into two categories. First, tourist destinations that "do not have" administrative boundaries are tourist destinations that only have certain administrative boundaries or are located within two or more administrative boundaries. Second, tourist destinations that have administrative boundaries are tourist destinations that have administrative area boundaries.

In developing tourist destinations, community participation is needed. The concept of community participation in tourism development has so far revealed more involvement of the community from groups that have capital, financial access, and skills, members of Non-Governmental Organizations (NGOs), community leaders, and private sector actors in the tourism industry (Blackstock 2005; Cruz, 2005; Idajati 2016; Kaharuddin, 2016; Kaharuddin, et al., 2020).

According to Sumarto as quoted by Sembodo (2006:21) participation is a process that allows for better interaction between stakeholders. The impact of this process is to provide innovative agreements and actions, where there is space to listen, learn, and start a joint action. Meanwhile, in Law Number 25 of 2004 (explanation of Article 2 paragraph 4 letter d) community participation is translated as community involvement to accommodate their interests in the process of preparing development plans.

In the context of development, Adisasmita (2006:38) said that community participation is the involvement and involvement of community members in development, including activities in the planning and implementation of development programs/projects carried out in the local community. Community participation or role in development is the actualization of the availability and willingness of community members to sacrifice and contribute to the implementation of programs/projects.

Meanwhile, the forms of community participation cover all stages of development. Abu (2008) put forward five forms of participation, namely participation of ideas given by participants in meetings or conferences, participation of energy given by participants in various village development improvement activities or assistance for other people, participation of property given by people in various activities for development improvement in the form of money, participation of skills and expertise to encourage forms of business or industry and participation as a sign of community.

Meanwhile, Ndraha (1990) classifies six (6) forms of participation, namely: participation through contact with other parties as the starting point of social change, participation in paying attention to and responding to information (receiving, obeying, fulfilling, implementing), participation in development planning including decision making, participation in the implementation of development operations, participation in assessing development, namely community involvement in assessing the extent to which development implementation is in accordance with the plan. This shows that participation in development includes all stages from planning, implementation, and supervision to performance assessment.

In addition, there are also other opinions related to the form of participation. It is said that there are four (4) forms of participation. First, participation in decision-making needs to be fostered through the opening of forums that allow the community to participate directly in decision-making. Second, participation in the implementation of activities is interpreted as the equalization of community contributions in the form of labor, and cash that will be received by the community concerned. Third, participation in monitoring and evaluating development in this case community participation in collecting information related to the development of activities and the behavior of development officials. Fourth, participation in the utilization of development results is the most important element (Mardikanto and Soebianto, 2015; Mustanir and Lubis, 2017).

Moreover, the community participation model is community participation in the process of identifying problems and potentials in the community, selecting and making decisions regarding a problem, implementing efforts to overcome it, and community involvement in the evaluation process. The factors that influence community participation include internal factors including: age, gender, level of education, length of residence, type of work, and amount of income. Meanwhile, external factors include: active facilitators, the intensity of socialization, influence of external society (Sunarti, 2003).

## Methodology

The research location is Riangsunge Beach, Ritaebang Village, West Solor District, East Flores Regency, East Nusa Tenggara Province. This beach has been designated by the East Flores Regency Government as a tourist attraction. Since the status was determined, development has begun. Facilities such as toilets, lopo, homestays, stalls, gates, parking lots, and stages were built. This research was conducted for 6 months from March to August 2024. The informants in this study were the former head of the TANPAR Pokdarwis, Pokdarwis members (2 people), 1 new



manager, and 2 community leaders. Informants were determined using purposive sampling. Purposive sampling means the participants are selected based on certain criterias (Creswell, 2014).

This research was approached using a qualitative descriptive research method. Qualitative descriptive is data collected from interviews, field notes, and personal documents, not statistical analysis in the form of numbers. In relation to the research method, Moleong (2012:6) states that the qualitative research method is research that intends to understand the phenomenon of what is experienced by the research subject, for example, behavior, perception, motivation, action, and others holistically, and by means of description in the form of words and language, in a specific natural context and by utilizing various scientific methods. The purpose of the descriptive method is to create a description, picture, or painting systematically, factually, and accurately regarding the facts, characteristics, and relationships between the phenomena being investigated (Nazir, 2005:54). Primary data collection techniques are carried out by: 1) In-depth interviews; asking questions to sources that can provide factual information related to the problems to be studied. 2) Survey; observing and making factual and systematic notes regarding the phenomena of the object being studied both directly and indirectly.

## Results and discussions

### Results

#### Participation in Planning

Planning is a process involving efforts made to anticipate future trends and determine appropriate strategies to realize organizational targets and goals. Activities in planning include: (1) determining target markets, formulating strategies to reach these target markets, determining the resources needed, and determining standards/indicators of success in achieving goals and target markets, and (2) involvement of local communities, especially related to identifying problems or issues, identifying development potential, analyzing, and forecasting future environmental conditions, developing alternative plans and facilities.

In the study, it was found that the community participates by providing suggestions, advice, and criticism through meetings held. The community participates by providing suggestions, advice, and criticism through meetings held. The participation of the Riangsunge community in the tourism development planning stage is involved in socialization activities carried out by the East Flores Regency government. The socialization agenda is to explain the government's plan to develop Riangsunge Beach as a tourist attraction. The socialization was attended by community leaders, traditional leaders, and the Rangsunge community. However, the results of the study also showed that the community was never asked for their opinion regarding the development concept that would be carried out at Riangsunge Beach. This was conveyed by Mr. Ebit Keban the former head of the TANPAR Pokdarwis when interviewed on April 13, 2024.

*"At that time we were invited to participate in the socialization but without being asked for our opinion regarding the concept of development and development".*

Based on the explanation above, it can be concluded that the participation of the Ritaebang Village community, especially the Riangsunge environment, was very minimal in the planning stage.

### Participation in Implementation

Participation is one form of involvement of a person or group of people in doing something. The participation of the Riangsunge community in the implementation stage can be explained as follows. First, the community is entrusted as the manager of Riangsunge Beach. As managers, the community forms a tourism awareness group. The name of the podarwis is Tani Penggerak Pariwisata Riangsunge (TANPAR). The head of the Pokdarwis is Mr. Ebit Keban. The members of the Pokdarwis are all adult residents of the Riangsunge environment. The management structure is like an organization in general. The Pokdarwis has a clear work program. The work program in question is to determine a clean day every week. In addition, the Pokdarwis also determines the ticket sales officers. They also hold regular meetings. This was conveyed by the head of Pokdarwis, Mr. Ebit Keban on April 13, 2024, and was confirmed again by a member of Podarwis, Mr. Arnol Keban in an interview on April 14, 2024.

*"Every Friday, we do social services. We clean the Riangsunge beach location routinely."*

The results of the study also showed that the Pokdarwis did not last long. Management was questioned due to the lack of transparency in managing incoming money. Due to this condition, the local government through the tourism office intervened. The Pokdarwis were disbanded and management was handed over to two residents. With limited experience, both of them managed Riangsunge Beach. Under the management of these two people, the face of Riangsunge Beach was better recognized by the community. Both of them planted trees and plants that beautified Riangsunge Beach.

Meanwhile, the government is building facilities such as lopo, entrance gate, ticket guard post, bathroom, homestay, stage, sales place/stalls, and seating and parking area.

### Participation in Decision Making

Regarding community participation in decision-making, the research results show that the Riangsunge community is not very involved in decision-making. The research results show that the community is not involved in decision-making for facility development, for example, its architectural design, facility layout and so on. More than that, the community is not involved in decision-making related to the tourism concept in that place. The government through the tourism office unilaterally makes decisions related to the concept of developing Riangsunge Beach tourism.

However, it must be admitted that when management is handed over to the last manager, both have participation in decision-making. The participation in question is the decision to plant types of plants in the Riangsunge beach area. More than that, it is participation in decision-making related to the distribution of proceeds from ticket sales. This was conveyed by Mr. Dami Kein the new manager in an interview on May 2, 2024.

*"After we managed it, we started to dare to make decisions. For example, planting flowers and several other types of plants. The goal is to make it more beautiful".*

Based on the explanation above, it can be concluded that in the participation of decision-makers, initially the community was not involved but over time, the manager was involved in decision-making.

### Participation in Evaluation

Regarding participation in evaluation, the results of the study show that the Riangsunge community is involved in evaluation activities carried out by the tourism awareness group. Evaluations are usually carried out once a month internally by the tourism awareness group. Regarding internal evaluations, usually, the head of the Pokdarwis schedules the evaluation time. Sometimes evaluations are also carried out with the tourism office. Meanwhile, evaluations with the office are adjusted to the work visit schedule. All of this aims to evaluate tourism activities on Riangsunge Beach. This was conveyed by a member of the Pokdarwis, Mr. Bage Muda in an interview on April 14, 2024.

*"For internal evaluations, usually the head schedules it. Meanwhile, with the office, we adjust it to the work visit schedule of the office employees".*

In relation to community participation only in evaluations, of course, it raises questions. The answer to this question was answered in an interview with Mr. Tommy on April 15, 2025. The results of the interview showed that the community was considered not to understand tourism. The consequence was that they were only involved in the evaluation.

*"We may be considered not to understand the concept of tourism so we are only involved in internal evaluations."*

The results of the study also showed that in August 2024, there was a problem related to the land status at the Riangsunge Beach location. This condition resulted in tourism activities being temporarily suspended. The East Flores Regency Tourism Office was slow to respond to this problem. Evaluation activities were not carried out immediately. As a result, until today, tourism activities at Riangsunge Beach have been stopped.

### Discussions

The current research findings reveal that community participation in the development of Riangsunge Beach tourism was minimal during the planning and decision-making stages, with residents primarily involved in passive roles such as attending socialization meetings without real influence on the development concepts. While the community was entrusted with implementation through the formation of a local tourism awareness group (Pokdarwis), internal management issues and lack of financial transparency led to the group's dissolution and replacement by two individual managers. These new managers contributed actively by enhancing the beach's aesthetics and making limited decisions. In the evaluation phase, the community was involved in internal reviews, but broader decision-making remained centralized with the government, which perceived the community as lacking expertise in tourism. This top-down approach, combined with unresolved issues like land disputes and delayed governmental response, eventually led to the suspension of tourism activities at Riangsunge Beach.

Similar problems of community participations have also been identified in different regions. In Malawi, the local communities still have limited access to tourism information and tourism planning experts which lead them to have a problem regarding the lacks an appropriate decision-making structure that can facilitate efficient flow of management decisions to local communities (Bello, 2021). This problem could happen since the promoting public participation activities were not effective, and one solution which could be applied is extending the promotion period of public consultation forums to enable the local residents can be well informed in advance, which should boost the attendance rate (Mak, et al., 2017). Similar issue also

happened in developing country, in which most tourism planning is only concerned with developing facilities or infrastructure to facilitate physical access, while information access for local people in tourism planning is not provided which leads to community distrust toward the tourism planning (Reindrawati, 2023). Therefore, tourism planning should prioritize enhancing the internal capabilities of local communities, supporting the diversity of their economies, and preventing negative impacts, rather than emphasizing the economic expansion of the tourism sector, even when that growth stems from participatory and community-based initiatives (Sosa, 2024).

## Conclusions

Tourism development is an effort by the government to advance the region. In developing tourist attractions, community participation is an important element that must be considered. Therefore, in developing tourism, local community participation is absolutely necessary.

Research related to community participation in the development of Riangsunge Beach as a tourist attraction in Riataebang Village can be concluded as follows. First, participation in planning. The results of the study show that community participation at this planning stage is still minimal. Second, participation in implementation. The results of the study show that the community initially participated through community service to clean Riangsunge Beach. However, after the Pokdarwis were disbanded, only two people were entrusted to manage it, and the community only became spectators. Third, participation in decision-making. The results of the study indicate that community participation at this stage is very limited. Decisions are dominated by the government in the development of Riangsunge Beach. Fourth, participation in evaluation. The results of the study indicate that community participation at the evaluation stage is quite good. This is evidenced by routine internal evaluations and evaluations with the tourism office. Based on the explanation above, it can be concluded that community participation in the development of Riangsunge Beach as a tourist attraction is still minimal. The government through the tourism office is too dominant so that community participation is very limited and minimal.

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## Ecotourism Development Isyo Hill's Bird Watching, Nimbokrang District, Jayapura Regency, Papua Province

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**Abstract:** One of the tourist destinations that needs to be developed is the Isyo Hill's Bird Watching ecotourism in the Nimbokrang District, Jayapura Regency, Papua Province. However, the rapid increasing number of tourism activities in Hill's Bird Watching has led to significant biodiversity loss and environmental degradation. This is largely due to the absence of structured development strategies and unsustainable tourism practices. Addressing these challenges is crucial to preserving the unique ecosystem of Isyo Hill and ensuring long-term benefits for local communities. This study aims to evaluate current ecotourism practices and propose sustainable development strategies tailored to Isyo Hill's context, using an ecotourism development model based on Tourism Area Life Cycle (TALC). Data collection methods were carried out through interviews, observation, documentation studies and focus group discussions (FGD). Data analysis techniques include data reduction, data presentation and drawing conclusions. The results of the study showed that Isyo Hill's Bird Watching was at the Development stage. The development efforts are needed so that tourist destinations do not occur Decline phase. The researcher combines the principles of ecotourism with the Pentahelix concept, involving five elements, including government stakeholders, investors, academics, media, and the community, into a new concept as the basis for development to form an overview of the Isyo Hill's Bird Watching ecotourism development model in a sustainable manner. Researchers hope that with the establishment of this ecotourism development model it can be implemented in all tourist destinations in Jayapura Regency, Papua Province in an effort to develop a sustainable ecotourism.

**Keywords:** bird watching, ecotourism, Isyo Hill's, pentahelix, tourism area life cycle.

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### Introduction

Tourism, a globally recognized phenomena, has significantly influenced environmental preservation and conservation, especially within the framework of globalization (Ernawati, 2018; Nugroho et al., 2013). However, in the Isyo Hill area, ecotourism development encounters significant problems that threaten the sustainability of its unique biodiversity and fragile ecosystems. The rapid increase in tourism activities without structured development strategies has led to environmental degradation and biodiversity loss, undermining the prospective advantages of ecotourism for local communities and conservation initiatives. Unsustainable tourism practices and limited community participation further hinder the realization of sustainable ecotourism goals in this region.

As an alternative to traditional businesses, ecotourism aims to provide a comprehensive and a mutually beneficial solution, supporting sustainable growth for



both the environment and the local community (Fennell, 2020; Manu & Kuuder, 2012). Focusing on wildlife, pristine habitats, and natural attractions—often in small-scale activities which are easier to manage and less detrimental to the environment—sets this sector apart (Murni et al., 2019). For ecotourism to be really sustainable, it must be developed through smart functional zoning, active community participation, environmental management, and educational activities that protect endangered ecosystems from over-exploitation (Astawa et al., 2018; Cao & Meng, 2011; Murni et al., 2018). In a multicultural nation like Indonesia, the tourist sector is required to show its support for the social, cultural, and economic sectors as well as for foreign exchange profits, opportunities for employment, and dispute resolution. The concept of Community-Based Tourism (CBT) is introduced as a solution, where local communities take control of tourism management, focusing on social and economic development while preserving the environment and culture (Khadry & Sianipar, 2024).

In Papua, Indonesia Community-based tourism can empower local voices, allowing them to participate in decision-making processes and benefit economically from tourism activities (Rudy & Supriyadi, 2025). Isyo Hill ecotourism encounters a lot of potential to support sustainable development in this regard, but only if the problems of uncontrolled development and environmental deterioration are resolved through collaboration between the public and private sectors, academia, the media, and local communities.

A popular ecotourism destination, Isyo Hill, especially the Bird Watching location in Kampung Rephang Muaf, has become known for its high biodiversity, particularly its variety of bird species. The region is a great place for educational tourism and bird watching because it is home to 84 bird species from 31 families, 64 of which are recognized as conservation species (Tanjung & Maury, 2018). For many years, the Rephang Muaf community has been actively involved in the site's development, turning it into a hub for sustainable ecotourism and research. Thanks to collaborations between WWF, the Environment, the Forestry Service, and BKSDA of Jayapura Regency, the area has been designated for ecotourism development, ensuring its conservation and sustainable management. This initiative aims to preserve the natural integrity of the area while offering economic benefits to the local community.

At Isyo Hill's Bird Watching site, ecotourism development methods are carried out through a community self-help system, implementing a collaborative approach under the direction of an individual recognized for their capacity, unique set of talents, and experience in responsible management. In order figure out how ecotourism may effectively support biodiversity conservation and the socioeconomic empowerment of the local people, this paper critically explores various development initiatives. Further more, this article aims to assess the development strategies of Isyo Hill's Bird Watching ecotourism site by applying the Tourism Area Life Cycle (TALC) model and the Pentahelix framework, with the objective of identifying sustainable approaches that balance environmental preservation with community welfare and economic growth.

## Methodology

The research took place through in Jayapura, Papua, in the Bird Watching District of Isyo Hill. The investigation was conducted between September 6 and September 30, 2023, which was Sentani Ibu Kota Jayapura's 35th anniversary. Any significant new material that could enhance the study will be incorporated to maintain the research's relevance and currency.

This research aims to understand the development of Isyo Hill's Bird Watching District in Jayapura, focusing on ecotourism as the main object of study. The study

applies qualitative descriptive analysis to explore the evolution and development strategies of the site by applying the Tourism Area Life Cycle (TALC) model and the Pentahelix framework, with the objective of identifying sustainable approaches that balance environmental preservation with community welfare and economic growth.

Data were collected using multiple qualitative methods to ensure a comprehensive understanding of the ecotourism development process:

- Interviews: Conducted with 30 local guides who have direct experience and knowledge of the site and its ecotourism activities.
- Focus Group Discussions (FGDs): Held with 15 community members to gather collective insights on community involvement and perceptions.
- Participant Observations: Performed during tourist activities and community events to observe interactions and environmental conditions firsthand.
- Document Review: Relevant documents and records related to ecotourism development and conservation efforts were analyzed.

Purposely chosen to assure relevance and knowledge linked to the research aim, the participants included 50 tourists, 15 community members, and 30 local guides. To find participants who were directly involved in or knowledgeable about the ecotourism operations and development objectives at Isyo Hill, purposeful sampling was used.

The qualitative descriptive analysis method is a research approach that aims to understand and describe phenomena or data in a detailed and comprehensive way. This method involves an in-depth process of investigating and analyzing data to identify emerging patterns, themes, and relationships, as well as providing an accurate description of the subject being studied (Creswell & Poth, 2016; Miles et al., 2014)

## Results and discussions

### Results

The Isyo Hill birdwatching is classified as a conservation area, which presently does not yet make a substantially enhance the economic development of the surrounding community. The hut in the Rhepang Muaif District of Nimbokrang, Jayapura Regency, is one of the primary attractions. It is significant to the locals both ecologically and culturally. The development of ecotourism at Isyo Hill is now in progress, with an emphasis on educating and training the local population. These initiatives aim to minimize environmental damage while enabling locals to create economic benefits through eco-friendly tourism practices. Recognizing the value of conservation for long-term ecological balance, a cooperative group of locals actively contributes to protecting the natural flora and animals. There are still issues, though, such illegal tree-cutting, which endangers the ecosystem and destroys habitat. This shows the significance of enhanced community involvement and conservation policy enforcement to guarantee the long-term viability of ecotourism growth.

The data gathered from participant observations, focus groups, interviews, and document reviews shows that although the community is driven to preserve the environment, there is a knowledge and resource gap that must be filled. A comprehensive understanding of the present situation and future prospects of Isyo Hill's ecotourism is made possible by the participation of local tour guides, residents, and visitors.

All things considered, the results show that Isyo Hill is at a turning point where community empowerment and strategic development can turn it into a sustainable ecotourism destination that strikes a balance between environmental preservation and economic growth.

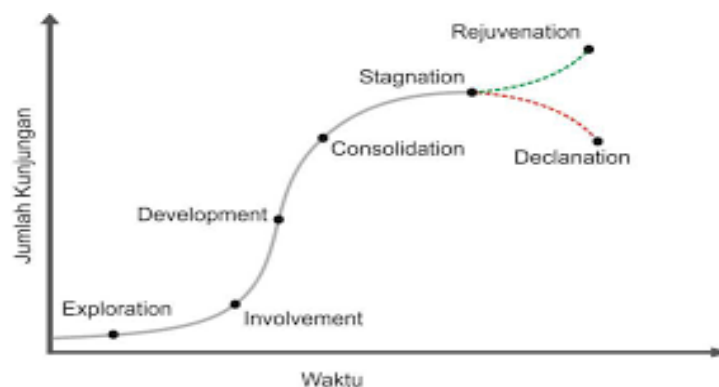
### *Isyo Hill's Position Based on Tourism Area Life Cycle Analysis (TALC)*

The park's conservation efforts have led to the establishment of various bird watching destinations, including Kali Biru, Isyo Air, Trekking, and Isyo Hill's Bird Watching. These sites serve as local souvenirs and guides for visitors to enjoy bird watching. This initiative has helped to create a positive image of the park and attract more visitors to the area.

Between 2015 and 2017, the Isyo Hill's Bird Watching team collaborated with local organizations and masyarakat to promote the park's conservation efforts and promote the concept of 3E (environment, education, and economy). From 2015 to 2021, 600 hectares of Isyo Hill's Bird Watching were designated as bird watching areas, ensuring the park's preservation and support for local wildlife.

The team also promoted their bird watching activities through the Indonesian Ministry of Environment, Bird Watching, and online media. Homestays, restaurants, and souvenir shops have been established in the park's bird watching areas, promoting the importance of community-based tourism in preserving the environment and promoting sustainable tourism practices.

In conclusion, bird watching is a vital aspect of community-based tourism in the Papua, Indonesia, and the Isyo Hill's Bird Watching project aims to promote this activity and support local wildlife conservation efforts. Isyo Hill's Bird Watching position in tourism development is linked in Butler's theory (1980) in (Scott, 2014) entered in phase 2, namely the development phase (Development).



(Source: Data processed, 2023)

**Figure 1.** Involvement Phase of Isyo Hill's Bird Watching Ecotourism

Based on observation and interview with key speakers, some indicators showing Isyo Hill's Bird Watching Ecotourism Entering the Development Stage are:

1. **Investment and Community Engagement:** Development projects aimed at addressing environmental challenges are receiving investments from multiple sources. The government is implementing measures to ensure control and community engagement in planning and infrastructure development. Professionals with specialized knowledge in security, tour guiding, and community involvement are overseeing the participation of non-Isyo Hill communities.
2. **Infrastructure Development and Increased Tourism:** The area is experiencing a surge in physical congestion, as infrastructure is being developed to facilitate mobility to Isyo Hill. This includes the construction of public places such as parking lots, information centers, ATMs, restaurants, and travel agencies. As a result, both local and national tourism have seen a significant increase.

3. **Development of Artificial Attractions and Changing Management:** The area is experiencing a surge in physical congestion, as infrastructure is being developed to facilitate mobility to Isyo Hill. This includes the construction of public amenities such as parking lots, information centers, ATMs, restaurants, and travel agencies. As a result, both local and national tourism have seen a significant boost.
4. **Promotion and Marketing Efforts:** Artificial attractions are being developed to enhance the existing natural attractions, both cultural and natural. The initial allure has faded and the destination is no longer managed by the local community. Various imported goods and services are a necessity, including labor force. As an alternative tour, Isyo waterfall and several other tourist destinations are no longer visited for several reasons. In 2017, Papua Tours & Travel and Indonesia's HPI marketed Isyo Hill as a bird viewing location, facilitating the promotion of all bird watching products through various media channels.

The ecotourism development at Isyo Hill's Bird Watching focuses on activities such as bird rescue, bird conservation, and wildlife management. These efforts aim to enhance the well-being of the local community by promoting sustainable economic development and reducing wildlife threats.

While homestays, restaurants, and souvenir shops contribute economically, the overall economic impact remains limited and underdeveloped. This highlights the need for further strategic development and community empowerment to fully realize the potential of ecotourism in the area poaching.

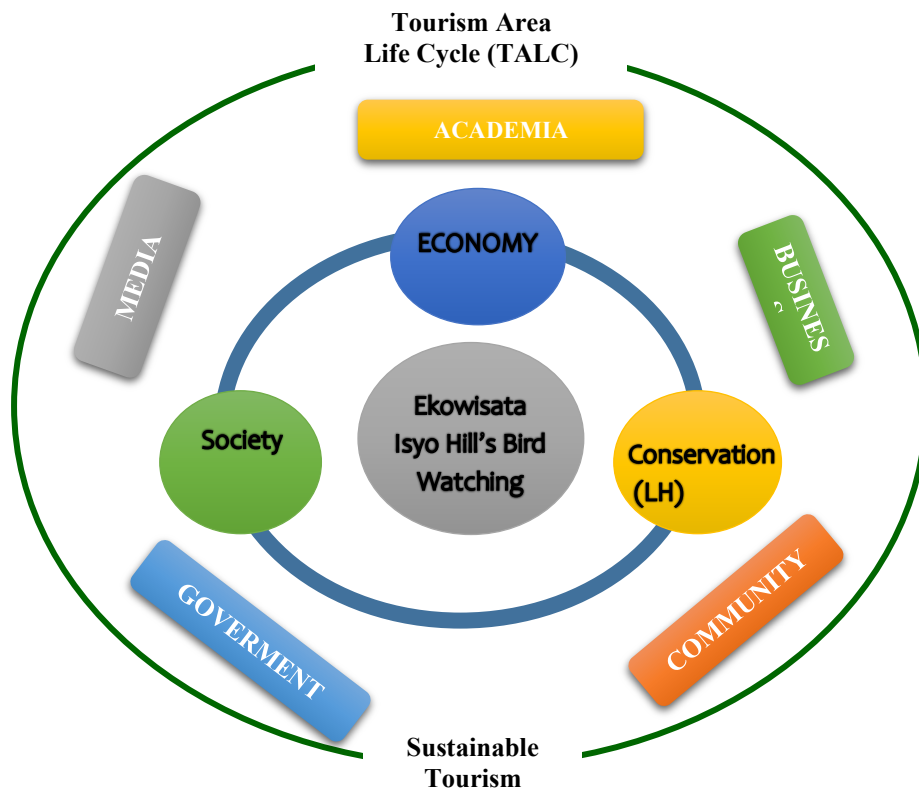
## Discussions

### *Ecotourism Development Model of Isyo Hill's Bird Watching*

The Tourism Area Life Cycle (TALC) concept is implemented to establish Isyo Hill's Bird Watching site in Nimbokrang, Jayapura, Provinsi Papua, as a community-based approach to sustainable ecotourism. The TALC approach directs focused management tactics that actively involve local stakeholders by determining the destination's present stage throughout the tourist life cycle. These tactics, which have been in place since 2015 to guarantee the preservation of avian biodiversity and encourage the growth of sustainable tourism, include habitat protection measures, community education campaigns, and bird conservation programs.

The model for Isyo Hill's Bird Watching District in Jayapura, Provinsi Papua, focuses on conservatism, economics, and social culture as components of the Pentahelix concept, with government, academia, community, society, and media as elements in the development process.

The model of ecotourism development Isyo Hill's bird watching can be shown as follows.



(Source: Data processed, 2023)

**Figure 2.** Isyo Hill's Bird Watching Ecotourism Model

Stakeholder engagement is crucial in the establishment of a system for the management of a tourism. This entails implementing a comprehensive system that encompasses different facets of the business, including economic, ecological, and cultural dimensions (Duarte Alonso & Nyanjom, 2017; Krce Miočić et al., 2016). Stakeholder engagement in the development process guarantees the establishment of a well-organized, productive, and enduring system capable of efficiently overseeing and handling the diverse components of the organization.

Stakeholders, such as government, business, community, university, and media, cooperate and combine efforts to improve development and stimulate economic growth in a region. They play crucial roles and exert substantial impact in the advancement of a particular matter, guaranteeing productive and important cooperation (Oka et al., 2021). The explanations of the Pentahelix as follows.

1. Government

Main Role of Government are Regulator, controller, facilitator, and provider responsible for policy-making, infrastructure development, education and promotion.

The contribution of Government to Isyo Hill such as follows.

- Regulates and oversees the development of Isyo Hill's tourist attractions.
- Facilitates education and training for human resources in tourism management.
- Strengthens marketing and promotion through events like the Teluk Humbol Festival and partnerships with airports, hotels, and travel agencies.
- Provides essential infrastructure: public utilities (water, electricity, roads), supporting infrastructure (ports, airports, hotels), and tourism infrastructure (information offices, promotional boards, ecotourism supervisors).

- Promotes socio-cultural preservation and community awareness through hospitality education and socialization.

Challenges for Isyo Hill related to Government contribution are; Infrastructure development is ongoing but still requires to fully support tourism growth, Need more effective public education and socialization to foster community participation and awareness, also Coordination with stakeholders could be improved to optimize resource allocation and impact.

## 2. Business

The main role of Business (Private Sector) are Enabler and promoter providing infrastructure, funding, and business development support.

Contribution of Business to Isyo Hill such as follows.

- Supports infrastructure development such as observation towers, bird watching terraces, and equipment (binoculars, cameras).
- Funds training programs for licensed tour guides.
- Expands tourist networks by collaborating with travel agencies and other tourism businesses (hotels, transportation, restaurants).
- Encourages investment from local and foreign investors to develop accommodation, transportation, and souvenir shops.

Challenges for Isyo Hill related to Business contribution are Facilities remain basic due to limited funding and reliance on self-help budgets, Insufficient development in accommodation and transportation infrastructure, also Need for stronger partnerships with government and community to leverage resources and expertise.

## 3. Academia

Main role of Academia are as the concepthor and knowledge provider, standardizing processes, certifying skills, and conducting research.

The contribution of Academia to Isyo Hills such as follows.

- Applies latest tourism theories and concepts to guide sustainable development.
- Assists village government and community in policy-making, from observation to evaluation.
- Conducts research to assess and improve the impact of ecotourism development.
- Provides certification and skill development for human resources involved in tourism.

Challenges for Isyo Hill related to Academia contribution are Research and assistance need to be more integrated with practical implementation, Limited direct involvement in day-to-day tourism operation, and Potential to enhance collaboration with other stakeholders for knowledge transfer.

## 4. Media

The main role of media are Promoter and image shaper through publications and digital media.

Contribution of Media to Isyo Hill such as follows.

- Promotes Isyo Hill's bird watching ecotourism via social media platforms (Instagram, Facebook, TikTok) and brochures.
- Creates a positive brand image to attract tourists and raise awareness.
- Supports product development by highlighting flora and fauna conservation activities.

- Encourages shared awareness among stakeholders to boost tourist visits and community welfare.

Challenges for Isyo Hill related to Media are Promotion efforts need to be more coordinated with other stakeholders for maximum reach, Risk of fragmented messaging if stakeholders do not align on branding and marketing strategies, and Limited resources for sustained and professional media campaigns.

## 5. Community

The main role of community are primary beneficiary and activate participant in tourism development.

Contribution of Community to Isyo Hill such as follows.

- Provides local knowledge and cultural authenticity to enrich the tourist experience.
- Engages in tourism activities such as guiding and hospitality services.
- Participates in conservation efforts and supports sustainable tourism practices.
- Benefits economically from increased tourism income.

Challenges for Isyo Hill related to community are Need for capacity building to improve service quality and management skills, Risk of marginalization if not fully integrated into decision-making processes, and Potential conflicts between tourism development and traditional lifestyles.

The Pentahelix model in Isyo Hill shows both collaboration and siloed work among stakeholders.

Collaboration Evidence:

- Joint efforts in promotion (media working with government and business).
- Academia providing research and training support to community and government.
- Business and government cooperating to improve infrastructure and investment access.
- Community involvement in tourism activities supported by other stakeholders.

Siloed Work Evidence:

- Some stakeholders operate independently with limited communication, especially in infrastructure development and capacity building.
- Media promotion efforts are not always fully aligned with government or business strategies.
- Academia's research and policy recommendations sometimes lack direct implementation pathways.
- Community participation is sometimes limited by gaps in education and empowerment.

Overall assessment, while the Pentahelix model provides a strong framework for multi-stakeholder engagement, the effectiveness depends on improving coordination mechanisms, communication channels, and shared goals to reduce siloed efforts and enhance synergy.

## Conclusions

The development of Isyo Hill's Bird Watching site in Papua Province stands as a pivotal example within the Tourism Area Life Cycle (TALC) framework, illustrating a critical phase in the sustainable evolution of ecotourism destinations. Situated in a region rich with biodiversity and cultural heritage, Isyo Hill exemplifies how natural attractions can be harnessed thoughtfully to foster tourism that not only draws visitors but also prioritizes environmental stewardship and socio-economic advancement. The



TALC framework, which outlines the stages of tourism development from exploration to decline or rejuvenation, provides a valuable lens through which to understand Isyo Hill's current position and future potential. At this juncture, Isyo Hill is transitioning from initial development toward consolidation, where the balance between increasing tourist influx and maintaining ecological integrity becomes paramount. This balance is essential to ensure that the site's unique avian biodiversity and local cultural assets are preserved while simultaneously generating sustainable economic benefits for the surrounding communities. The significance of Isyo Hill within the TALC framework is underscored by its role as a model for integrating conservation with community-based tourism, demonstrating how ecotourism can serve as a catalyst for both environmental protection and local empowerment. By aligning development efforts with TALC principles, Isyo Hill contributes to the broader discourse on sustainable tourism, offering insights into managing growth phases responsibly to avoid the pitfalls of over-exploitation and decline that many natural tourism sites face. This strategic positioning within the TALC stages highlights Isyo Hill's importance not only as a tourist destination but also as a case study in sustainable ecotourism development that other regions can emulate.

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# An Analytical Approach to Visitor Carrying Capacity and Conservation: The Pindul Cave of Yogyakarta

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**Abstract:** Tourism in natural attractions, such as Pindul Cave in Indonesia, offers significant economic and recreational benefits while posing challenges to environmental sustainability and visitor experience. The increasing influx of tourists to ecotourism destinations like Pindul Cave raises concerns over environmental degradation, overcrowding, and declining visitor satisfaction. This study aims to assess the sustainable tourism carrying capacity of Pindul Cave by analyzing visitor capacity concerning environmental conservation and tourist comfort. Employing a mixed-methods research design, the study integrates quantitative survey data with qualitative insights from interviews and field observations. Respondents include domestic and international tourists, local community members, and key tourism stakeholders involved in site management. Data collection focuses on visitor behavior, perceived environmental impact, and current tourism management practices. Using established carrying capacity models, the analysis identifies the maximum number of visitors the site can accommodate without compromising environmental integrity or the quality of the tourist experience. Findings indicate that Pindul Cave is nearing its sustainable carrying capacity threshold. If unmanaged, continued growth in visitation may lead to negative ecological impacts and diminished tourist satisfaction. The study underscores the urgent need for regulatory strategies to manage visitor flow and promote sustainable tourism practices. It offers practical recommendations for local authorities, tourism managers, and policymakers to balance conservation goals with economic development through responsible ecotourism planning.

**Keywords:** carrying capacity, ecotourism, environmental conservation, sustainable tourism, visitor management.

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## Introduction

In recent decades, nature-based tourism has played an increasingly significant role in driving economic growth, particularly in developing countries where natural attractions serve as both ecological assets and sources of local livelihood. Ecotourism destinations such as caves, rivers, national parks, and coastal areas offer immersive experiences that connect visitors with nature while stimulating socio-economic development at the grassroots level. One of Indonesia's most iconic cave tourism destinations is Pindul Cave in Gunungkidul, Yogyakarta. Popularized for its unique cave tubing activity, floating along a subterranean river in inner tubes, Pindul Cave has experienced exponential growth in tourist arrivals over the past decade. This surge in visitation, while economically beneficial, has led to growing concerns regarding the site's environmental integrity and long-term sustainability. Local environmental agencies and tourism associations have reported increasing signs of ecological stress, including damage to karst formations, sedimentation, overuse of groundwater,

accumulation of non-biodegradable waste, and decreased aesthetic value due to congestion. These problems are compounded by a lack of a structured visitor management strategy incorporating environmental thresholds and local community participation.

The phenomenon of over-tourism at Pindul Cave highlights the pressing need to assess and manage the destination's carrying capacity. Carrying capacity refers to the maximum number of individuals who can visit a site without causing environmental degradation, reduced visitor satisfaction, or social disruption (Coccossis & Mexa, 2004; Saveriades, 2000). Several types of carrying capacity have been theorized in tourism studies, including physical, ecological, social, and psychological dimensions (Cifuentes, 1992; Shelby & Heberlein, 1986; Manning, 2007). Physical carrying capacity addresses spatial and infrastructural limits; ecological capacity considers environmental resilience; social capacity focuses on local community tolerance; and psychological capacity evaluates tourist perceptions of crowding and comfort. These theoretical frameworks have been widely applied in the context of national parks, beaches, and urban tourist areas. However, the specific application of these models to micro-level destinations such as caves remains underdeveloped, particularly in Indonesia, where academic discourse on tourism sustainability is still evolving. Many studies offer generalized guidelines without contextualizing them to the unique geophysical and socio-cultural dynamics of individual destinations.



Source: (Personal documentation)

**Figure 1.** Goa Pindul

In the case of Pindul Cave, previous research has predominantly focused on physical visitor numbers or environmental monitoring in isolation, often neglecting the integration of visitor experience and community involvement (Suprihardjo et al., 2019; Nurhidayah & Wardi, 2020). Moreover, although Gunungkidul Regency has been promoted as a model of community-based tourism, there remains limited empirical research assessing whether the residents have been meaningfully engaged in the governance of visitor flows, particularly in balancing tourism growth with ecological conservation. This disconnect signals a crucial research gap, as sustainable tourism development hinges on maintaining environmental quality and ensuring socio-cultural resilience and economic equity. Addressing this gap requires a holistic and site-specific approach to carrying capacity assessment that accounts for the environmental

limitations of karst ecosystems, the psychological expectations of visitors, and the socio-political interests of local stakeholders.

Therefore, this study proposes a comprehensive analytical model to evaluate the sustainable tourism carrying capacity of Pindul Cave by integrating physical, environmental, social, and psychological indicators. Unlike earlier approaches that treat these dimensions in silos, this research employs a mixed-method design combining field observations, visitor surveys, and community interviews to develop a context-sensitive framework tailored to Pindul Cave's realities. The urgency of this research is further reinforced by the continued expansion of cave tourism in Southeast Asia, which calls for replicable models that balance conservation with community empowerment. The significance of this study lies in its potential to bridge the gap between academic theory and practical tourism management, offering evidence-based recommendations that can inform policies at the local and regional levels. By focusing on a specific yet widely relevant ecotourism site, this study contributes not only to the advancement of carrying capacity assessment but also to the broader discourse on sustainable and inclusive tourism development.



Source: (Personal documentation)

**Figure 2.** Cave walk

This article is structured to review key theoretical models and prior studies on tourism carrying capacity. It then details the methodological framework adopted to evaluate Pindul Cave's conditions, followed by a presentation and discussion of the empirical findings. The final section concludes with policy implications and recommendations for sustainable tourism management, intending to foster resilience in fragile ecotourism destinations such as Pindul Cave.

## Methodology

This study employs a survey-based approach to assess the carrying capacity of Pindul Cave for sustainable tourism, integrating qualitative and quantitative research methods in line with the principles of mixed-methods research (Creswell & Clark, 2011). Data were collected over three months during the peak tourist season to ensure variability and representativeness, using a cross-sectional survey design commonly used in visitor impact and tourism studies (Veal, 2011). 500 domestic and international



tourists were surveyed using stratified random sampling, which is widely used in tourism research to ensure demographic and experiential diversity (Veal, 2011). The sample size was determined based on Cochran's formula for large populations, guaranteeing a 95% confidence level with a  $\pm 5\%$  margin of error (Cochran, 1977). In addition, 10 local stakeholders, including tour guides, operators, community leaders, and tourism officials, were selected purposively, following the criteria of Patton (2002), who advocates purposeful sampling in qualitative research when deep, contextual insights are required. These stakeholders were actively involved in tourism governance at Pindul Cave, making them credible sources of insight into management practices and sustainability challenges. Tourists were randomly selected on-site to ensure demographic diversity. In contrast, stakeholders were selected using purposive sampling based on their active involvement in tourism governance, following Patton's (2002) approach to purposeful sampling in qualitative inquiry.

The primary data collection instruments included structured questionnaires for tourists to capture visitor perceptions, environmental awareness, and satisfaction levels with sustainable tourism practices. This aligns with methodologies used in visitor experience studies where perception data inform social and psychological carrying capacity analyses (Manning, 2007; Shelby & Heberlein, 1986). Environmental monitoring was conducted simultaneously to assess real-time environmental quality, utilizing standardized instruments such as the Hach DR 900 Colorimeter for water quality testing and the Extech 45158 CO<sub>2</sub> Meter for air quality assessments, tools frequently used in environmental tourism research for on-site rapid measurement (Zhou et al., 2018).

Stakeholder data were obtained through semi-structured interviews, allowing for rich qualitative insights into the management challenges and perceptions of tourism pressure at the site (Kvale & Brinkmann, 2009). Daily visitor counts were recorded manually at key entry points to evaluate levels of crowding and help calculate physical and psychological carrying capacities, consistent with the monitoring approach proposed by Cifuentes (1992) in protected area tourism.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS), applying descriptive statistics and correlation analyses to identify relationships among visitor satisfaction, environmental quality perceptions, and tourist density. The core analytical framework involved calculating several types of carrying capacities—Physical Carrying Capacity (PCC), Ecological Carrying Capacity (ECC), Social Carrying Capacity (SCC), and Psychological Carrying Capacity (PsyCC), following the methodological guidelines established by the World Tourism Organization (WTO, 1992) and adapted in later works such as Coccossis & Mexa (2004). These formulas take into account spatial parameters (e.g., site area and infrastructure), temporal aspects (e.g., average tourist duration), behavioral responses (e.g., perceived crowding), and environmental stress indicators (e.g., waste, water, and air quality).

The study assumes that the conditions at Pindul Cave remained relatively stable throughout the data collection period. The sample size and instruments employed provided a reliable representation of the peak season tourist experience. By triangulating survey, environmental, and stakeholder data, this methodology offers a comprehensive and context-sensitive framework to evaluate the sustainable carrying capacity of an ecotourism site, in line with integrated approaches proposed by scholars such as Butler (1999) and Saveriades (2000).

## Results and discussions

### Results

The results of this study provide a detailed analysis of the carrying capacity of Pindul Cave based on updated visitor data from the past five years. The key focus areas are the Ecological Carrying Capacity (ECC), Physical Carrying Capacity (PCC), Social Carrying Capacity (SCC), and Psychological Carrying Capacity (PsyCC), using the updated visitor data from 2019 to 2023. Each calculation reflects the ability of Pindul Cave to handle tourism sustainably while preserving the environment and ensuring a positive visitor experience.

**Table 1.** Annual Visitor Statistics to Pindul Cave (2019–2023)

| Year | Total Visitors | Average Visitors per Day | Peak Season Visitors (Daily Average) | Off-Season Visitors (Daily Average) |
|------|----------------|--------------------------|--------------------------------------|-------------------------------------|
| 2019 | 100.000        | 274                      | 450                                  | 150                                 |
| 2020 | 85.000         | 233                      | 400                                  | 100                                 |
| 2021 | 120.000        | 328                      | 500                                  | 150                                 |
| 2022 | 130.000        | 356                      | 550                                  | 200                                 |
| 2023 | 140.000        | 384                      | 600                                  | 250                                 |

Source: Gunungkidul Tourism Office (2024)

### Ecological Carrying Capacity (ECC)

The Ecological Carrying Capacity (ECC) refers to the maximum number of visitors a destination can accommodate without causing substantial environmental degradation. This concept emphasizes the need to preserve the ecological integrity of a site while allowing for sustainable tourism use. ECC is particularly critical in fragile ecosystems such as caves, where environmental parameters like water quality, vegetation, and geological formations are susceptible to human activity (Coccossis & Mexa, 2004; Saveriades, 2000).

This study calculates the Ecological Carrying Capacity (ECC) using the Integrated Gua Pindul ECC Framework (IGP-ECC). This site-specific model incorporates ecological sensitivity, spatial vulnerability, visitor behavior, and local management capacity. The IGP-ECC framework combines GIS-based environmental analysis with qualitative and quantitative impact indicators to generate a more holistic and adaptive estimation of ECC, particularly suitable for karst-based ecotourism areas such as Gua Pindul.

This method enables a dynamic calculation of ecological thresholds, considering physical and biological parameters, visitor perceptions, and management response capabilities. The framework draws upon principles from the Limits of Acceptable Change (Stankey et al., 1985) and GIS-based Multi-Criteria Evaluation (Pires et al., 2020), adapted to the site's unique characteristics.

Formula for ECC:

$$ECC = \frac{\text{Area of Site} \times \text{Ecological Factor}}{\text{Average Impact per Visitor}} \quad (1)$$

Assumptions:

- Area of the site: 2 hectares (20,000 square meters)
- Ecological factor: 0.8 (This is a subjective factor based on the environmental sensitivity of the cave, including its vegetation, water quality, and natural preservation)



- The average impact per visitor is assumed to be 0.15, based on established methodologies for estimating ecological pressure from tourism activities in protected areas (Cifuentes, 1992; Cifuentes et al., 1999). This value represents the aggregated environmental burden caused by an individual tourist in terms of waste generation, trampling, and resource consumption. Similar coefficients have also been used in ecological assessments of tourism in nature reserves in China (Zhang et al., 2015).

$$ECC = \frac{2 \times 0.8}{2a}$$

Thus, Ecological Carrying Capacity is calculated to be 1,200 visitors per day. This indicates that the cave can sustain 1,200 visitors daily without significant environmental damage, provided proper management practices are in place to minimize ecological impacts.

### Physical Carrying Capacity (PCC)

Physical Carrying Capacity (PCC) refers to the maximum number of visitors a site can physically accommodate within a defined time frame, based on the available space, infrastructure capacity, and temporal distribution of tourist flows. It serves as a foundational step in assessing carrying capacity by identifying the spatial and temporal limitations of the destination.

This study adopts a PCC estimation approach aligned with international best practices in sustainable tourism management, particularly those outlined by the United Nations Environment Programme (UNEP) and the World Tourism Organization (UNWTO, 2005). Additionally, it integrates the spatial planning perspective proposed by Saveriades (2000), emphasizing the importance of aligning visitor volume with facility design, flow management, and maintenance thresholds.

Formula for PCC:

$$PCC = \frac{\text{Total Infrastructure Capacity}}{\text{Space Occupied per Visitor}} \quad (2)$$

Assumptions:

- Total infrastructure capacity: 1,000 square meters (space that can comfortably accommodate visitors within the site's pathways and seating areas)
- Space occupied per visitor: 1.2 square meters (average space occupied by a visitor, considering movement, resting areas, etc.)

$$PCC = \frac{1000}{1.2} = 833.33 \text{ (visitors per day)}$$

Therefore, Physical Carrying Capacity is estimated at 1,000 visitors per day. This reflects the physical limitations of the infrastructure at Pindul Cave, emphasizing the importance of maintaining adequate facilities to prevent overcrowding, which could degrade the visitor experience and the cave's condition.

### Social Carrying Capacity (SCC)

Social Carrying Capacity (SCC) refers to the optimal number of visitors a site can accommodate to maintain visitor satisfaction and prevent excessive crowding. This capacity is determined by evaluating visitor experiences, including crowd density and

the overall quality of the visit. For Pindul Cave, survey data indicated that visitor satisfaction was rated at 7.5 out of 10 when the crowd density was 0.9 visitors per square meter (Manning, 2007).

Formula for SCC:

$$SCC = \frac{\text{Visitor Satisfaction Score}}{\text{Crowd Density}} \quad (3)$$

Assumptions:

- Average satisfaction score: 7.5 out of 10 (derived from survey data, indicating a satisfactory experience at moderate crowd density)
- Optimal crowd density: 0.9 visitors per square meter (the ideal density for a comfortable experience without overcrowding) (Shelby & Heberlein, 1986).

$$SCC = \frac{7.5}{0.9} = 8.33 \text{ (visitors per square meter)}$$

The 900 visitors per day represent the threshold beyond which crowding starts negatively impacting visitor satisfaction, lowering the overall experience. Therefore, tourism management must consider this SCC to maintain the quality of the visitor experience (Jokinen & Saarinen, 2013).

### *Psychological Carrying Capacity (PsyCC)*

Psychological Carrying Capacity (PsyCC) refers to the maximum number of visitors a site can accommodate before visitors feel discomfort due to overcrowding. This factor considers the psychological effects of overcrowding on the visitor experience, such as stress, dissatisfaction, and the perception of being in a crowded space. According to the findings, at a crowd level of 900 visitors, the satisfaction level was rated at 6.5 out of 10, indicating that visitors begin to feel less comfortable with the increasing density (Manning, 2007). Before overcrowding significantly affects perceptions, the perceived comfort value is set at eight on a scale of 1 to 10, where 8 represents the highest comfort level before psychological discomfort sets in (Shelby & Heberlein, 1986).

Formula for PsyCC:

$$PsyCC = \frac{\text{Satisfaction Level}}{\text{Perceived Comfort}} \quad (4)$$

Assumptions:

- Satisfaction level at overcrowding (i.e., 900 visitors): 6.5 out of 10
- Perceived comfort value: 8 (on a scale of 1 to 10, where 8 represents the highest level of comfort before overcrowding begins to impact the perception of the experience) (Manning, 2011).

$$PsyCC = \frac{6.5}{8} = 0.81$$

Thus, the Psychological Carrying Capacity is estimated to be 850 daily visitors. This indicates that beyond this number, the psychological comfort of visitors starts to decline significantly, leading to dissatisfaction due to perceived crowding, which reduces the overall experience quality (Manning, 2007; Shelby & Heberlein, 1986).

## Discussions

The findings of this study highlight the critical importance of evaluating the carrying capacity of Pindul Cave to ensure sustainable tourism development that aligns with the principles of environmental conservation and visitor well-being. The application of the multidimensional framework, comprising Ecological, Physical, Social, and Psychological Carrying Capacities, offers a holistic perspective on the limitations and opportunities of the site. This approach is in line with the conceptual framework of sustainable tourism proposed by UNWTO (2018), which emphasizes the integration of environmental, socio-cultural, and economic dimensions for long-term destination viability.

From the Ecological Carrying Capacity (ECC) analysis, the cave is estimated to support up to 1,200 visitors per day without causing significant environmental degradation. However, this number is conditional upon responsible visitor behavior and effective management systems such as waste control, conservation education, and continuous ecological monitoring. As per Coccossis and Mexa (2004), ecological sustainability in tourism destinations hinges on proactive governance and community involvement to maintain environmental thresholds. Without strict enforcement, the ecological system could face irreversible damage, especially in sensitive karst environments like caves, which are known to be vulnerable to water contamination and physical disturbances (Gunn, 2004).

The Physical Carrying Capacity (PCC) result, estimated at 1,000 visitors per day, reflects the limitations of infrastructure, including walkways, lighting systems, resting spots, and safety equipment. While this number may appear sufficient under normal conditions, exceeding it during high seasons can lead to congestion, accelerated wear and tear, and increased operational risks. This echoes the infrastructure threshold concept outlined by Pearce (1989), which states that exceeding facility-based limits can reduce service quality and result in deteriorating visitor safety and satisfaction.

In contrast, Social Carrying Capacity (SCC) and Psychological Carrying Capacity (PsyCC), 900 and 850 visitors per day, respectively, illustrate the subjective nature of visitor perceptions concerning crowding and comfort. These findings align with the theory of perceived crowding and visitor satisfaction articulated by Manning (2007), which asserts that even if physical infrastructure can handle high volumes, visitor satisfaction begins to decline when social thresholds are breached. This drop in satisfaction has long-term implications on destination loyalty, word-of-mouth promotion, and tourism image (Needham et al., 2014).

Interestingly, the psychological and social dimensions suggest stricter limitations than the ecological and physical ones, reinforcing the argument made by Shelby and Heberlein (1986) that "the visitor's perception often defines the real carrying capacity," especially in natural recreational settings. This reinforces the necessity of adopting the optimum carrying capacity, not the maximum. Maintaining visitor numbers between 850 and 900 per day emerges as the most sustainable approach to balance environmental preservation and experiential quality.

Moreover, the steady increase in tourist arrivals over the past five years, particularly after the COVID-19 pandemic, poses a looming threat of overtourism if left unmanaged. This trend calls for proactive planning through capacity-based interventions, such as time-slot entry systems, dynamic pricing, interpretive signage, and routine satisfaction monitoring. These strategies are consistent with best practices in destination management recommended by the Global Sustainable Tourism Council (GSTC, 2019), which advocates for adaptive policies based on carrying capacity data and visitor feedback.

Ultimately, this study underscores that sustainable tourism development in Pindul Cave must be grounded in an integrative approach, where ecological integrity, infrastructural readiness, and human experience are equally prioritized. The multidimensional carrying capacity model presented here provides an evidence-based guideline for local authorities, tourism operators, and policymakers to mitigate the risks of overtourism while enhancing the long-term sustainability and attractiveness of the site.

## Conclusions

This study successfully assessed the sustainable tourism carrying capacity of Pindul Cave by employing a quantitative, multi-dimensional analytical framework based on five years of visitor data. Integrating Ecological, Physical, Social, and Psychological Carrying Capacities comprehensively evaluated the site's limitations and strengths. The results show that while the cave has the physical and ecological ability to accommodate up to 1,200 visitors per day, the optimal carrying capacity, considering visitor comfort and satisfaction, ranges between 850 and 900 visitors per day. Notably, peak visitation in 2023 approached these thresholds, indicating an imminent risk of overtourism if unmanaged.

These findings underscore the importance of managing tourism growth not by maximizing visitor numbers, but by aligning with the optimal carrying capacity to ensure long-term environmental integrity and quality visitor experiences. The study highlights the need for integrated visitor management strategies, including quota systems during high seasons, alternative tourism time slots, and stronger visitor education on environmental impact. Such interventions are vital to prevent degradation of natural resources and tourists' psychological well-being.

Future research should incorporate real-time ecological indicators, water quality data, and community-based insights to refine the carrying capacity model. Policymakers and tourism managers should also explore digital visitor tracking systems and adaptive management tools to ensure that Pindul Cave remains a sustainable, enjoyable, and resilient ecotourism destination.

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## Enhancing Delegate Satisfaction through Green Practices at Bali Nusa Dua Convention Center

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**Abstract:** The purpose of this study was to determine the effect of green practices on delegate satisfaction at the Bali Nusa Dua Convention Center (BNDCC). The data collection method used was distributing questionnaires to delegates who had held meetings at the Bali Nusa Dua Convention Center from January 2024 to May 2024 and the observation. In this study, the author used the Slovin Formula, 98 samples from 6200 populations. The results show that green practice significantly affects delegate satisfaction at the Bali Nusa Dua Convention Center. The results of the determination coefficient (R-squared) test are 0.567 (56.7%). The implementation of green practices results in an impact on guest satisfaction. The correlation between green practice implementation and delegate satisfaction is approximately 56.7%. This indicates that BNDCC's green practices positively influence delegation of satisfaction, interest in revisiting, and willingness to recommend. The most influential indicator on guest satisfaction is BNDCC, which has been green certified and has also implemented energy saving by installing LED lights for lighting. Delegates' satisfaction can also be seen in wanting to hold events at BNDCC with sustainability themes. The questionnaire results given to the delegates who held this event also recommended carrying out activities here, especially with the theme of sustainability.

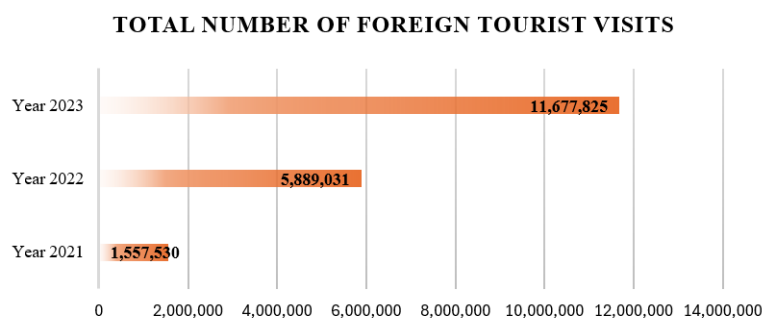
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### Introduction

Bali is an attraction for foreign tourists as seen Figure 1. Bali also has tourist attractions such as beaches, mountains, rice fields, forests, and even tourist attractions that are the choice when visiting Bali. There are also thousands of hotels and convention centers available from various star classes and the largest venues in Indonesia with guaranteed security and accessibility functions.





(Source: [www.bps.go.id](http://www.bps.go.id))

Figure 1. The total number of foreign tourist visits for the last three years

In addition, many events have been held in Bali since the pandemic, both locally, nationally, and internationally. The form of the event held in Bali is supported by several facilities such as transportation, airports, and international standard hotels. International standard hotels are certainly also supported by adequate facilities such as convention tourism products such as MICE. MICE (Meeting, Incentive, Conference, Exhibition) or what we often call meetings, incentive trips, meetings, and exhibitions (Darmayanti et al., 2022). The positive impact of convention tourism or MICE on the economy, such as employment, income from the tourism business, to the use of tourism facilities by the local community (Khanh, 2018; Kumar et al., 2014). However, apart from the positive impacts, MICE activities can also have negative impacts. One of the negative impacts that MICE activities can cause is the environment with excessive air pollution, increased food wastage, and energy consumption for the host city and population (Wu et al., 2017).

Efforts are needed to reduce this negative impact, one of which is implementing green practices. Green practice refers to actions that reduce the environmental impact, such as eco-purchase and recycling (Wolfe & Shanklin, 2001). Green practice is an activity that promotes the sustainable use of resources in an organization and, more generally, promotes environmental sustainability (Ahmad, 2015; González-Viralta et al., 2023).

Bali Nusa Dua Convention Center (BNDCC) is an international Convention Center located in the Nusa Dua area. BNDCC has implemented green practices since 2013. This can be proven by receiving the Cleanliness, Health, Safety, and Environmental Sustainability (CHSE) certificate in 2021, as shown in Figure 2. Apart from that, there are also the international events that have been held, such as the Federation of Asian Organizations for Radiation Oncology (FARO) Meeting 2018, the HIMSS22 APAC Health Conference and Exhibition in 2022, and the World Hydropower Congress 2023. The World Hydropower Congress is an important conference for hydropower industry players. It is particularly relevant in the midst of the current global energy crisis. Water is a clean, reliable, and affordable source of renewable energy, and has the potential to be a key solution in helping countries achieve net-zero emission goals.



(Source: [baliconventioncenter.com](http://baliconventioncenter.com))

Figure 2. Certificate CHSE

Moreover, some environmentally friendly actions that have been implemented at the Bali Nusa Dua Convention Center include arranging strategic spatial layouts with the use of natural lighting in the room, each hotel toilet using a water tap that has an infrared sensor, donating to foundations and recycling food waste into compost, and many more. This environmentally friendly activity process also has an impact on delegate satisfaction. Delegate satisfaction is a feeling of pleasure or disappointment that arises after comparing the performance (results) of the product being considered against the expected performance (Wibowo, 2022). Satisfaction has been considered as a determinant of business success and is one of the concepts that has recently attracted the interest of most service industries in general and the tourism industry in particular (M.-S. Moise et al., 2018). In the literature, satisfaction is defined from various cognitive and/or affective approaches. The cognitive perspective implies a comparison between the sacrifices (costs) and rewards (benefits) that consumers perceive during and after their service experience (M. S. Moise et al., 2021). In contrast, from the affective approach, satisfaction is defined as an effective response with different intensities, focused on specific aspects of acquisition and/or consumption that occur when customers evaluate products and/or services Giese and Cote. So, satisfaction refers to a global affective response after an experience with a service (M. S. Moise et al., 2021). Of course, when delegates feel the benefits of the green practice efforts that have been carried out, they will be satisfied (González-Viralta et al., 2023). So, it can be concluded that green practices have a positive influence on satisfaction. The benefits felt by delegates from the results of implementing this green practice would make them feel good when explicitly asked about them (Venhoeven et al., 2020).

The image of green practices that have been implemented at BNDCC, such as the landscape design at the Convention Center has an open area like a park, food ingredients are seasonal ingredients that come from local sources and energy efficient lighting in the BNDCC Area already uses LED lights. The implementation of these green practices supports event activities carried out at BNDCC, such as organizing events related to solutions in helping countries achieve net-zero emission goals. Beside that, some of the green practice implementations carried out at the Bali Nusa Dua Convention Center are very focused on prohibiting delegates from bringing large quantities of bottles of drinks and food with plastic packaging during the event. An alternative pattern of prohibited delegate activities will be replaced by pouring drinking water into each delegate's glass and providing healthy food directly from the venue to reduce plastic waste accumulation. However, this implementation still gets comments that are far from satisfactory, such as delegates still objecting and not being used to bringing tumblers. The unfamiliarity of delegates is a trait that can be changed if the implementation of green practices carried out by the venue goes well, and with strong reasons, namely that it is useful for maintaining a sustainable environment for a long time. In addition, some delegates still want to use table settings for their clothes, even though they have been encouraged not to use table napkins. Washing chair covers or tablecloths uses chemicals that are certainly not environmentally friendly.

Delegate satisfaction according to Moise consists of meeting expectations, interest in returning, and willingness to recommend. If delegates want the installation of table sets, and it is not fulfilled, then this indicates dissatisfaction. So, when delegates feel comfortable, they automatically report and tell their colleagues about the experiences they have had. From the background above, this study focuses on analyzing the relationship between the two variables. So, it is a strong reason for the author to research "The Implementation of Green Practices on Delegation Satisfaction at the Bali Nusa Dua Convention Center".

Hypothesis:

H<sub>0</sub>: Green practice does not have a significant effect on delegate satisfaction at the Bali Nusa Dua Convention Center.

H<sub>a</sub>: Green practice has a significant effect on delegate satisfaction at the Bali Nusa Dua Convention Center.

## Methodology

This research was conducted at the Bali Nusa Dua Convention Center. The research was conducted from December 2023 to June 2024. This research uses a quantitative method. The population in this study is the number of delegates who have held meetings at the Bali Nusa Dua Convention Center from January to April 2024. The population from January to May 2024 was 6200 delegates. The sampling technique used was nonprobability sampling with a purposive sampling technique (Creswell, 2019). In this study, the author used the Slovin Formula, which was 98 samples. The data collection method using Creswell's (2019) method was distributing questionnaires to delegates who had held meetings at the Bali Nusa Dua Convention Center during the period from January 2024 to May 2024 and conducting observations. The distribution of this questionnaire was carried out online via Google Forms with the following link: [https://bit.ly/kuesioner\\_BNDCC](https://bit.ly/kuesioner_BNDCC). In addition, the author also conducted direct observation for approximately one month, namely from December 2023 to January 2024. This observation was conducted at the beginning to find the gap between the implementation of green practices at BNDCC and delegate satisfaction. The data analysis

technique used was simple regression using SPSS for Windows version 25.0 software. The indicators used were adopted from research conducted by M. S. Moise et al. (2021) and then developed through interviews with the manager of the Bali Nusa Dua Convention Center and direct observation. Table 1 below shows indicators of green practice variables and delegate satisfaction.

**Table 1.** The Indicators of Green Practice Variables and Delegate Satisfaction

| Variable                                              | Dimension                                                       | Indicator                                                                                                                                                                                  |
|-------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Green practice</i><br>(M. S. Moise et al., 2021)   | A delightful landscape design.                                  | The landscape design at BNDCC is a green landscape of 45,000 m <sup>2</sup> in the form of a park.                                                                                         |
|                                                       | Consume local food.                                             | The food ingredients come from fresh local ingredients and use seasonal ingredients.                                                                                                       |
|                                                       | Using energy-efficient lighting facilities.                     | The BNDCC building lighting uses LED lights.                                                                                                                                               |
|                                                       | Provide dispensers.                                             | A dispenser has been provided in the meeting room, and water has been poured into each delegate's glass.                                                                                   |
|                                                       | Using water-saving showers, faucets, and flush tanks.           | Every toilet and some washbasins already use automatic sensor taps.                                                                                                                        |
|                                                       | Has smoke-free areas.                                           | There are several outdoor locations that provide special smoking areas.                                                                                                                    |
|                                                       | Develop environmental recycling programs, using recycling bins. | BNDCC has provided a program for recycling waste into compost, and selected organic waste is donated to local farms for animal feed. Selected organic waste is converted into eco-enzymes. |
|                                                       | Green certified.                                                | BNDCC is green-certified.                                                                                                                                                                  |
| Delegation Satisfaction<br>(M. S. Moise et al., 2021) | Conformity of expectations.                                     | The service from Bali Nusa Dua Convention Center (BNDCC) followed the delegates' expectations.                                                                                             |
|                                                       | Interested in visiting again.                                   | There will be interest in returning to the Bali Nusa Dua Convention Center (BNDCC) as an event host or event delegation.                                                                   |
|                                                       | Willingness to recommend.                                       | Will recommend Bali Nusa Dua Convention Center (BNDCC) to friends, colleagues, and family.                                                                                                 |

Source: Results of study of literature

## Results and discussion

This study aims to determine the relationship between variable X (Green practice) and Y (Delegation satisfaction). At this stage, statistical tests are performed using SPSS for Windows version 25.0 software.

## Respondent characteristics

**Table 2.** Respondent characteristics

| No | Characteristics | Data          | Number of People | Percentage (%) |
|----|-----------------|---------------|------------------|----------------|
| 1  | Gender          | Man           | 49               | 50%            |
|    |                 | Woman         | 49               | 50%            |
| 2  | Age group       | < 18 years    | 1                | 1%             |
|    |                 | 19 - 25 years | 8                | 8%             |
|    |                 | 26 - 32 years | 18               | 18%            |
|    |                 | 33 - 39 years | 17               | 17%            |
|    |                 | 40 - 46 years | 25               | 26%            |
|    |                 | > 46 years    | 29               | 30%            |
| 3  | Work            | civil servant | 14               | 14%            |
|    |                 | self-employed | 27               | 38%            |
|    |                 | student       | 0                | 0%             |
|    |                 | others        | 47               | 48%            |

Source: Results of questionnaire instrument analysis

Based on Table 2. shows that the characteristics of respondents based on gender are not dominated by one gender. The gender is balanced with male respondents as much as 50%, while female respondents are also as much as 50%. Based on age group, respondents are dominated by the age group > 46 years old, which is as much as 30%, and the characteristics of respondents based on type of work, there are no students, civil servants 14%, self-employed 38%, and other jobs 48%. The data above can provide information about the characteristics of delegates who have participated in the Bali Nusa Dua Convention Center (BNDCC) as organizers, delegates, or hosts. So that BNDCC management can follow the atmosphere of the delegates' needs in the operation of the Convention Center.

## Validity and Reliability Test

Table 3 shows the validity test results for variable X (green practice) against variable Y (delegation satisfaction). Based on the results of the Validity Test in Table 3, the X Variable (green practice) and Y variable (delegation satisfaction) are declared valid if the calculated r-value is bigger than the r-table value. Based on the validity test above, the calculated r-value of X variable (green practice) and Y variable (delegation satisfaction) is bigger than the r-table value (0.2347) then above with a total of 98 respondents, based on gender dominance is balanced, namely by male delegates as many as 49 people (50%) while female delegates as many as 49 people (50%), based on age range dominated by age >46 years, namely as many as 30 respondents. The conclusion is that the distribution of questionnaire data in this study can be declared valid.

**Table 3.** Validity Test Results

| Indicator      | Item | r-count | r-table<br>(df= 98 -2)<br>n= 96 | Details |
|----------------|------|---------|---------------------------------|---------|
| Green practice | X1   | 0.4759  | 0.2347                          | Valid   |
|                | X2   | 0.5946  | 0.2347                          | Valid   |
|                | X3   | 0.4944  | 0.2347                          | Valid   |
|                | X4   | 0.6857  | 0.2347                          | Valid   |

| Indicator               | Item | r-count | r-table<br>(df= 98 -2)<br>n= 96 | Details |
|-------------------------|------|---------|---------------------------------|---------|
|                         | X5   | 0.4185  | 0.2347                          | Valid   |
|                         | X6   | 0.4572  | 0.2347                          | Valid   |
|                         | X7   | 0.6920  | 0.2347                          | Valid   |
|                         | X8   | 0.3846  | 0.2347                          | Valid   |
| Delegation Satisfaction | Y1   | 0.6333  | 0.2347                          | Valid   |
|                         | Y2   | 0.5504  | 0.2347                          | Valid   |
|                         | Y3   | 0.3915  | 0.2347                          | Valid   |

Source: Statistical test using Microsoft Office Excel

The results of the reliability test of variable X (green practice) against variable Y (delegation satisfaction) with a total of 98 respondents are declared reliable because the Cronbach Alpha value is  $0.7615 > 0.70$ . So, the results of the reliability test are declared reliable.

### Classical Assumption Test

#### Normality Test

Based on the results of the normality test with Kolmogorov-Smirnov above, a significant value of 0.200 was obtained, which indicates that the data is normally distributed. The normality test can be seen in Table 4.

| Table 4. Normality Test                                      |                |                     |
|--------------------------------------------------------------|----------------|---------------------|
| One-Sample Kolmogorov-Smirnov Test                           |                |                     |
| Unstandardized Residual                                      |                |                     |
| N                                                            |                | 98                  |
| Normal Parameters <sup>a,b</sup>                             | Mean           | .0000000            |
|                                                              | Std. Deviation | 1.17951278          |
| Most Extreme Differences                                     | Absolute       | .060                |
|                                                              | Positive       | .036                |
|                                                              | Negative       | -.060               |
| Test Statistic                                               |                | .060                |
| Asymp. Sig. (2-tailed)                                       |                | .200 <sup>c,d</sup> |
| <sup>a</sup> Test distribution is Normal.                    |                |                     |
| <sup>b</sup> Calculated from data.                           |                |                     |
| <sup>c</sup> Lilliefors Significance Correction.             |                |                     |
| <sup>d</sup> This is a lower bound of the true significance. |                |                     |

Source: Statistical test using SPSS version 25.0

#### Heteroscedasticity Test

The Glejser test shows that the independent variable has a significance level value of 0.174. This value exceeds the significance level value of 0.1, so Table 5 indicates that there are no symptoms of heteroscedasticity in this study's regression model.

**Table 5.** Heteroscedasticity Test

|       |                       | <b>Coefficients<sup>a</sup></b> |            |                           |        |      |
|-------|-----------------------|---------------------------------|------------|---------------------------|--------|------|
|       |                       | Unstandardized Coefficients     |            | Standardized Coefficients | t      | Sig. |
| Model |                       | B                               | Std. Error | Beta                      |        |      |
| 1     | (Constant)            | .615                            | .168       |                           | 3.653  | .000 |
|       | <i>Green practice</i> | -.077                           | .043       | -.181                     | -1.808 | .174 |

<sup>a</sup> Dependent Variable: Delegation Satisfaction

Source: Statistical test using SPSS version 25.0

### Linearity Test

The results of the linearity test in Table 6 show a significant value (P Value Sig) and a Deviation from the Linearity row of 0.907. Because the significance value is greater than > 0.1, it can be interpreted that there is a linear relationship between the green practice (X) and delegation satisfaction (Y) variables.

**Table 6.** Linearity Test

|                          |                |                          | <b>ANOVA Table</b> |    |             |        |      |
|--------------------------|----------------|--------------------------|--------------------|----|-------------|--------|------|
|                          |                |                          | Sum of Squares     | df | Mean Square | F      | Sig. |
| Delegation Satisfaction* | Between Groups | (Combined) Linearity     | 6.960              | 17 | .409        | 2.427  | .004 |
|                          |                | Deviation from Linearity | 5.459              | 1  | 5.459       | 32.360 | .000 |
| Green practice           | Within Groups  |                          | 1.502              | 16 | .094        | .556   | .907 |
|                          | Total          |                          | 13.495             | 80 | .169        |        |      |
|                          |                |                          | 20.455             | 97 |             |        |      |

Source: Statistical test using SPSS version 25.0

### Simple Linear Regression Test

The results of the regression analysis using the IBM SPSS 25.0 program can be seen in Table 7 below.

**Table 7.** Simple Linear Regression Test

|       |                       | <b>Coefficients<sup>a</sup></b> |            |                           |       |      |
|-------|-----------------------|---------------------------------|------------|---------------------------|-------|------|
|       |                       | Unstandardized Coefficients     |            | Standardized Coefficients | t     | Sig. |
| Model |                       | B                               | Std. Error | Beta                      |       |      |
| 1     | (Constant)            | 2.711                           | .287       |                           | 9.447 | .000 |
|       | <i>Green practice</i> | .431                            | .073       | .517                      | 5.911 | .000 |

<sup>a</sup> Dependent Variable: Delegation Satisfaction

Source: Statistical test using SPSS version 25.0

The results of the regression equation using SPSS version 25.0 are obtained as follows:



$$Y = a + bx$$

$$Y = 2.711 + 0.431X$$

The regression equation above shows the relationship between the independent variable (X) and the dependent variable (Y) partially, from the equation it is concluded that

$\alpha$  = Constant value of 2.711 means if the implementation (X) of green practice (Y) is 2.711, it means that the results of delegate satisfaction (Y) have a positive value of 2.711.

$\beta$  = The regression coefficient value of  $\beta$  is 0.431, meaning that the regression coefficient of the independent variable of green practice implementation (X) has increased by one unit, then delegate satisfaction (Y) will increase by 0.431.

The coefficient has a positive value, meaning that it has a positive effect on the implementation of green practices on delegate satisfaction. The regression equation also explains that delegate satisfaction at the Bali Nusa Dua Convention Center (BNDCC) will remain positive and significant. If there is an increase in the green practice implementation variable (X), it will increase in the delegate satisfaction variable (Y).

### T-test (Hypothesis Testing)

**Table 8.** t-test

| <b>Coefficients<sup>a</sup></b> |                |                             |            |                           |       |      |
|---------------------------------|----------------|-----------------------------|------------|---------------------------|-------|------|
| Model                           |                | Unstandardized Coefficients |            | Standardized Coefficients | T     | Sig. |
|                                 |                | B                           | Std. Error | Beta                      |       |      |
| 1                               | (Constant)     | 2.711                       | .287       |                           | 9.447 | .000 |
|                                 | Green practice | .431                        | .073       | .517                      | 5.911 | .000 |

<sup>a</sup> Dependent Variable: Delegation Satisfaction

Source: Statistical test using SPSS version 25.0

Table 8 shows the t-test result, it is known that the calculated t-value of 5.911 is greater than the t-table value of 1.661 obtained from the calculation using the formula below.

$$\alpha = 5\% (0.05)$$

$$df \text{ (degree of freedom)} = n - k$$

n = number of samples, and k = number of variables.

$$df = n - k$$

$$df = 98 - 2$$

$$df = 96$$

The result of df is 96, looking at the t-table for alpha ( $\alpha$ ) 5%, so that the result is 1.661 and the significance value is  $0.000 < 0.05$ , so based on the test rules, if  $t\text{-count} > t\text{-table}$ , then  $H_a$  is accepted and  $H_0$  is rejected. The  $H_a$  hypothesis states that Green practice significantly affects delegate satisfaction at the Bali Nusa Dua Convention

Center. Thus, it can be concluded that there is a significant influence between X variable (green practice) and Y variable (delegate satisfaction).

### Coefficient of Determination Test

Table 9 shows the results of the determination coefficient test (r-square) of 0.567 (56.7%). This value can be interpreted as the independent variable of X (green practice) on the dependent variable of Y (delegate satisfaction) at the Bali Nusa Dua Convention Center (BNDCC) is 56.7%. This test is also supported by research from (M. S. Moise et al., 2021) which discusses. The importance of green practices for hotel guests in their research uses the Partial Least Squares Structural Equation Modeling (PLS-SEM) method to analyze the relationship between sustainable green practices implemented by hotels/convention centers, delegate trust, and delegate satisfaction. The results of this study indicate that sustainable practices have a positive and significant impact on delegate satisfaction, which is 56.7%, so the results of Moise's research have an average satisfaction value almost the same as the results of the test conducted by the researcher.

**Table 9.** Coefficient of Determination Test

| <b>Model Summary</b> |       |          |                   |                            |
|----------------------|-------|----------|-------------------|----------------------------|
| Model                | R     | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1                    | .517a | .567     | .559              | .39523                     |

<sup>a</sup> Predictors: (Constant), *Green practice*

Source: Statistical test using SPSS version 25.0

The implementation carried out by BNDCC is like maximizing the implementation of green practices. This is evident in the landscape design, which incorporates gardens and preserves native plant species to maintain greenery and promote fresh air circulation within the BNDCC area. BNDCC's commitment to green practices through the incorporation of open spaces, such as parks. It can be seen in Figure 3.



(Source: Research Documentation)

Figure 3. BNDCC area

In addition, BNDCC has utilized seasonal food ingredients sourced locally, reflecting the implementation of green practices in food sourcing and processing. The facility in

BNDCC employs LED lighting for illumination. Highlighting the organization's dedication to positive environmental changes through green initiatives. To minimize plastic waste production, BNDCC provides water dispensers in each room. The overall rating indicates that BNDCC has implemented green practice indicators with moderately implemented criteria. BNDCC's restroom facilities are equipped with automatic sensor taps, demonstrating a commitment to water conservation. Designated smoking areas are located in several outdoor locations, including lobby exits, parking areas, and near the loading dock. Indoor areas are entirely smoke-free, as seen in Figure 4. BNDCC implements a waste recycling program that transforms waste into compost. Selected organic waste is donated to local farms for animal feed, and selected non-organic waste is converted into eco-enzymes as seen in Figure 6. The Bali Nusa Dua Convention Center (BNDCC) has held Green Certification since 2013.



(Source: Research Documentation)  
Figure 4. Designed smoking area



(Source: Research Documentation)  
Figure 5. Selected non-organic waste is converted into eco-enzymes

The implementation of green practices results in an impact on guest satisfaction. The correlation between green practice implementation and delegate satisfaction is approximately 56.7%. This indicates that BNDCC's green practices positively influence delegate satisfaction, interest in revisiting, and willingness to recommend. Positive guest feedback collected after events at BNDCC can be found on the official BNDCC website (<https://baliconventioncenter.com/news/fhtb-food-hotel-tourism-bali-2024/>). One of the feedback given by the delegation through the website displayed was on the 13th



International Hospitality, Food & Beverage Trade Exhibition in Eastern Indonesia, namely Food, Hotel, Tourism Bali (FHTB) 2024, which was held in Bali, Nusa Dua Convention Center (BNDCC) from March 6th to 8th, 2024 as seen in Figure 6.



(Source: baliconventioncenter.com)

Figure 6. Feedback given by the delegation through the website BNDCC

The comments above show that implementing green practices by BNDCC satisfied the delegates because what was given was in line with their expectations. The most influential indicator on guest satisfaction is BNDCC, which has been green certified and has also implemented energy saving by installing LED lights for lighting. Delegates' satisfaction can also be seen in wanting to hold events at BNDCC with sustainability themes. The questionnaire results given to the delegates who held this event also recommended carrying out activities here, especially with the theme of sustainability. This can be seen in the activities from January to June 2024.

## 1. Asia Pacific Tourism, Hospitality Summit and Digital Brand Award 2024

**Tanggal:** 11–12 January 2024

**Tema:** *Sustainability, Technology & Tourism Investment*

The event brings together CEOs, general managers, academics, and practitioners from the tourism and hospitality sectors. Its focus is on applying green technology and sustainable investment in the tourism industry.

## 2. Bali Jagadhita 2024

**Tanggal:** 10 June 2024

**Tema:** *Guna Gina Wisata Bali Hita*

Promoting a sustainable and inclusive economy by integrating trade, tourism and investment sectors. One of the highlights of the event was the presentation of renewable energy projects from West Nusa Tenggara.

## Conclusions

Based on the results of the regression test between green practice and delegate satisfaction, the calculated t-value is  $5.9111 >$  the t-table value of 1.661, and the significant value is  $0.000 < 0.05$ , so based on the test rules, if the calculated  $t >$  t-table.  $H_a$  is accepted, and  $H_0$  is rejected. This means that green practice significantly affects delegate satisfaction at the Bali Nusa Dua Convention Center. The results of the

determination coefficient (R-squared) test are 0.567 (56.7%). This value can be interpreted as the magnitude of the influence of the independent variable of X (green practice) on the dependent variable of Y (delegate satisfaction) at the Bali Nusa Dua Convention Center (BNDCC) is 56.7%. In comparison, the remaining 43.3% is influenced by other factors that affect delegate satisfaction. The results of this study indicate that sustainable practices have a positive and significant impact on delegate satisfaction, which means that if there is an increase in the implementation of green practices (X), it will increase delegate satisfaction (Y).

Some suggestions that can be given to increase positive responses as a green venue, namely the Bali Nusa Dua Convention Center (BNDCC), is expected to maintain and improve the quality of service to increase delegate satisfaction through the provision of training on green practices and updating standard operating procedures in each department regarding the concept of green practices. Another suggestion is to increase delegate trust in the credibility of the green venue so that the performance of staff and information conveyed by the Bali Nusa Dua Convention Center (BNDCC) can be superior and trusted. This can be done by understanding what is important to communicate to delegates and clients before the implementation of activities or events at the Bali Nusa Dua Convention Center (BNDCC), namely information on current environmental conditions in real-time from trusted sources regarding environmental problems that occur, negative impacts of environmental damage, scarcity of natural resources and informing about the benefits of the green practice program that has been implemented by the Bali Nusa Dua Convention Center (BNDCC). The last suggestion is that Bali Nusa Dua Convention Center should be able to increase the intention of clients to continue to try to hold national and international scale events or activities at Bali Nusa Dua Convention Center (BNDCC) by bringing many delegates who are aware of the continuous changes of a better venue and building the trust of delegates who have experience holding events at Bali Nusa Dua Convention Center (BNDCC) to come back and recommend Bali Nusa Dua Convention Center (BNDCC) as a superior venue for holding all events in Bali. Suggestions for further research on the implementation of green practices on delegate satisfaction using qualitative analysis, so that it can compare the results of this study with further research.

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# Sustainable Tourism Development Strategy for Area of Mina Mangrove Tunggulsari, Pati Regency: PESTLE Analysis Approach

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**Abstract:** Tourism development is directed at sustainable tourism by upholding the principles of economy, social and environment including in the tourist destination of Area of Mina Mangrove, Pati Regency, Central Java Province. However, there are several aspects of external conditions that affect tourism development such as global uncertainty. The urgency of this research is the need for an external condition analysis model in efforts to develop sustainable tourism in Area of Mina Mangrove which includes Political, Economic, Social, Technology, Legal and Environmental aspects known as PESTLE Analysis. Based on this, the purpose of the research is to identify and analyze the relevance of external conditions in the development of tourism in Area of Mina Mangrove, Pati Regency. This research method is a qualitative approach in mapping and analyzing data in a complex, continuous and integrated manner. The results of the study concluded that the Environment (E) aspect plays a very important role, because Area of Mina Mangrove is directly adjacent to the Java Sea. This is an opportunity, potential and challenge in itself which has a major impact on the environment and sustainable tourism ecosystem. Creating environmental innovation, research and development by mitigating the risks of challenges and packaging them into optimal tourism opportunities. Of course, working with various parties at the central and regional levels, including community involvement and groups/communities, companies and academics. Politic (P) also has a major contribution in developing tourism in the Area of Mina Mangrove.

**Keywords:** global uncertainty, Mina Mangrove, PESTLE analysis, sustainable tourism.

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## Introduction

Indonesia is the largest archipelagic country in the world with 17,001 islands (Central Bureau of Statistics, 2023). The tourism sector in each region also has its own characteristics and uniqueness in social, cultural, historical and educational aspects (Harahap & Rahmi, 2020). That is why Indonesian tourism is very popular with tourists, both domestic and international. The number of domestic tourist visits per year in 2023 reached 7,518,895 trips. Meanwhile, foreign tourist visits to Indonesia amounted to 11,677,825 trips (Central Bureau of Statistics, 2024). In addition, the growth of the tourism sector also has a significant contribution to the national GDP reaching 3.8% and the foreign exchange value as of September 2023 was recorded at USD 10.46 billion (Ministry of Tourism and Creative Economy of the Republic of Indonesia, 2023).

However, the success of the development of the tourism sector is not only measured by the number of tourist visits but there are various other aspects that



influence it such as political, economic, social, technological, legal and environmental conditions (Herawati et al., 2023). For example, the decline in the tourism sector during the Coronavirus Disease (COVID-19) pandemic which caused a decrease in the level of tourist visits, increased operational costs to the policy of refocusing the budget diverted to the health sector (Pambudi et al., 2020). This is due to the government's policy that tourist destinations must be based on digital technology in various forms of services to reduce physical contact between tourists (Sutrisno, 2021).

Not only that, the Indonesian economy has also experienced a drastic decline. In addition, there are other conditions of global uncertainty such as the Russia-Ukraine war, rising interest rates and so on that affect the growth of the tourism sector (Hasyim & Putra, 2023; Anwar, 2022). The strength of competitiveness and resilience in each tourist destination supported by synergy between stakeholders at the central and regional levels is one of the important indicators in creating empowerment of the tourism sector (Tiara & Mas'udi, 2023; Hutabarat, 2022). Therefore, the development of the national tourism sector is currently directed at the concept of sustainability.

Innovation and creativity are needed to maintain the stability of tourism development, especially at the regional level. The condition of global uncertainty must be addressed with great caution, making appropriate policies and decisions that are able to mitigate risks/externalities to a minimum. For example, every tourist attraction during COVID-19 is advised to be digital-based starting from the ticketing system, information communication, reservations and so on. Not only that, tourism managers are also advised to provide various supporting facilities such as sanitation facilities, waste disposal systems, waste management, provision of clean water, medicines, personal protective equipment such as masks, gloves and so on. Certainly, the operational burden will be large and if not anticipated in the long term will cause negative externalities that will lead to the closure of tourist attractions, default, bankruptcy and so on.

The concept of sustainable tourism is the government's focus in anticipating global uncertainty. Preparing various strategic steps to support tourism development in order to have a large multiplier effect on national and regional development. Sustainable tourism is an effort taken by the government by optimizing tourism sector resources in various lines for the long term (Özgit & Öztüren, 2021). The aspects of anticipation, technology optimization, risk management, innovation and tourism resilience are inseparable parts (Ilkhanizadeh, 2021). The concept of sustainability also includes 3 main aspects, namely economic, social and environmental (Pujiati et al., 2023).

One of the potentials for sustainable tourism based on natural resources is the Area of Mina Mangrove in Tunggulsari Village, Pati Regency. The number of tourists per 2022 is the 1st largest in Pati Regency, namely 216,920 visits (Central Bureau of Statistics of Pati Regency, 2024). In 2018, Tunggulsari Village was also designated by the Ministry of Maritime Affairs and Fisheries as one of the largest national saline tilapia cultivation centers (Pati Regency Government, 2018; Marta, 2018).

**Table 1.** Tourist Attraction Visits According to Tourist Objects in Pati Regency 2021-2022

| Tourist Attraction Name | Number of Visitors to Tourist Attractions According to Tourist Attractions |       |
|-------------------------|----------------------------------------------------------------------------|-------|
|                         | 2021                                                                       | 2022  |
| Gunungrowo Reservoir    | 15800                                                                      | 50000 |

|                                          |       |        |
|------------------------------------------|-------|--------|
| Pancur Cave                              | 1500  | 6260   |
| Wareh Cave                               | 7949  | 22980  |
| Pancasila Jrahi Tourism Village          | 18326 | 16746  |
| Jollong Gardens Agrotourism              | 83838 | 71819  |
| Banyutowo Beach                          | -     | -      |
| Edu Agroeduforestry Resort (EAR) Regaloh | 370   | 4406   |
| Kayen View Hill                          | 3351  | 3388   |
| Lorodan Semar                            | 1359  | 2730   |
| Idola Beach                              | 7200  | -      |
| Talun Tourism Village                    | 4783  | 17995  |
| Arga Pesona Beketel                      | 693   | -      |
| Dam Tepus                                | 763   | 4468   |
| Bageng Tourism Village                   | 3016  | 4131   |
| Tunggulsari Tourism Village              | 83778 | 216920 |
| Pesona Gunungsari                        | 941   | -      |
| Seloromo Reservoir                       | 18055 | 58995  |
| Kertomulyo Beach                         | 52441 | 43131  |

Source: Central Bureau of Statistics of Pati Regency (2024)

In the ticketing system, the Tourism Awareness Group (Pokdarwis) and Village-Owned Enterprises (BUMDes) in managing the Area of Mina Mangrove tourism are able to achieve a turnover of up to 100 million rupiah per month. Meeting room rental facilities, kiosk rentals are also active business fields. However, the high number of tourist visits only stopped until May 2022. This was because in that month there was a tidal wave that damaged the mangrove ecosystem, causing damage and neglect of all facilities, infrastructure, photo spots and so on. Since then, the tourism sector of the Area of Mina Mangrove has experienced a sluggish and weak phase. Economic income in the tourism sector has also decreased drastically, even though this sector was initially the livelihood of the majority of the local community.

Based on this, the main problem faced by the tourism sector, especially the Area of Mina Mangrove, is the condition of global uncertainty such as in the aspects of Politics, Economy, Social, Technology, Legal and Environment or often known as PESTLE. The urgency of this research is the need for an external condition analysis model in efforts to develop sustainable tourism in the Area of Mina Mangrove which includes aspects of Politics, Economy, Social, Technology, Legal and Environment or often known as PESTLE. This is so that the long-term planning system in managing the sustainable tourism sector can be anticipated so that the impact of negative externalities can be minimized as optimally as possible.

## Methodology

This study uses a qualitative approach. Qualitative methodology is stated as a research procedure that produces descriptive data in the form of written or spoken words from people being observed (Moleong, 2012). The focus of this study is to identify and analyze external conditions related to the development of tourism in the Area of Mina Mangrove, Pati Regency using the PESTLE (Politic, Economic, Social, Technology, Legal and Environment) approach. Qualitative research is very appropriate

because it is more exploratory and flexible, especially in conducting PESTLE analysis. Researchers can explore contextual data intensively and comprehensively, understand perceptions and views in research objectives.

In addition, this study also aims to formulate a strategy for developing sustainable tourism in the Area of Mina Mangrove, Pati Regency. In this study, the validity of the data to be used by researchers is by using source and technique triangulation techniques. While data analysis in this study uses the Miles & Huberman model. In conducting data analysis, there are several steps taken, namely: 1) Data reduction, 2) Data presentation and 3) Drawing conclusions. Through interview techniques, observation and documentation will provide its own convenience for researchers to understand the relevance, relevance and explore comprehensively holistically between PESTLE.

The data source comes from the results of interviews with key informants who understand external conditions (political, economic, social, technological, legal and environmental). The main informants are the administrators of the Tourism Awareness Group (Pokdarwis), administrators of Village-Owned Enterprises (BUMDes), the surrounding community and the Head of Tunggulsari Village, Pati Regency. Supporting informants in this study are parties who provide information to complement the information provided by the main informants, including the Pati Regency Youth, Sports and Tourism Office, the Pati Regency Regional Development Planning, Research and Innovation Agency, the Pati Regency Cooperatives and UMKM Office and several other related stakeholders.

## Results and discussions

### Results

#### Politic (P)

This study refers to PESTLE Analysis (Politics, Economics, Social, Technology, Legal and Environment). In the Political (P) analysis, the benchmarks studied are related to politics, law, fiscal and monetary policies, national stability, corruption and trade wars. Government policies at the central and regional levels play a significant role in the development of the Area of Mina Mangrove Tunggulsari. In 2020, the local government through the Provincial Assistance (Banprov) scheme was used for infrastructure development in the form of meeting halls/halls, tracking/access, parking lots and so on. In addition, the central government through the Ministry of Maritime Affairs and Fisheries is also making efforts in the development of sustainable tourism based on tourist bridges. In addition, through the village government, several supporting tourism facilities have also been built to complete the tourism infrastructure ecosystem. Over time, the attention of various agencies in the development of Tunggulsari has also begun to be massive, both from the government, academics, companies and so on. After the high tide in May 2022, the Political aspect also played an important role in rebuilding the mangrove ecosystem. Building and repairing various facilities and supporting tourism facilities.

#### Economic (E)

In the Economic (E) analysis, it is closely related to tourist satisfaction supported by various indicators including the availability of complete supporting facilities, the charm of natural beauty, hospitality in service and so on. Tourists who are satisfied and not bored with a tourist destination will encourage return visits in the future. Indirectly, it will also provide insight into their travel experiences to others. The more

tourist visits, the more income and economic aspects of tourism will increase. However, this has experienced significant obstacles. Since the high tide in May 2022, tourism activities have weakened. The decline in the spirit of tourism awareness by the community, group participation has decreased, damage to infrastructure and various supporting media for tourism have become obstacles in themselves. As a result, village income from tourism has decreased drastically. Efforts to increase innovation, creativity with the expansion of cross-sectoral cooperation are very important to rekindle the spirit of tourism development in the Area of Mina Mangrove. Involving various cross-sectoral, community, companies, academics and others to jointly build a tourism ecosystem.

### Social (S)

Social (S) analysis includes social aspects ranging from lifestyle, population, education, demographics, history and culture. The majority of the population of Tunggulsari Village work as pond farmers, tilapia fish farmers and entrepreneurs. This is due to its strategic location close to the coast of the Java Sea, making the marine and fisheries sector a priority for regional development. In addition, in 2018 the government through the Ministry of Marine Affairs and Fisheries also designated Tunggulsari Village, Tayu District, Pati Regency as one of the national tilapia fish farming centers. In the field of community empowerment, in accordance with the policy direction in the 2020-2026 Tunggulsari Village Medium-Term Development Plan (RPJM), including for economic business training, increasing community capacity and training to improve HR competency. The potential of the marine and fisheries sector by being integrated with the tourism sector into a single unit that has the potential for great opportunities in regional development.

### Technology (T)

Meanwhile, in the Technology (T) analysis, obstacles such as less adaptive HR competencies are a separate obstacle. Currently, regional development is directed at a sustainable basis by utilizing digital technology as a medium of communication, public information, marketing, research and development and other forms. The low level of digital literacy, especially since the tidal wave in May 2022, has become an obstacle to the development of tourism in the Area of Mina Mangrove. The enthusiasm of the community in building the village has been eroded and must be optimized immediately. The role of youth elements, such as Karang Taruna, is very important as the vanguard in optimizing this Technology (T) aspect.

### Legal (L)

Legal Analysis (L) that is compiled includes anti-monopoly, employment, Copyright, data protection, health and data security. Although some regulations are good at the village and district government levels, due to the global uncertainty conditions, it is more directed at how the resilience efforts of each community to continue to rise, innovate and create. More on the efforts and internal factors that exist in the community. A special regulatory scheme is needed in the development of sustainable tourism, especially those damaged by natural disasters.

### Environment (E)

Next is Environment (E) which is an important priority in the development of the Area of Mina Mangrove Tunggulsari. The location of the Tunggulsari Village area which

borders directly on the Java Sea creates challenges as well as opportunities. The challenge is when there is a tidal wave which results in a natural disaster. While the opportunity is to be able to package this potential into an attractive natural tourism package, one of which is with the concept of a mangrove area. Mangrove forests have many benefits including protecting the coast from erosion, abrasion, being an ecosystem for various species of animals and fish, preventing seawater intrusion and being able to filter waste and a source of income for coastal communities. Some indicators of Environment (E) are climate change, the concept of reduce-reuse-recycle, waste management and air pollution and sustainability.

Strong mangrove roots are able to bind coastal sediment, preventing it from being carried away by ocean currents and waves. In addition, the coastline will be maintained and able to minimize damage due to storms or extreme weather. The ecosystem of marine animals such as fish, shrimp and shellfish can also be an opportunity for economic income for the surrounding community. The presence of mangroves will also prevent seawater intrusion, thus maintaining the quality of groundwater so that it remains fresh. Ocean waves can also be dampened through an optimal mangrove ecosystem. In addition to tourism, efforts to increase community productivity by utilizing mangroves into various food products, creative economy, crafts and others can also be done. Therefore, mitigation of the risk aspect of the Environment (E) analysis is very important in the management of sustainable tourism in the Area of Mina Mangrove, Pati.

## Discussions

Sustainable tourism refers to the development of an integrated and long-term tourism sector that balances economic, social and environmental goals. This concept is very relevant to be implemented in the development of the Indonesian tourism sector, including in the Area of Mina Mangrove, Pati Regency. The elements of sustainability include 3 (three) important things related to economic, social and environmental interests. In addition, efforts to develop sustainable tourism must also pay attention to several important external aspects, including Politics, Economics, Social, Technology, Legal and Environment (PESTLE) (Fasa et al., 2022; Mahadiansar & Asparyana, 2020; Saragih, 2023). Mapping of external conditions and data analysis are carried out in an integrated, continuous and comprehensive manner.

Research that has been conducted on the Indonesian tourism sector shows that the concept of sustainable development or often known as sustainable tourism is important and strategic. Furthermore, research from other researchers shows that there are several aspects that influence the development of the tourism sector (Streimikiene et al., 2021). The COVID-19 pandemic is a real condition of how it affects the readiness of tourism managers. Those who have preparedness are able to adapt well, while those who do not will end up experiencing losses (Sugihamretha, 2020). Climate change, geographic factors, and disaster risks must also be addressed proactively to ensure resilience in tourism development. These conditions affect the national economy, especially the Indonesian tourism sector (Fairuuz et al., 2022; Dewi, 2021). In addition, elements of climate change, geographic location and natural disaster risks must also be anticipated as optimally as possible.

Furthermore, the 4A approach consisting of Attraction, Amenity, Accessibility and Ancillary is an effective framework model in managing tourist destinations. Every tourist attraction must have a 4A framework in its management so that it can increase tourism development and become a factor in increasing tourist appeal (Sulami Wibowo, 2023; Nugraha et al., 2022). In the Attraction study, the Area of Mina

Mangrove before the 2022 natural disaster was a very beautiful and cool mangrove ecosystem. The mangrove ecosystem is home to various types of animals, both those that live on land and in water. Some examples of animals that are commonly found in mangrove areas are crabs, various types of fish and birds. However, after 2022 the Attraction study was no longer found because the expanse of natural beauty had been damaged.



Source: (Personal Documentation, 2025)

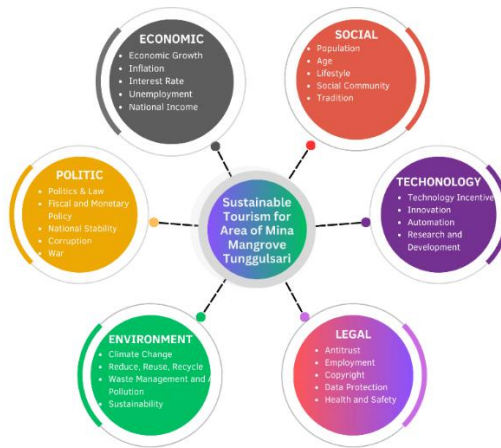
**Figure 1.** Condition of Area of Mina Mangrove After High Sea Wave

Meanwhile, Amenity is also no longer available. Several indicators in amenity are facilities available to support tourism activities such as places to eat, toilets and so on. The existing conditions in the field are currently found that Amenity is no longer functioning properly, damaged and neglected. Meanwhile, in Accessibility, such as ease of access to tourist destinations, the availability of transportation in the Area of Mina Mangrove is also damaged. Many roads are full of holes and inundated with sea water, muddy and several other obstacles. Tourists are reluctant to visit because of the condition of the roads that are inundated with sea water, which causes corrosion of iron in vehicles, slippery and others. Finally, Ancillary such as services to support tourism activities such as information services, tour guides and security. This condition has also not been available properly since May 2022 because the interest, attention, and public awareness in managing the Area of Mina Mangrove have decreased drastically.

### **Novelty of Research**

The novelty of this research is integrating external aspects such as political, economic, social, technological, legal/legal and environmental conditions into the development of sustainable tourism towards the tourist destination of Area of Mina Mangrove, Pati Regency. This PESTLE analysis aims to mitigate and form risk management from the start so that it can minimize undesirable conditions towards the development of the tourism sector of Area of Mina Mangrove, Pati Regency.





Source: (Author's Illustration, 2025)

**Figure 2.** Sustainable Tourism Development Model for Area of Mina Mangrove, Pati Regency: PESTLE Analysis Approach

## Conclusions

The combination of natural balance in tourism development by carrying the concept of economy, social and environment. The concept of sustainable tourism is an effort to develop the tourism sector which has a major role in national development must be carried out synergistically, collaboratively, proactively, integratively, integrated, systematically, continuously and sustainably. Starting from the elements of the village, regional and central government, active community involvement and mutual cooperation, expansion of cooperation with various companies and academics are very necessary. Including in handling problems and the realization of sustainable tourism in the Area of Mina Mangrove, Pati Regency, this is also the case. It cannot stand alone, it must work together intensively.

The strategic location of Tunggulsari Village with the tourism potential of the Area of Mina Mangrove it has is a challenge as well as an opportunity in itself. Stakeholders must be able to analyze various external conditions including Politic, Economic, Social, Technology, Legal and Environment (PESTLE) in tourism development because all of these indicators are interrelated with each other. Research findings show that the Environment (E) indicator plays a very big role. This is because the area is directly adjacent to the Java Sea, so environmental analysis including natural disasters, disaster risk mitigation, innovative and creative efforts, community responsiveness is very necessary.

The development of mangrove ecosystems is a priority in itself because it has various long-term benefits, which will also play a major role in realizing sustainable tourism. Mangroves can be the front line in overcoming disaster risks such as erosion, abrasion, seawater intrusion and so on. In addition, environmentally friendly technology and innovation of breakwater systems such as hybrid engineering can be an anticipatory option in dealing with these marine disasters. Intensification of cooperation with various partners is very important to do. Therefore, Political (P) analysis is also very related to the development of tourist areas supported by other related analyzes. Assistance and training in efforts to improve the competence, capabilities and skills of the surrounding community, tourist groups in efforts to develop sustainable tourism are very necessary.

Suggestions for further research are to identify which parties (stakeholder engagement) have significant roles and contributions in the development of sustainable tourism, especially in the Area of Mina Mangrove, Pati Regency.



Intensification of roles and real contributions is also very necessary so that tourism development can run optimally. Studies on environmental analysis must also be more comprehensive to determine its effectiveness and efficiency in disaster risk management, especially in coastal tourism areas/destinations that are directly adjacent to sea water activities such as the Area of Mina Mangrove.

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# Sustainable Tourism Development Strategy for Bakaran Wetan Village, Pati Regency Based on Edutourism: Community Based Tourism (CBT) Approach

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**Abstract:** Bakaran Wetan Village, Central Java Province is one of the areas in Indonesia with various superior tourism potentials such as the Bakaran Sudewi Batik Museum, Punden Nyai Ageng and Ki Dalang Soponyono and others that are closely related to historical, social, cultural philosophies and educational elements. However, the main problem faced is the lack of involvement of stakeholders, especially the community, in an integrated, integrated and active manner in realizing it as a sustainable tourism village. Based on this, the objectives of this study are: 1) To identify the potentials and problems in developing sustainable tourism in Bakaran Wetan Village and 2) To identify actors/stakeholders who play a major role in realizing it as a sustainable tourism village based on edutourism. This research method is mixed methods with a qualitative descriptive and quantitative approach based on actor/stakeholder mapping using the Matrix of Alliance and Conflict: Tactics, Objectives and Recommendation (MACTOR). The results of the study show that the Youth, Sports and Tourism (DINPORAPAR) has the highest convergence value with the Office of Tourism Awareness Group (POKDARWIS), which integrates it with the roles of other stakeholders, namely the Education and Culture Office (DISDIKBUD), Museum Management (MUSEUM) and the Office of Regional Development Planning, Research and Innovation (BAPPERIDA). Meanwhile, related to the identification of actor objectives, the highest convergence is the optimization of edutourism tour packages (EDUTOURISM) with synergy efforts to develop the tourism sector based on stakeholder intensification (SINERGITAS). The practical impact of this research is to map the synergy between stakeholders involved in the development of sustainable tourism while also determining the priority strategies to be implemented in Bakaran Wetan Village.

**Keywords:** Bakaran wetan, community based tourism, development strategy, edutourism, sustainable tourism

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## Introduction

Tourism is one of the leading sectors of the national economy and a source of foreign exchange earnings (Apriyanti et al., 2023). One of the current government's focuses is to encourage the tourism sector by optimizing biodiversity and optimizing other resources effectively and efficiently (Ohorella et al., 2021; Azizi et al, 2021). As of 2023, the number of domestic tourist trips reached 7,518,895 visits. In line with this, the number of foreign tourists in Indonesia also experienced a very significant increase, namely 11,677,825 visits per year in 2023 (Central Bureau of Statistics of Indonesia, 2024).

Revenue in the national travel and tourism sector in 2023 is projected to reach IDR 854.80 billion rupiah with an annual growth rate of 2023-2027 reaching 4.41% (Statista, 2022). The massive growth of the tourism sector is an opportunity in itself to improve the national economy (Anggraini & Pujiati, 2022). The government also continues to strive to integrate various things in realizing a superior, competitive and sustainable national tourism sector without changing/replacing local wisdom, one of which is through the concept of edutourism (Akib, 2020; Pujiati et al, 2022).

Edutourism is a combination of education and tourism into an educational travel program by individuals and/or groups with the aim of gaining learning experiences from the locations visited (Rozak et al., 2021; Bare et al., 2021). The concept of edutourism cannot run without the involvement of various actors, especially the community. Through Community Based Tourism (CBT), the community will be actively involved in managing regional tourism, decision-making and other activities in synergy with various actors (stakeholders) (Zielinski et al., 2020; Arintoko et al., 2020).

Central Java is the province with the 3rd densest tourist mobility nationally after East Java and West Java, reaching 106,531,426 travel visits (Central Bureau of Statistics of Indonesia, 2024). This opportunity must receive serious attention from various actors in developing the sustainable tourism sector, including in the regions. One of the areas in Central Java that has great potential in the tourism sector is Bakaran Wetan Village, Pati Regency. This village has been confirmed as a developing category tourist village by the local government (Lestari & Suparwi, 2023; Sudarsono, 2022). The stages of becoming a tourist village include starting from the pioneering, developing, advanced to independent categories.

Bakaran Wetan Village is one of the leading villages of the Pati Regency Government. This is due to the various tourism potentials and local wisdom that exist, ranging from historical, culinary and traditional aspects (Lustianto et al., 2020). The characteristic of this village is the bakaran batik with unique motifs and historical value so that in 2021 it was designated as an intangible cultural heritage by the government through the Ministry of Education and Culture (Nihayah & Purwanto, 2022). In preserving the local wisdom of its batik, in 2022 the Bakaran Sudewi Batik Museum was inaugurated which is closely related to historical, cultural and educational values.

Another historical tour is the existence of the Nyai Ageng and Ki Dalang Soponyono punden which are still believed by residents to be the key ancestors of the Majapahit descendants (Rahmadhani et al., 2023). These two places are still a special attraction for tourists and the surrounding community still preserves customs from generation to generation to maintain the punden (Reswari & Nugroho, 2023). Punden Nyai Ageng is an old well that is estimated to be hundreds of years old. Meanwhile, the Petilasan Ki Dalang Soponyono is a hermitage in the form of a stone. The hermitage of Ki Dalang Soponyono is in the same complex as the hermitage of Nyai Ageng, who is the founder of the local village. The hermitage of Soponyono is on the south side, while the hermitage of Nyai Ageng is on the north side. Both places are still guarded and maintained by the local community as evidence of preserving customs and respecting ancestors.

With the provision of historical, cultural and local wisdom potential, Bakaran Wetan Village has a great opportunity in its efforts to intensify its efforts to become edutourism. Cultural and historical heritage provides its own educational experience regarding the flow of life, human behavior from time to time and the origins of a region. The local community is also one of the supporting elements in realizing Bakaran Wetan Village as edutourism by providing information, services and other educational efforts. This will also improve the skills and capacity of the community in

managing local wisdom and local culture while being able to increase community empowerment efforts and improving the regional economy.

However, the main problem in developing the tourism sector in Bakaran Wetan Village, Pati Regency is the lack of involvement of stakeholders, especially the community, in an integrated and integrated manner in realizing it as a sustainable tourism village. In fact, in the development of sustainable tourism, synergy, collaboration and cooperation between actors/stakeholders are very necessary (Maturbongs & Lekatompessy, 2020) (Fairuza, 2017). The urgency of this research is that there needs to be a strategy for developing Bakaran Wetan Village into a sustainable tourism village based on edutourism with a Community Based Tourism (CBT) approach.

## Methodology

This research method is a mixed method consisting of qualitative and quantitative approaches. In sharpening the research, the researcher determines the focus. The focus of the research is the main problem in the research. The focus is a single domain or several related domains of the social situation. Qualitative methodology is stated as a research procedure that produces descriptive data in the form of written or spoken words from the people being observed (Sugiyono, 2017; Moleong, 2011).

Qualitative data analysis is inductive, meaning that data analysis is carried out based on the data obtained and then developed into a hypothesis. In addition, data analysis can also be interpreted as a process of arranging the sequence of data, organizing it into a pattern, category, and basic description unit. This data analysis is in the form of qualitative description, namely analysis that describes the state or status of a phenomenon with words/sentences, then separated according to categories to obtain conclusions in a descriptive manner, so the analysis must be appropriate and relevant to the problems that occur in the field.

The first stage carried out is using interviews, in-depth interviews, field observations and surveys, documentation and Focus Group Discussions (FGD) with the aim of collecting data related to the research. Data analysis in qualitative research uses the Miles & Huberman model. In conducting data analysis, there are several steps taken, namely: 1) Data reduction; 2) Data presentation; and 3) Conclusion Drawing and Verification. The analysis of quantitative research data with questionnaire and based on the influence between actors, namely using the Matrix of Alliance, Conflicts, Tactics, Objectives, Recommendations (MACTOR). The MACTOR method tries to provide a global picture of the importance and possible outcomes of various issues, as well as the expected actor strategies, power relationships and potential alliances and conflicts. This method is intended to obtain the possibility of the evolution of the system being studied to build a better and more coherent scenario.

The MACTOR method is used to see the preferences of each stakeholder and the level of support for the identified goals (Fauzi, 2019). This method also determines the level of support that each stakeholder has for each goal and group. After the actors are identified, they can be grouped based on their respective roles so that it will be known whether the actor is included in the main actor, key actor, or supporting actor. Respondents are determined by identifying actors who have a significant influence on the research objectives. Actors can be individuals, groups, organizations or related institutions. Respondents are selected using the purposive sampling method based on certain relevant criteria. The main focus is tourism development, so the determination of actors is relevant to the field, both as main actors and supporters.

Then in the MACTOR analysis in this study it is also used to explain the relationship/interaction between actors. The MACTOR technique is based on three main inputs in the form of matrices. These three inputs are based on the "influence relationship" between one actor and another. With this concept, the input for MACTOR is through a position matrix (known as 1MAO [Matrix Actor Objective] and 2MAO) which uses the Saliency variable from the actor to the objective (objective). The third matrix is the MID (Matrix of Influence Direct) which uses the influence variable. In calculations with software, input from the user only requires the MID matrix, 1MAO, and 2 MAO matrices. Then it will be calculated by the computer through a mathematical algorithm process. Based on the MID matrix, MACTOR then calculates the direct and indirect effects of one actor to another actor.

## Results and discussions

### Results

The development of sustainable tourism in Bakaran Wetan Village, Pati Regency is carried out by mapping and identifying actors who have a major role or contribution in realizing this. There are 9 actors involved and each has a code, abbreviation/keyword to facilitate the data analysis process carried out. The actors involved are the Office of Youth, Sports and Tourism of Pati Regency (DINPORAPAR); the Office of Regional Development Planning, Research and Innovation of Pati Regency (BAPPERIDA); the Office of Education and Culture of Pati Regency (DISDIKBUD); Academics/Researchers (AKADEMISI); Museum Management (MUSEUM); UMKM Actors of Bakaran Wetan Village (UMKM); Bakaran Wetan Village Tourism Awareness Group (POKDARWIS); Karang Taruna of Bakaran Wetan Village (KRNGTARUNA); and Media (MEDIA).

Meanwhile, there are 7 objectives that are reviewed and examined in this study, which consist of: Local Wisdom of Bakaran Wetan Village (KEARIFANLO); Innovation and Regional Competitiveness (INOVATIF); Synergy in the Development of the Tourism Sector in Bakaran Wetan Village (SINERGITAS); Profitability and Income of the Surrounding Community (PROFITABIL); Increasing Competence, Skills and Capabilities of Human Resources (SDM); Superior Potential of Bakaran Wetan Village (PTNSUNGGUL); and Optimization of Educational Tour Packages (EDUTOURISM).



(Source: Personal Documentation, 2025)

**Figure 1.** Interview with Museum Manager (Batik Bakaran Sudewi Museum)



The first step in actor analysis is to identify the accumulation of actor scores in the MDI (Matrix of Direct Influence) table. This table will describe the influence between actors on other actors with a score range of 0-4. A score of 0 means no influence, 1 indicates that the actor influences operational procedures, 2 means influencing work, 3 means influencing the actor's mission and finally a score of 4 is the existence of an influential actor.

**Table 1.** The Value of Matrix of Direct Influence (MDI)

| MDI        | DINPORAPAR | BAPPERIDA | DISDIKBUD | AKADEMISI | MUSEUM | UMKM | POKDARWIS | KRNGTARUNA | MEDIA |
|------------|------------|-----------|-----------|-----------|--------|------|-----------|------------|-------|
| DINPORAPAR | 0          | 4         | 4         | 4         | 3      | 4    | 2         | 4          | 3     |
| BAPPERIDA  | 2          | 0         | 3         | 3         | 2      | 4    | 2         | 3          | 1     |
| DISDIKBUD  | 1          | 1         | 0         | 2         | 2      | 3    | 2         | 2          | 3     |
| AKADEMISI  | 1          | 3         | 2         | 0         | 0      | 0    | 1         | 0          | 2     |
| MUSEUM     | 2          | 1         | 2         | 1         | 0      | 0    | 2         | 1          | 2     |
| UMKM       | 0          | 1         | 0         | 1         | 1      | 0    | 1         | 0          | 0     |
| POKDARWIS  | 3          | 2         | 3         | 3         | 2      | 4    | 0         | 3          | 2     |
| KRNGTARUNA | 0          | 0         | 1         | 0         | 2      | 0    | 1         | 0          | 0     |
| MEDIA      | 3          | 2         | 2         | 1         | 3      | 1    | 3         | 0          | 0     |

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Source: Processed Primary Data (2025)

After MDI identification, the next step is the assessment and scoring of the actors' perceptions of the predetermined objectives. Filling in the Matrix of Actor Objective (MAO) has the same scoring as MDI, namely a range of values 0-4. A score of 0 indicates that the objective has an uncertain outcome, a score of 1 means that the objective interferes with the actor's procedure for operations, then a score of 2 means that the objective interferes with the actor's success in work. Meanwhile, a score of 3 means that the objective interferes with the achievement of the actor's mission/cannot be ignored, and a score of 4 means that the objective interferes with existence/cannot be ignored as an effort to exist for the actor.

**Table 2.** The Value of Matrix of Actor Objectives (MAO)

| 2MAO       | KEARIFANLO | INOVATIF | SINERGITAS | PROFITABIL | SDM | PTNSUNGUL | EDUTOURISM |
|------------|------------|----------|------------|------------|-----|-----------|------------|
| DINPORAPAR | 3          | 2        | 4          | 2          | 3   | 4         | 4          |
| BAPPERIDA  | 2          | 3        | 3          | 1          | 2   | 3         | 2          |
| DISDIKBUD  | 4          | 2        | 2          | 2          | 2   | 2         | 3          |
| AKADEMISI  | 2          | 4        | 2          | 1          | 1   | 2         | 2          |
| MUSEUM     | 4          | 3        | 3          | 2          | 3   | 3         | 4          |
| UMKM       | 1          | 2        | 1          | 1          | 1   | 1         | 2          |
| POKDARWIS  | 3          | 3        | 3          | 2          | 4   | 3         | 3          |
| KRNGTARUNA | 1          | 1        | 1          | 0          | 2   | 1         | 1          |
| MEDIA      | 1          | 2        | 2          | 1          | 0   | 0         | 3          |

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Source: Processed Primary Data (2025)



After knowing MDI and 2MAO, to understand the level of influence and dependence between actors, you can use the Matrix of Direct and Indirect Influences (MDII). The MDII matrix determines the direct or indirect influence of order 2 between actors. The usefulness of this matrix is its more complete vision of the competitive game (one can reduce the number of choices of another party by influencing it through an intermediary actor). MDII has 2 important indicators, namely Li (showing direct and indirect influence) and Di (showing the level of dependence). The value represents the direct and indirect influence between actors. The higher the value, the higher the influence of the actor on others.

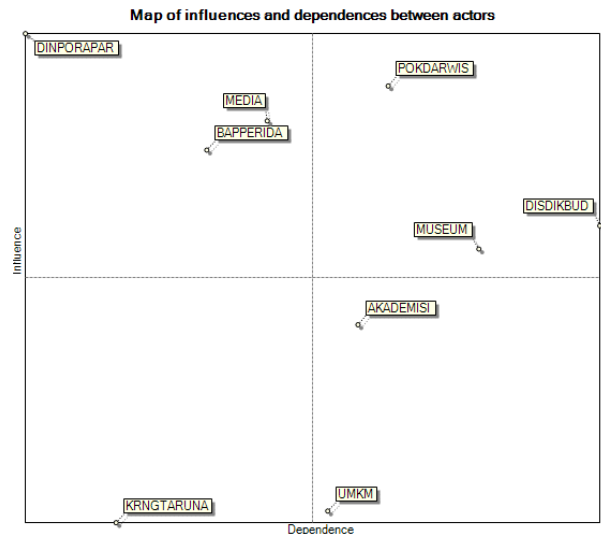
**Table 3.** The Value of Matrix of Direct and Indirect Influence (MDII)

| MDII       | DINPORAPAR | BAPPERIDA | DISDIKBUD | AKADEMISI | MUSEUM | UMKM | POKDARWIS | KRNGTARUNA | MEDIA | li  |
|------------|------------|-----------|-----------|-----------|--------|------|-----------|------------|-------|-----|
| DINPORAPAR | 11         | 14        | 16        | 14        | 15     | 14   | 14        | 12         | 13    | 112 |
| BAPPERIDA  | 9          | 11        | 13        | 12        | 12     | 12   | 12        | 10         | 12    | 92  |
| DISDIKBUD  | 10         | 10        | 11        | 9         | 12     | 8    | 12        | 7          | 11    | 79  |
| AKADEMISI  | 7          | 8         | 9         | 8         | 8      | 8    | 8         | 7          | 7     | 62  |
| MUSEUM     | 9          | 9         | 11        | 9         | 10     | 8    | 11        | 8          | 10    | 75  |
| UMKM       | 4          | 4         | 4         | 4         | 3      | 2    | 4         | 3          | 4     | 30  |
| POKDARWIS  | 11         | 13        | 15        | 13        | 14     | 13   | 13        | 11         | 13    | 103 |
| KRNGTARUNA | 4          | 3         | 4         | 3         | 4      | 2    | 4         | 3          | 4     | 28  |
| MEDIA      | 12         | 11        | 13        | 13        | 13     | 11   | 13        | 11         | 11    | 97  |
| Di         | 66         | 72        | 85        | 77        | 81     | 76   | 78        | 69         | 74    | 678 |

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Source: Processed Primary Data (2025)

After knowing MDI and 2MAO, to understand the level of influence and dependence between actors, you can use the Matrix of Direct and Indirect Influences (MDII). The MDII matrix determines the direct or indirect influence of order 2 between actors. The usefulness of this matrix is its more complete vision of the competitive game (one can reduce the number of choices of another party by influencing it through an intermediary actor). MDII has 2 important indicators, namely Li (showing direct and indirect influence) and Di (showing the level of dependence). The value represents the direct and indirect influence between actors. The higher the value, the higher the influence of the actor on others.



Source: Processed Primary Data (2025)

**Figure 2.** Map of Influence and Dependence between Actors

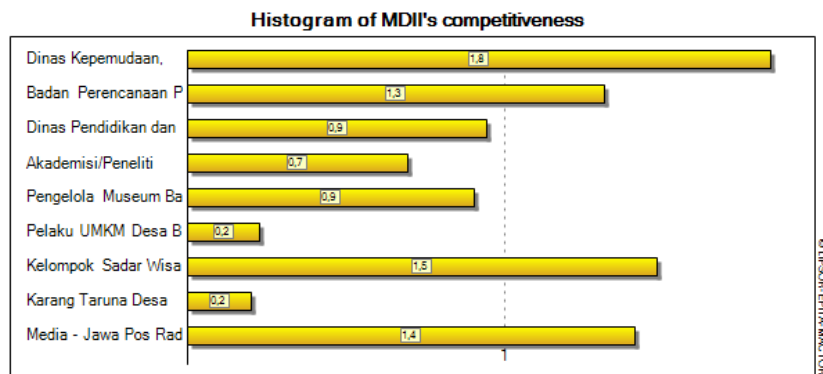
The map of influence and dependency between actors is a graphical depiction of the position of actors in relation to the influence and dependency (direct or indirect: Di and Li) between each other. The position is calculated automatically by the MACTOR software. The map is divided into 4 parts showing the existence of quadrants 1, 2, 3 and 4, each of which has a meaning in terms of influence and level of dependency. In quadrant 1, it means having a large influence and low dependency. Quadrant 1 which contains DINPORAPAR, MEDIA and BAPPERIDA is an actor in fully supporting various efforts to develop sustainable tourism in Bakaran Wetan Village by quadrant 2. Without quadrant 1, quadrant 2 cannot function optimally because they are interrelated. While quadrant 2 which contains POKDARWIS, DISDIKBUD and MUSEUM is the main actor.

The meaning is that the main driver of sustainable tourism in Bakaran Wetan Village is POKDARWIS. Tourism Awareness Group (POKDARWIS) has a high contribution role in planning, organizing, actuating and controlling various tourism policies in its region. However, the collaboration element must still be implemented with the main driver being POKDARWIS. The aspect of independence is also important, so that the POKDARWIS role model can carry out its activities, roles and functions optimally. Various activities that are routinely held include ketoprak, wayang kulit performances, sedekah bumi, batik festivals, batik ambassador elections, batik fashion shows and so on.

Meanwhile, apart from POKDARWIS, there is DISDIKBUD which is included in quadrant 2. In this case, preserving the arts, culture and local wisdom of Bakaran Wetan Village is very important. Intensive assistance by the Education and Culture Office (DISDIKBUD) with the contribution of all stakeholders including bakaran batik craftsmen has produced extraordinary works in the fields of arts, culture and history. By the Ministry of Education and Culture of the Republic of Indonesia, bakaran batik has been designated as an Intangible Cultural Heritage in 2021. Consistency, the spirit of mutual cooperation, togetherness and sustainability are important things in maintaining this achievement. To note, until now there are three works that have been designated as intangible cultural heritage, namely the Meron tradition, Kedung Panjang Mask Wayang, and the latest is Batic of Bakaran Juwana.

Next, MUSEUM is in quadrant 2. This is very much in line with the needs and roadmap for sustainable tourism development in Bakaran Wetan Village. So far,

edutourism-based tourism packages have not been very actively implemented. Many obstacles are encountered in the field, for example, the lack of integration of various supporting elements of tourism, such as natural tourist attractions, regional specialties and so on. These various supporting elements will simultaneously be interrelated in supporting sustainable tourism. In the future, optimization of edutourism will be encouraged by collaborating with various parties. Not only focusing on the *Projek Penguatan Profil Pelajar Pancasila (P5)* program but also by organizing various activities that are continuous and sustainable.



Source: Processed Primary Data (2025)

**Figure 3.** Actor Competitiveness Diagram

The image above shows the competitiveness of actors directed by the level of direct and indirect influence of actors on other actors. Actors who play an important role based on the image are DINPORAPAR, POKDARWIS, MEDIA and BAPPERIDA. Next is the result of MACTOR analysis by identifying the position of each actor towards each goal/strategy in the development of sustainable tourism in Bakaran Wetan Village based on edutourism. The objectives that have been set consist of 7 types, namely: 1) Local Wisdom of Bakaran Wetan Village (KEARIFANLO), 2) Regional Innovation and Competitiveness (INOVATIF), 3) Synergy in Developing the Tourism Sector of Bakaran Wetan Village (SINERGITAS), 4) Profitability and Income of the Surrounding Community (PROFITABIL), 5) Increasing Competence, Skills and Capabilities of Human Resources (SDM), 6) Superior Potential of Bakaran Wetan Village (PTNSUNGGUL) and 7) Optimization of Educational Tour Packages (EDUTOURISM).

**Table 4.** The Value of Matrix of Direct and Indirect Influence (MDII)

| 3MAO                    | KEARIFANLO | INOVATIF | SINERGITAS | PROFITABIL | SDM  | PTNSUNGUL | EDUTOURISM | Mobilisation |
|-------------------------|------------|----------|------------|------------|------|-----------|------------|--------------|
| DINPORAPAR              | 5,5        | 3,7      | 7,3        | 3,7        | 5,5  | 7,3       | 7,3        | 40,3         |
| BAPPERIDA               | 2,6        | 3,9      | 3,9        | 1,3        | 2,6  | 3,9       | 2,6        | 21,0         |
| DISDIKBUD               | 3,8        | 1,9      | 1,9        | 1,9        | 1,9  | 1,9       | 2,8        | 16,1         |
| AKADEMISI               | 1,4        | 2,8      | 1,4        | 0,7        | 0,7  | 1,4       | 1,4        | 9,7          |
| MUSEUM                  | 3,6        | 2,7      | 2,7        | 1,8        | 2,7  | 2,7       | 3,6        | 19,8         |
| UMKM                    | 0,2        | 0,5      | 0,2        | 0,2        | 0,2  | 0,2       | 0,5        | 2,1          |
| POKDARWIS               | 4,4        | 4,4      | 4,4        | 3,0        | 5,9  | 4,4       | 4,4        | 31,0         |
| KRNGTARUNA              | 0,2        | 0,2      | 0,2        | 0,0        | 0,4  | 0,2       | 0,2        | 1,5          |
| MEDIA                   | 1,4        | 2,8      | 2,8        | 1,4        | 0,0  | 0,0       | 4,2        | 12,7         |
| Number of agreements    | 23,2       | 22,9     | 24,9       | 13,9       | 20,0 | 22,1      | 27,1       |              |
| Number of disagreements | 0,0        | 0,0      | 0,0        | 0,0        | 0,0  | 0,0       | 0,0        |              |
| Degree of mobilisation  | 23,2       | 22,9     | 24,9       | 13,9       | 20,0 | 22,1      | 27,1       |              |

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Source: Processed Primary Data (2025)

The values in this matrix have taken into account the level of competence among the actors, the hierarchy of objectives and the degree of opinion of each actor towards the objectives in developing cooperatives. Positive values indicate actor support for the objectives. The higher the value, the higher the actor's support for the objectives. Likewise, negative values indicate conflict between actors and objectives. The higher the value, the higher the actor's rejection of the objectives. The 3MAO matrix shows that the optimization of educational tourism packages (EDUTOURISM) has the highest number of agreement, namely 27.1, then the next highest is the synergy score for developing the tourism sector in Bakaran Wetan Village (SINERGITAS), namely 24.9. The value of the objective means that EDUTOURISM elaborated with SINERGITAS is the objective that most activates actors/stakeholders.

Meanwhile, the actor with the highest mobility is DINPORAPAR with a value of 40.3 followed by POKDARWIS with a value of 31.0. This is in line with the research objectives that with the synergy of various stakeholders, especially DINPORAPAR as an element of the government as well as the holder of regional tourism policies with the main actor of Bakaran Wetan Village tourism, namely POKDARWIS. In addition, the 3MAO matrix table also shows that the number of disagreements is in a neutral position with a value of 0. This means that all actors/stakeholders agree on all the research objectives that have been compiled.

The weighted convergence matrix or Convergences Actors-Actors (3CAA) is related to the weighted position matrix Matrix Actors-Objectives (3MAO). It identifies several actors regarding the amount of similarity they have towards an objective (pro or con). It will identify the number of possible alliances considering the preferences of the actors in terms of their objectives and competitiveness. The 3CAA is a symmetric matrix.

**Table 5.** Matrix of Convergences Actors-Actors (3CAA)

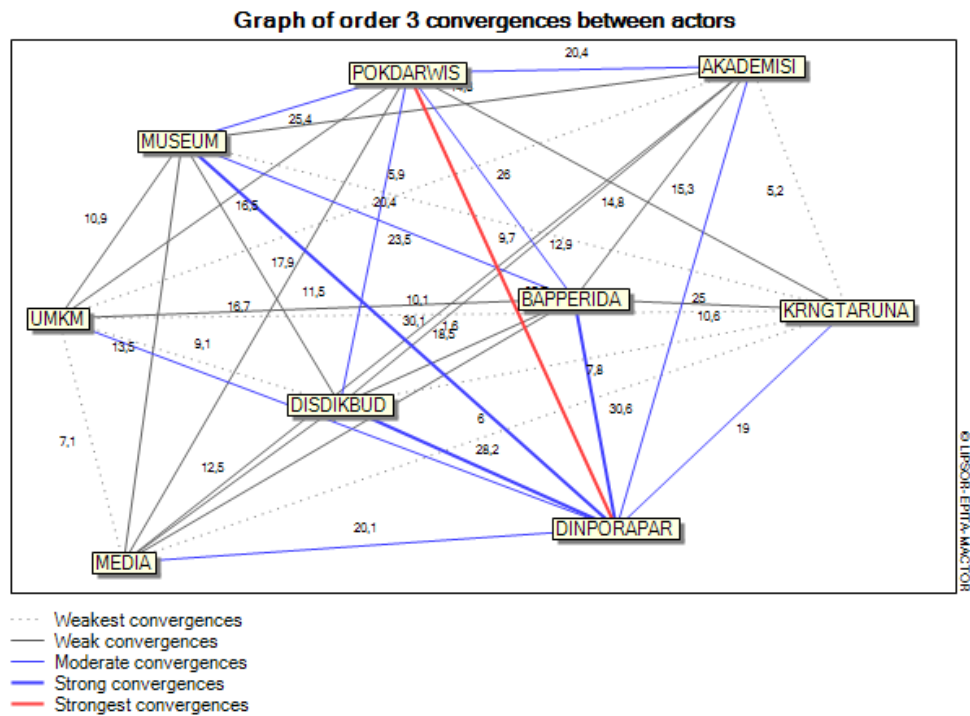
| 3CAA                      | DINPORAPAR | BAPPERIDA | DISDIKBUD | AKADEMISI | MUSEUM | UMKM | POKDARWIS | KRNGTARUNA | MEDIA |
|---------------------------|------------|-----------|-----------|-----------|--------|------|-----------|------------|-------|
| DINPORAPAR                | 0,0        | 30,6      | 28,2      | 25,0      | 30,1   | 21,2 | 35,7      | 19,0       | 20,1  |
| BAPPERIDA                 | 30,6       | 0,0       | 18,5      | 15,3      | 20,4   | 11,5 | 26,0      | 10,6       | 13,5  |
| DISDIKBUD                 | 28,2       | 18,5      | 0,0       | 12,9      | 17,9   | 9,1  | 23,5      | 7,8        | 12,5  |
| AKADEMISI                 | 25,0       | 15,3      | 12,9      | 0,0       | 14,8   | 5,9  | 20,4      | 5,2        | 10,1  |
| MUSEUM                    | 30,1       | 20,4      | 17,9      | 14,8      | 0,0    | 10,9 | 25,4      | 9,7        | 13,5  |
| UMKM                      | 21,2       | 11,5      | 9,1       | 5,9       | 10,9   | 0,0  | 16,5      | 1,6        | 7,1   |
| POKDARWIS                 | 35,7       | 26,0      | 23,5      | 20,4      | 25,4   | 16,5 | 0,0       | 14,8       | 16,7  |
| KRNGTARUNA                | 19,0       | 10,6      | 7,8       | 5,2       | 9,7    | 1,6  | 14,8      | 0,0        | 6,0   |
| MEDIA                     | 20,1       | 13,5      | 12,5      | 10,1      | 13,5   | 7,1  | 16,7      | 6,0        | 0,0   |
| Number of convergences    | 209,8      | 146,4     | 130,4     | 109,6     | 142,8  | 83,9 | 178,9     | 74,8       | 99,6  |
| Degree of convergence (%) | 0,0        |           |           |           |        |      |           |            |       |

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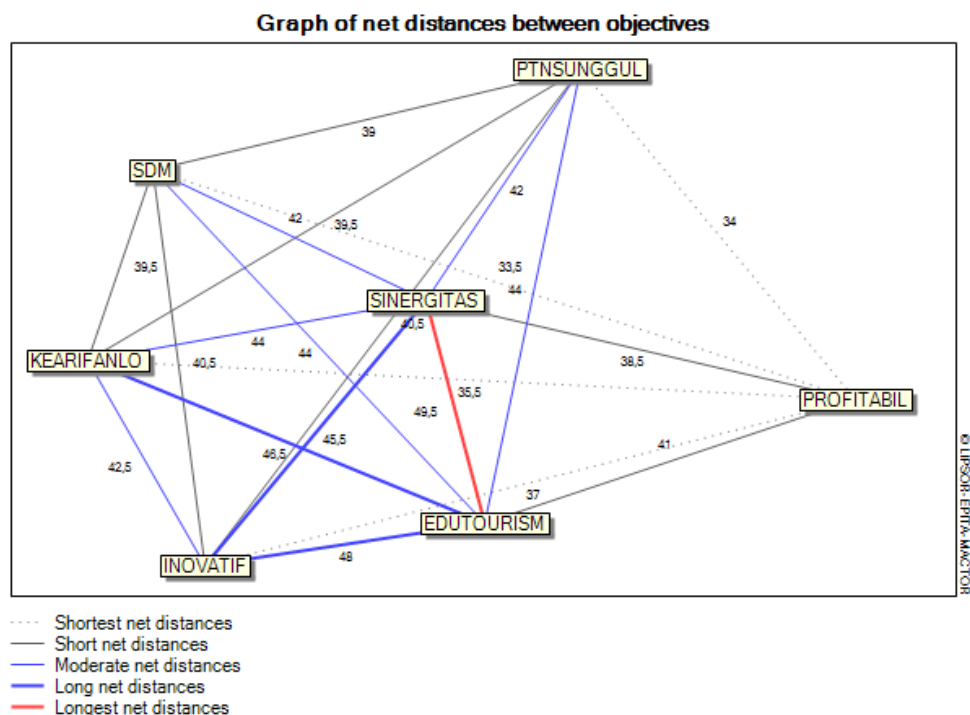
Source: Processed Primary Data (2025)

The value in the 3CAA matrix represents the degree of convergence between one actor and another. The higher the value, the greater the similarity of interests or goals of the actors. From the convergence analysis, a number of possibilities for the formation of alliances between the actors can be identified. In the 3CAA table, it can be seen that DINPORAPAR with POKDARWIS are the actors with the highest correlation of interest relationships with a convergence coefficient of 35.7. The second highest convergence is DINPORAPAR with BAPPERIDA with a score of 30.6. BAPPERIDA has a high role in terms of regional development policy efforts in Pati Regency, including in Bakaran Wetan Village. Some of BAPPERIDA's general tasks are related to supporting regional planning, research, development, assessment, and innovation. In more detail, BAPPERIDA is tasked with compiling technical operational policies in the field of planning and conducting research, as well as monitoring, evaluating, and reporting regional development performance including coordinating cross-sectorally with DINPORAPAR, especially related to regional tourism development.

The higher the value in the matrix will be indicated by the thicker the connection line on the map. This means that the higher the level of convergence between the actors. The red color means the strongest/highest convergence on the map that connects the influence of DINPORAPAR with related actors including POKDARWIS. In addition, other related actors are BAPPERIDA, MUSEUM and DISDIKBUD. The cooperation of these actors is also expected to support the success of the program, problem formulation and research objectives as previously determined.



Source: Processed Primary Data (2025)  
**Figure 4.** Convergence (3CAA) between Actors



Source: Processed Primary Data (2025)  
**Figure 5.** Net Distance Between Targets Graph

The image above is used to identify the objectives of actors who have the same position (pro or con). The stronger the relationship between objectives, the higher the convergence of the actors' opinions on the objectives. In the image, it is explained that



the realization of priority sustainable tourism is with EDUTOURISM which synergizes with the intensification of SINERGITAS of various stakeholders. Furthermore, other supporting indicators are INOVATIF and KEARIFANLO.

## Discussions

Sustainable tourism is a long-term strategy implemented by the government as an effort for national development. Meanwhile, the local wisdom of Indonesian tourism which is closely related to cultural, historical, social and educational elements is also a special attraction for tourists. Through sustainable tourism, it will synergize the preservation of local wisdom. Therefore, the development of sustainable tourism based on edutourism is carried out by carrying out economic, social, environmental and local wisdom aspects as a development model for Bakaran Wetan Village. These efforts will not be able to run without synergy and active involvement of stakeholders, especially the community. The development carried out is based on Community Based Tourism (CBT). Involving community participation in various policy-making, strategic directions and related decisions, especially in the development of sustainable tourism in Bakaran Wetan Village. Sustainability analysis uses MACTOR to identify stakeholder interactions, especially the community.

Previous research has emphasized that the development of the tourism sector is very important as an effort for national development including the regional scope (Vardopoulos et al., 2023; Zhang et al., 2024). However, there are still egos across stakeholders and undirected duties and functions (Redyanto et al., 2018; Sakina et al., 2023; Fauziah et al., 2023; Toruan et al., 2025). The community has also not been included in the development of sustainable tourism, especially in the regions, due to several things, starting from less intensive communication between stakeholders, minimal competence, capability and ability to manage tourism (Maulana et al., 2012; Sukaris et al., 2023; Kharisma, 2023). Whereas other researchers conclude that in tourism development, especially in the regions, the role of the community is very significant (Yuardani et al., 2021; Syarifuddin, 2023; Ikhlas & Agustar, 2024).

Based on the state of the art, further research is needed with a focus on sustainable tourism development strategies with the integration of all parties/stakeholders, especially community elements. The novelty of this research is the development of sustainable tourism based on edutourism with the Community Based Tourism (CBT) approach in Bakaran Wetan Village. This novel model aims to make Bakaran Wetan Village a role model for sustainable tourism development in Central Java Province while still upholding the preservation of local wisdom and culture through edutourism. This research is also based on the CBT approach to map the role, interaction and contribution of sustainable tourism development, especially from community elements.

## Conclusions

Sustainable tourism is one of the national development roadmaps. Not only thinking about short-term management in terms of benefits, advantages, risk mitigation, opportunities, threats and challenges but also in the long term. Empowering and integrating various cross-sectoral elements in various circles, so that a dynamic, humanistic, sustainable, integrated and sustainable sustainable tourism ecosystem will be created. In an effort to develop sustainable tourism in Bakaran Wetan Village, it has been determined that there are 9 actors/stakeholders within the scope of Academics, Business, Community, Government and Media (ABCGM). In addition, it also consists of 7 interrelated objectives. The conclusion is that the strongest/highest convergence is

between the influence of DINPORAPAR and related actors including POKDARWIS. In addition, other related actors are BAPPERIDA, MUSEUM and DISDIKBUD. Meanwhile, the priority goal of sustainable tourism development is EDUTOURISM which synergizes with the intensification of SINERGITAS of various stakeholders. Furthermore, other supporting indicators are INOVATIF and KEARIFANLO.

Suggestions for further research are related to the development of sustainable tourism scopes that are studied not only in one place, but can be in the scope of the region, region or province. The goal is that the recommendations of the research results have an impact and become a comprehensive consideration for regional development. In addition, studies on the objectives of sustainable tourism development can be studied intensively to find out and measure the extent of knowledge, abilities, skills, insights and operational provisions for managing tourism in a region.

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## Procession of The Traditional Custom of “Bubus Dise” in BatuJai Village to Support Sustainable Tourism Village

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**Abstract:** This study explores the Bubus Dise traditional ceremony in BatuJai Village, Central Lombok, and analyzes its potential as both a cultural heritage asset and a sustainable tourist attraction. The Bubus Dise ceremony is a sacred ritual the local community performs to purify the village from misfortune, disease, and negative spiritual influences. Beyond its ritualistic function, the ceremony strengthens the community's social bonds and spiritual values. The research employed a qualitative descriptive methodology, incorporating observation, in-depth interviews with community leaders and cultural practitioners, and a review of relevant literature. The findings reveal that the Bubus Dise tradition holds substantial potential as a cultural tourism offering. It not only preserves the unique cultural identity of the village but also contributes to the local economy through tourism-related opportunities. Moreover, the tradition aligns with the principles of sustainable tourism, particularly through its emphasis on cleanliness, greening efforts, and the integration of the “Seven Charms” tourism development programs. Despite these opportunities, the ceremony faces challenges due to modernization and the growing influence of commercial tourism, which may risk diluting its authenticity. The study concludes by offering recommendations to support the sustainable development of Bubus Dise as a cultural tourism attraction. These include community-based tourism planning, heritage preservation initiatives, and policy support to maintain cultural integrity while promoting responsible tourism.

**Keywords:** BatuJai village, Bubu Dise, cultural heritage, tourist attraction, traditional ceremony.

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### Introduction

Tourism is a profitable sector that can be developed as a source of income, which is promising for the government and the community around the tourist area BatuJai, located in Praya, Central Lombok. The name of BatuJai Village was initially taken from a large rock in this village, which is located about 15 meters east of the Ummul Huda Mosque in BatuJai Village, precisely in the yard of H. Lalu Once's house, one of the noble figures of BatuJai Village. This village has a unique cultural and traditional wealth, including the Bubus Dise tradition. This traditional ceremony is a ritual to cleanse the village from various disasters, diseases, and disturbances of evil spirits. In addition, the Bubus Dise procession also aims to strengthen the social and spiritual values of the BatuJai community.

The Bubus Dise traditional event is a BatuJai Village traditional ritual ceremony held jointly by all elements of BatuJai society, such as the Noble/Raden caste community, the Perbape caste community, the Sejajarkarang caste community (ordinary people), and the Panjak caste community (Raden's messengers). In addition, religious figures/teachers, community leaders, and youth leaders also participated in



this event, which became part of their social life. Along with the development of the times and the increasing flow of tourism in Lombok, the Bubus Dise tradition has excellent potential to be used as a cultural tourism attraction that can not only introduce local wisdom but also encourage the community's economy.

Based on observation by researchers amid this progress, there are challenges in maintaining the sustainability of this tradition so that it is not eroded by modernization and the influence of outside culture. In addition, the Bubus Dise traditional ritual culture strongly supports the realization of a sustainable green tourism village, which is closely related to the preservation of diverse products on a conservation basis, as well as minimizing mass tourism (such as tour eco, tourism culture, tourism heritage, and tourism creative).

This study aims to explore the Bubus Dise procession in Batujai Village more deeply and analyze its potential as a tourist attraction and cultural heritage that can contribute to the development of sustainable culture-based tourism. Previous studies have shown that traditional traditions are essential in maintaining a community's cultural identity. For example, research by Surata, et al. (2024) explains how traditional traditions in several regions in Indonesia have become tourist attractions that generate economic benefits while preserving cultural heritage. Likewise, research by Lestari & Yusra (2022) identifies the potential of various traditional traditions in Lombok as part of culture-based tourism.

However, several literature studies still limit research on the Bubus Dise tradition and its relation to the tourism sector. In addition, the lack of interest of researchers due to the infamous destination at the moment makes the urgency of this research. Therefore, this research is expected to contribute to the development of cultural tourism in Lombok, especially in Batujai Village.

## Methodology

This study employed a qualitative descriptive method, utilizing data collection techniques through direct observation of the Bubus Dise traditional procession to excavate relevant information. The direct observation method was conducted in the Batujai Village area, considering that active participation within the community allows for collecting more accurate and contextual data.

Additionally, in-depth interviews were conducted with traditional figures and local community members in a structured and systematic manner to gain deeper insights into the ritual. The interviews were conducted with key informants, including village elders, traditional leaders, and residents, who know extensively about the Bubus Dise tradition.

This research follows the anthropology research which involves deeply analyzing the behaviors observed and the context and meanings attributed by participants, theory on cultural rituals and ethnographic studies, ensuring a structured approach to data interpretation. The steps of this study included (1) preliminary observation and community engagement, (2) direct participation in the ritual, (3) structured interviews with key informants, (4) thematic data analysis, and (5) validation of findings through cross-verification with multiple sources.

By employing a combination of direct observation and qualitative interviews, this study aims to provide a comprehensive understanding of the Bubus Dise traditional procession and its significance within the local community.

## Results and discussions

### Results

Batujai Village is located in Praya District, Central Lombok Regency, West Nusa Tenggara (NTB), Indonesia. It is renowned for its natural beauty, rich cultural heritage, and historical significance. Batujai Village is situated in the central part of Lombok Island, specifically within Praya District, which serves as the capital of Central Lombok Regency. Its strategic location makes it easily accessible, as it is not far from Zainuddin Abdul Madjid International Airport.

This study examines Bubus Dise, a traditional ritual practiced in Batujai Village, and its role in empowering the local community through sustainable green tourism. Previous studies have explored similar cultural traditions that contribute to preserving local wisdom, fostering community engagement, and promoting environmental conservation. For instance, Asrawijaya (2024) highlights how traditional ceremonies are crucial in maintaining ecological balance and reinforcing cultural identity. Likewise, rituals similar to Bubus Dise serve as a medium for community participation in environmental preservation and sustainable tourism initiatives. The findings of this research indicate that Bubus Dise aligns with these perspectives, as it serves not only as a cultural expression but also as a strategic effort to promote sustainable tourism. By integrating rituals with environmental awareness, the local community benefits from economic opportunities through eco-tourism while preserving their traditions.

Compared with previous studies, this research provides new insights into how Bubus Dise can be optimized as part of a sustainable tourism strategy. While previous findings primarily focused on the cultural significance of traditional ceremonies, this study expands the discussion by highlighting their practical implications for environmental conservation and tourism development. Thus, Bubus Dise has the potential to become a cultural attraction that supports the growth of a sustainable green tourism village, ensuring that both cultural heritage and environmental sustainability are preserved for future generations.

Based on theory development, object tourism data obtained from interviews and observations conducted in Batujai Village, it was found that the procession of the traditional Bubus Dise is a tourism attraction with power and heritage culture research about potential based on four components: attractions, accessibility, amenities, and additional services.

#### 1. Attraction

Bubus Dise, based on the meaning, the word "bubus" has a plural meaning to wet, clean, water, or add; while the word "dise" means village, region, or area, so Bubus Dise can be interpreted as a clean village/region. This ritual ceremony tradition is implemented by the community to clean the village from disaster, disease, pests, and disturbance of evil (spirits) and fellow humans (society, village neighbors). No literature is written explaining when the first ceremony of this Bubus Dise custom was done. Still, based on direct interviews, the researcher learned that this Bubus Dise ritual ceremony was first held in 1865, where the head village in charge is Lalu Suraba, known as Mamiq Nursalam. As for the base, he did a ceremony, namely: Batujai Village hit by drought and season clicker for two years, the plague Baer's disease (Sasak language) which causes many residents to die suddenly, and compounded by disturbances, war between a village that often happened.

As it is examined through a contemporary perspective (nowadays), it will be guided by a key question: why is this bubus ritual ceremony now done? Based on the results of the excavation information, the researcher found differences and shifts in perception without leaving previous values. In other words, its implementation is done



through harmonization and acceleration with changes and developments in the current era, namely:

- a. Nowadays, this Bubus Dise traditional ritual ceremony is carried out preventively to prevent the four events or conditions of the village mentioned.
- b. To preserve the values and history of ancestors as part of the treasury culture and customs of Batujai Village.
- c. This is to introduce the heirloom objects of ancestors owned by Batujai Village as a treasury of cultural heritage owned by the Republic of Indonesia.
- d. To revitalize values and the philosophy contained in it so that the Batujai Village Self is still awake and not lost and eroded by the progress of the times.
- e. To introduce and promote cultural customs (ceremonies), Bubus Dise customs of Batujai Village to domestic and overseas travelers as one of the cultural attractions, simultaneously becoming Batujai Village's contribution to the Tourism Industry Development of Central Lombok Regency.



(Source: Saleh, et al., 2025)

**Figure 1.** Procession Bubus Dise Customs in Batujai

This Bubus Dise traditional ritual ceremony started after all preparations had finished, as well as all that was needed, like tools and materials. It is already considered complete. At night, first at a time, the event was started by a reading of Berzanji or a reading of Reckless. Reading Reckless is done by each congregation, led by a kyai or the priest. This procession needs quite a long time because a number of poems recited in Berzanji reach hundreds of bai'it. During reading Berzanji, various traditional Sasak foods are served. The Sasak people call this food presentation Menaek, while one portion of food is Pesajik. Next, after reading Berzanji, it is continued by reading Lontar or takepan like Saga Rengganis, The Tale of the Prophet Yusuf, The Tale of the Sky Gite, etc.

Poets called the steadfast are those who read it in the Tembang language (Kawi language), and then Pembayun, who translated it into the Sasak language so that listeners can understand or comprehend it—the content told by the current Hikayat (Budiman, 2014). The reading event song is in progress until three in the morning, even until dawn, depending on how long the songs are and the number of stories presented. While reading a song, every time they finish nine verses, the sagacious and the Pembayun usually stop for a moment to eat the food and enjoy the coffee served, eliminate sleepiness and hunger, and stay up late overnight. After reading the song, it ends with a prayer by Kyai. Then, the entire audience gathered to eat the dish overcooked and prepared by an agan (interpreter cook). This is to signify that the

day's event is over first, and night comes. The next day at 08.00, the second day's event procession begins with the Bubus Dise ceremony. On the second day, a procession was held at the bathing place, with weapons and heirlooms of Batujai Village, which was carried out at the Batujai well, which was made of rocks. In the procession bathing place, the heirloom weapon was led by the Pemangku, assisted by the Penowaq, and escorted by Lang-lang (warriors' village). However, before the bathing event, the heirloom weapon, around the well area, must already be prepared: Penginag, Moto siung (roasted rice), Rampe flowers, seven types of flowers, frankincense, as well as a jar complete with the ladle (made of coconut shell). Interesting thing is that at the time, the transfer of weapon heirloom from Berugaq place storage temporarily to Batujai, well made of rocks (location of baths), weapons are paraded by clothed people, complete with customs, as if such as the Nyongkolan event (accompanying bride and groom Sasak customs). Several types of heirlooms are bathed in as follows:

- a. The Keris Belabur Mandu
- b. Keris Pangling
- c. Fire Arak Keris
- d. Keris Arranges Worship
- e. and the Spear of Daeng Mardus

Next, after procession bathing place weapons said, then delivered way one by one to House the owner with procession or escort like when time picked up first, after the handover process accept to the owner weapons the furthermore saved, then the delivery people earlier return to place bathing place to deliver Again weapon other heirlooms. So that the bathing and delivery process takes quite a long time, the day can be filled with the finished delivery of all weapons heirloom said, then the event for the second day has ended, and then the next move is to the evening final or closing event.



(Source: Saleh, et al., 2025)

**Figure 2.** Bathing weapon as one of the Dise Bubus series in Batujai

Of course, this Bubus Dise traditional ceremony is not just ceremonial, mere without value or meaning, as it has values, philosophy, and also the noble moral message carried by this tradition, specifically the Batujai Village community as well as the public, the Sasak tribe in general, including the following:

- a. The value of obedience runs through religious teachings and customs inherited from ancestors. This is reflected in the Zikir event, Serakalan, reading of the Al-Quran, and prayers carried out in this traditional ceremony.

- b. Values of togetherness and cooperation are reflected in the preparation, implementation, and coverage process, where citizens work together, shoulder to shoulder, to make this event a success.
- c. Values of Caring and Responsibility answer to preserve the mark of the Traditional Ancestors. This is reflected in the implementation ceremony from the preparation process until closing, implemented with full solemnity and order, and done without feeling burdened/ forced.

Apart from that, besides contain values the sublime contained in it, also not off from values element culture that reflects identity and characteristics Batujai Village community which has civilization alone, as results from fruit creativity, thoughts, reason and intellect of the ancestors of the Batujai village, so that produced this Bubus Dise traditional culture is full of with values sublime in the operate life in this world

## 2. Accessibility

Under development, a cultural tour is also needed, with convenient access allowing tourists to reach their objective destination for a moment. Access to Batujai village is very adequate, considering that Batujai village is close to Lombok Airport, so access is well-built. All the roads to Batujai village are good access, and the road to the place of the implementation of Bubus Dise has also been properly built, as Batujai is one of the road connectors with other regencies.

## 3. Amenities

Apart from the attractions and convenient access, facilities are one of the essential factors in developing tourist culture because they aim to fulfil the needs of travelers. Supporting facilities activity tour The Bubus Dise culture in Batujai village is where the opening of Bubus Dise was held. Strategically, it is easily accessible. The equipment used for the ceremony was also held in a strategic location, so that travelers can see. If they visit, there are salons for borrowing traditional clothes, which is also a potential big Bubus Dise in Batujai.

## 4. Ancillary Service

Additional services are available in Batujai village, including ATMs, banks, gas stations, money changers, telephones, general health centers, organizations, tourism awareness groups, which are on standby to give service and guidance to tourists who visit and witness the tour culture and heritage. The culture that exists in Batujai village.

## Discussions

Based on analysis of internal factors (strengths and weaknesses) and external factors (opportunities and threats), Bubus Dise in Batujai for developing tourism and travel inheritance culture as follows:

### 1. Strength (S)

Bubus Dise is a ceremonial custom that has marked a strong historical and spiritual significance, providing uniqueness that can interest tourists who want to learn more about the local traditions in Lombok. This can signify an exciting sale for the travel culture. As a ceremony to cleanse the village from reinforcements, disease, and disturbing evil spirits, Bubus Dise strengthens social bonds between residents and increases the sense of togetherness and spiritual awareness of society. This can create an in-depth and authentic tourism experience for visitors interested in the spiritual life of the local community. This ceremony involves many members of society who are good at preparing, implementing, and maintaining tradition. This is to create a chance to empower the local community and strengthen the cultural heritage vigorously.

### 2. Weakness (W)

Limitations of knowledge of travellers are one of the weaknesses of many tourists, possibly not knowing or not understanding the meaning and importance of Bubus Dise, so they do not see more significance in this ceremony as a tourism experience. Lacking adequate information can become an obstacle to attracting visitors. Bubus Dise was held only at a particular time of year. This is a limited opportunity for interesting tourists who come at the wrong time, simultaneously with the ceremony. Some travellers may be disappointed if this ceremony is not completed when they visit. The successful implementation of Bubus Dise as an attraction in tourism highly depends on active participation and the enthusiasm of the local public. This ceremony can lose its attraction if the community does not commit to this tradition or is not maintained well.

### 3. Opportunity (O)

Opportunities that can be Bubus Dise occurred in Batujai as tourism culture is becoming an increasingly global trend, developing for tour culture and spirituality, Bubus Dise can be promoted as one of the attractions of the fascinating culture in Lombok. This can increase the number of interested tourists to come to Batujai Village. The Bubus Dise ceremony can be used to preserve local culture. In addition, with making it an attraction for tourism, society can obtain economic benefits through the tourism sector, such as providing food, handicrafts, and tourism guide services, and work opportunities similar to those in government regions and institutions, to develop Bubus Dise as part of the annual calendar tour in Central Lombok. More widely promoted promotions through social media and tourism platforms can help introduce this ceremony to a broader audience. Tour program education that introduces tourists to the culture and spirituality of Bubus Dise can become an opportunity to introduce the values of life in the Batujai community and give travelers an immersive and educational experience about the importance of ceremonial customs in balancing natural and social environments.

### 4. Threat (T)

One of the biggest threats is the commercialization of tourism, which threatens the spiritual and cultural values originating from Bubus Dise. Suppose the ceremony is just an attraction to gain more travellers without values and a spiritual purpose to maintain the culture. In that case, things can damage the integrity of the tradition itself. Globalization and modernization can threaten the continuity of traditions like Bubus Dise. There is an influence of culture outside popular culture, which can cause young generations to be less interested in continuing the tradition, which can reduce its sustainability in the end. Change in social conditions in the village, such as urbanization and a shift in lifestyle, can reduce public interest and participation in the implementation of customary ceremonies. This can impact the quality and continuity of Bubus Dise as a ceremonial culture. If there is not adequate support from the government or institutions in funding and development, tradition can be hampered. For example, a lack of budget for promotion, fewer training guides for tourism, or poor growth of a tourism facility can limit the potential for the village to attract interesting visitors.

The Bubus Dise procession in Batujai Village is held every year or at certain times that are considered important, such as when a big celebration is going to be held or when there is an outbreak of disease. This ceremony involves various stages, from preparing ritual materials and praying together to spraying water with prayers throughout the village to cleanse the village from disaster and evil spirits. The main meaning of Bubus Dise is to maintain harmony between humans, nature, and ancestral

spirits. In addition, this procession also teaches social values such as togetherness, solidarity, and respect for the surrounding environment. For the Batujai community, Bubus Dise is an important part of their spiritual life. Bubus Dise has the potential to become a cultural and spiritual tourism attraction to a broader scope of spectators. Rituals involving community participation and rich cultural symbolism can be an interesting attraction for domestic and international tourists. With good management, Bubus Dise can be part of a cultural tourism package in Lombok, which not only brings economic benefits but also introduces local people to visitors about the importance of preserving traditions.

Bubus Dise can also support the program of the sustainable green tourism village of Batujai village. The programs to make Batujai village become a sustainable green tourism village are: (1) Batujai village environmental cleanliness program, (2) tree planting and greening program around Batujai village, and (3) socialization program for the implementation of *Sapta Pesona* to support Green Tourism Villages in Batujai village.

a. Batu Jai village environmental cleanliness program

Cleanliness environment is something that cannot be kept away from human life and is an essential element to support village tourism. The Village Government and Community carry out activities to clean villages, which are carried out in their respective environments. These activities are done in the framework of the Bubus ritual ceremony. At the same time, they make the community aware of the importance of clean behavior and life, maintaining the surrounding community's health, and avoiding various types of disease. Besides, the cleanliness of the environment and public health are very closely related to developing a sustainable tourism village.

b. Tree planting and greening program around Batujai Village

Planting movement trees has already become a trend in tourism villages. Community groups and individuals build awareness about the importance of guarding the sustainability of forests, land, and existing ecosystems. Batu Jai Village also strongly supports the community program for reforestation by the community around the village. In the Bubus Dise ritual context, the Batu Jai Village community also performed environmental preservation by planting trees for a sustainable environment. The impact of greening activity is a supportive sustainability environment in tourism villages that buffer Lombok International Airport.

c. Socialization program for the implementation of *Sapta Pesona* to support green tourism villages in Batujai Village

Component Seven Charms (*Sapta Pesona*) must come true in a creative environment that is the ideal tourist village attraction so that it can pique the interest of tourists. The seven components of the charms are safe, orderly, clean, cool, beautiful, friendly, and memorable. Socialization of this program will help increase understanding and responsibility among the public and the manager for the progress and development of Batujai Village. Implementation of the Seven Charms will create Batujai village ready to welcome tourists, and sustainably increase public welfare. This place has many potential based on research and findings; however, it needs deeper research to explore more about the culture and tradition in that place.

## Conclusions

This study demonstrates that the Bubus Dise traditional ceremony in Batujai Village, Central Lombok, represents a significant cultural asset with substantial potential for sustainable tourism development. The research reveals that this sacred ritual, which translates to "clean village/region," serves multiple functions beyond its

primary spiritual purpose of purifying the village from misfortune, disease, and negative influences.

The findings indicate that Bubus Dise possesses strong foundations across all four essential tourism components: attractions, accessibility, amenities, and ancillary services. As a unique cultural attraction, the ceremony offers visitors an authentic glimpse into Sasak spiritual traditions while embodying profound values of religious obedience, community togetherness, cooperation, and ancestral preservation. The ritual's rich symbolism, from the evening Berzanji readings to the ceremonial bathing of sacred heirloom weapons, creates a compelling narrative that can captivate both domestic and international tourists seeking meaningful cultural experiences.

The strategic location of Batujai Village, with its proximity to Lombok International Airport and well-developed road infrastructure, provides excellent accessibility for potential visitors. The existing amenities and support services, including traditional costume rentals and community tourism awareness groups, further enhance the village's readiness to accommodate cultural tourists.

However, the study also identifies significant challenges that must be addressed to ensure sustainable development. The primary threats include potential commercialization that could compromise the ceremony's spiritual integrity, limited tourist awareness about the tradition's significance, and the seasonal nature of the ritual that restricts tourism opportunities. Additionally, modernization and globalization pressures risk the continuity of tradition, particularly among younger generations.

The research strongly supports the integration of Bubus Dise into Batujai village's sustainable green tourism initiatives. The ceremony's emphasis on environmental cleanliness, community participation in greening programs, and alignment with the Sapta Pesona (Seven Charms) tourism development framework demonstrates its compatibility with sustainable tourism principles. This integration preserves cultural heritage and promotes environmental consciousness and community economic empowerment.

To maximize the potential of Bubus Dise as a sustainable tourism attraction, this study recommends implementing community-based tourism planning that prioritizes cultural authenticity over commercial gain. Heritage preservation initiatives should be strengthened through documentation, education programs, and intergenerational knowledge transfer. Policy support from local and regional governments is essential to provide adequate funding for promotion, guide training, and infrastructure development while maintaining strict guidelines to protect the ceremony's cultural integrity.

The study concludes that Bubus Dise represents a valuable model for how traditional ceremonies can contribute to sustainable tourism development when properly managed. By balancing cultural preservation with economic opportunities, Batujai Village can establish itself as a premier destination for artistic and spiritual tourism while ensuring the continuity of its ancestral traditions for future generations.

Future research should focus on developing comprehensive management strategies for cultural tourism integration, assessing long-term impacts on community social structures, and exploring similar traditional ceremonies across Lombok that could contribute to a broader cultural tourism network. Additionally, studies examining visitor satisfaction and cultural exchange outcomes would provide valuable insights for optimizing the tourism experience while maintaining cultural authenticity.

Through careful planning and community commitment, the Bubus Dise tradition can serve as a bridge between past and present, offering visitors meaningful cultural



encounters while providing sustainable economic benefits to the Batujai community and contributing to preserving Indonesia's rich cultural heritage.

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