

# Ecotourism Governance: A Sustainable Approach for The Tongke-Tongke Mangrove Forest Destination

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## Abstract

Tongke-Tongke Mangrove Forest, located in Sinjai Regency, South Sulawesi, is an ecotourism destination that offers natural tourism and environmental education. However, it is not yet at an optimal level of management. This study aims to formulate a comprehensive Ecotourism Governance approach for the management of the Tongke-Tongke Mangrove Forest to strike a balance among conservation, local-scale economic empowerment, and tourist destination competitiveness. The research uses qualitative methods with a comparative study. Interviews, documentation, observation, and focus group discussions were used in data collection. Data analysis was conducted using coding techniques and triangulation in NVivo 12 Plus for data visualization to ensure the validity and reliability of the research findings. The study indicates that Tongke-Tongke Mangrove Forest ecotourism management is still constrained by several key factors, such as a lack of infrastructure, limited local community participation, poor coordination among stakeholders, and low levels of environmental awareness, which ultimately lead to suboptimal ecosystem conservation and tourism experiences. Moving forward, to contextualize this gap, the implementation of ecotourism governance is proposed through an integrated approach comprising infrastructure upgrading, community empowerment, stakeholder coordination strengthening, and adaptive monitoring mechanisms based on the environmental concerns from a sociocultural perspective in order to achieve mangrove conservation towards improving community welfare along with sustainable tourism destination development.

**Keywords:** ; community empowerment; ecotourism governance; mangrove forests; sustainable tourism; tourism development



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## Introduction

The background of this research is based on the fact that mangrove ecosystem-based nature tourism destinations have significant potential to support sustainable tourism (Hadiprayitno et al., 2024), particularly in Indonesia, which has the largest mangrove forest area in the world (Murniati et al., 2025). The Tongke-Tongke Mangrove Forest in Sinjai Regency, South Sulawesi, is one ecotourism destination that offers both a natural tourism experience and environmental education. However, suboptimal management, limited infrastructure, and threats to environmental sustainability pose challenges to achieving sustainable tourism management (Amiruddin et al., 2023). Therefore, a holistic ecotourism governance approach is needed to ensure a balance between environmental conservation, local community empowerment, and economic benefits (Alfiandri et al., 2024).

In Thailand, mangrove ecotourism management was successfully implemented in the Ban Bang Krachao Mangrove Forest (Green Lung of Bangkok). In this area, local community-based governance combines ecosystem conservation and sustainable tourism development by means of cooperation among government, local communities and the private sector (Kittiprapas & Danieri, 2025). The establishment and management of mangrove ecotourism in the Philippines embodies a successful synergy of both environmental conservation as well as local community economic empowerment through educational tourism experiences (Fernandez-Abila et al., 2024). While in Malaysia it is more of a sustainable mangrove management model with ecosystem rehabilitation and green tourism approaches (Thompson et al., 2018). The success validates an ecotourism governance model that allowed all stakeholders to rapidly improve positive achievements for the environment and community welfare.

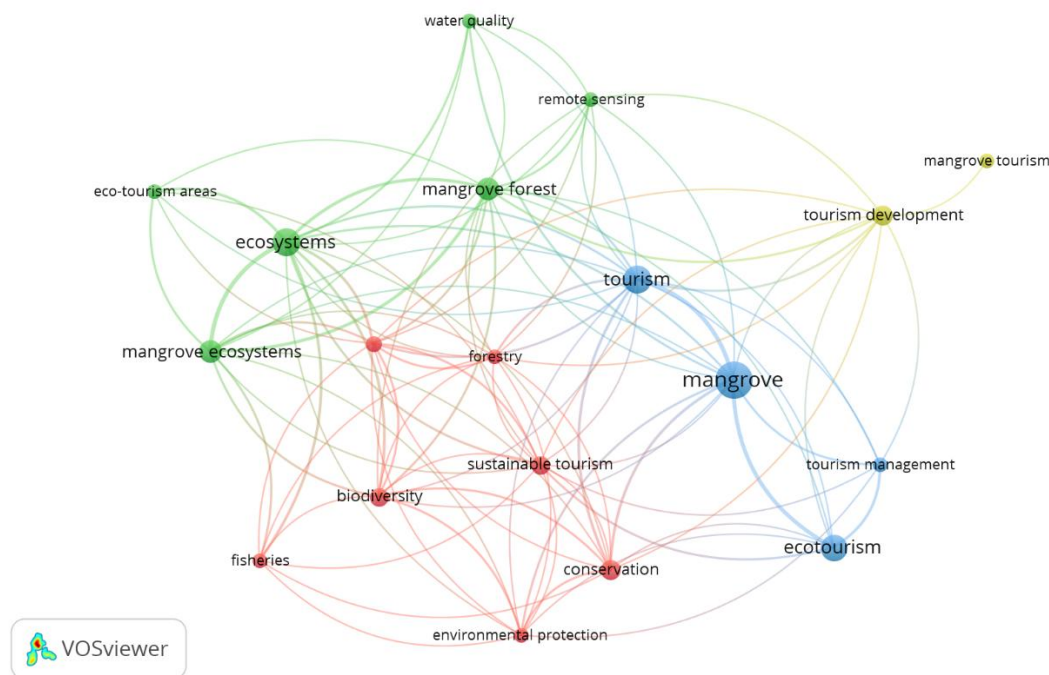
Case studies of mangrove ecotourism management in Thailand, the Philippines, and Malaysia demonstrate success in integrating environmental conservation, local community empowerment, and sustainable tourism development through multi-stakeholder collaboration and a community-based approach. However, the situation in Indonesia, particularly in the Tongke-Tongke Mangrove Forest, still faces various challenges such as limited infrastructure, suboptimal coordination between stakeholders, and more complex threats to environmental sustainability. This comparison emphasizes the need to adapt successful ecotourism governance strategies in these countries by considering the local social, economic, and cultural context in Indonesia, so that mangrove ecotourism management in Sinjai Regency can be more effective and sustainable.

Ecotourism Governance generally refers to an approach to managing natural tourism destinations that emphasizes the active involvement of local communities (Palmer & Chuamuangphan, 2018), institutional strengthening (Khairul Muluk et al., 2023), and multi-stakeholder collaboration to achieve sustainability (Nurhayati et al., 2023). This approach emphasizes the importance of synergy between environmental conservation (Boukherouk et al., 2022), local economic empowerment (Tamrin et al., 2024), and quality tourism experiences (Zoysa, 2022). Ecotourism Governance ensures the sustainable management of natural tourism destinations through multi-stakeholder collaboration, local community empowerment, and institutional strengthening (Alfiandri & Mayarni, 2023). With proper management, natural tourism destinations such as the Tongke-Tongke Mangrove Forest can become models of highly competitive and sustainable ecotourism. The urgency of this research lies in the importance of optimizing the management of the Tongke-Tongke Mangrove Forest as a sustainable ecotourism destination, given its significant potential for supporting environmental conservation, local economic empowerment, and environmental education.

This research identifies a factual gap in the lack of empirical studies specifically evaluating the effectiveness of ecotourism governance implementation in mangrove destinations in Indonesia, particularly the Tongke-Tongke Mangrove Forest. Consequently, management and its impact on environmental conservation and local community

empowerment remain under-documented. Conceptually, there is a gap in the development of a holistic and adaptive ecotourism governance model that integrates conservation, economics, and education aspects with active multi-stakeholder participation in a unique local context. Therefore, this research seeks to fill this gap by examining a more synergistic and sustainable management approach for mangrove ecotourism destinations in Sinjai Regency.

The state-of-the-art in this research lies in its in-depth focus on the application of ecotourism governance principles in the management of the Tongke-Tongke Mangrove Forest tourist destination. This topic has not been widely explored in previous research.



Source: Authors, 2026

**Figure 1.** Research gap

Although bibliometric analysis results in March 2025 showed 66 documents in the Scopus database related to mangrove forest tourism, research specifically integrating an Ecotourism Governance approach to achieve a balance between environmental conservation, local community empowerment, and economic development is still very limited. The novelty of this research lies in the development of a sustainable tourism governance model based on multi-stakeholder collaboration and local empowerment, which is expected to become a strategic solution in the sustainable management of mangrove ecotourism destinations.

The problem-solving approach and strategy in this research prioritize the application of Ecotourism Governance principles, which involve collaboration between the government, local communities, and the private sector (Musa Samdi & Nmadu, 2022). The first strategy is to strengthen local institutional capacity through training and human resource development to increase active community involvement in decision-making and tourism destination management. Second, the inhibiting and supporting factors affecting the implementation of

Ecotourism Governance, such as limited infrastructure and a lack of environmental awareness, will be mapped and identified. Third, this research will design a development strategy based on economic sustainability, ecosystem preservation, and local community empowerment, with an emphasis on improving the quality of the tourism experience and enhancing the destination's competitiveness.

Working definition Ecotourism Governance-based mangrove ecotourism management was defined as a framework of governance with participation from local governments, local communities, businesses and non-government organisations (NGOs) role in the sustainable use of natural resource. This can be an institutional structure within which a forum or some kind of coordination mechanism that pulls together systemic stakeholder interests and sets rules in place to allow for participation as well as mutual responsibility. Coordination mechanisms are established through cyclic information exchanges, joint expert assessments and integrated monitoring and evaluation to facilitate synergy at practice level and adaptation action based on field-derived responses. Factors that can be monitored as the results of good management are related to environmental sustainability, which consists of improvement in mangrove ecosystem quality; social sustainability, indicated by local communities empowerment and welfare; and economic sustainability reflected in tourism-based inclusive and environmentally friendly economic growth. In this way this experimental framework offers a balanced integration of environmental, social and economical aspects for the ecotourism management.

The problem of research formulation is to determine how the Ecotourism Governance approach can be successfully applied to the management of Tongke-Tongke Mangrove Forest as a sustainable tourism destination. The study provides the following questions: (a) How is the state of Mangrove Forest Management on the Tongke-Tongke mangrove forest area in sustainable tourism? b) What are the driving and inhibiting factors in applying Ecotourism Governance at Tongke-Tongke Mangrove Forest? (c) As a tool for the sustainable development of Ecotourism in order to formulate the Ecotourism management based on Ecotourism Governance for increasing the level of welfare of their communities, as well as preserving environment?

This research problem formulation is of particular significance because it relates to the presence of critical data and real governance conflicts in the field, especially at Tongke-Tongke Mangrove Forest which are facing management challenges such as limited coordination at stakeholder level, absence of active participation from local communities, and conflicting interests between environmental conservation and efforts to promote tourism economic development. This data indicates that deficiencies in the existing infrastructure and disproportionate access to resources lead to tensions among actors, thereby preventing the effective use of Ecotourism Governance principles. This conflict highlights the need to identify inhibitory and supportive factors in ecotourism governance and to devise inclusive adaptive management strategies. Hence, this study aims to identify how the Ecotourism Governance

approach can connect conflicts and achieve integrated synergy among parties for sustainable management of the Tongke-Tongke Mangrove Forest by improving local community welfare.

## Literature Review

Ecotourism governance is also considered a regime that supports sustainability-based tourism destination management through cooperation among government, communities, the private sector, and other stakeholders (Castillo-Salazar et al., 2025; Wieckardt et al., 2022). This idea evolved to address the demand for a balance among tourism sector development, the conservation of natural elements, and the well-being of the destination's local communities. The literature suggests that good ecotourism governance prioritises the conservation of natural and cultural resources, which represent the core assets of a destination, over increasing tourist arrivals (Casimiro et al., 2022; Palmer & Chuamuangphan, 2018).

The key principles of ecotourism governance are explained in various studies as 'community-based, transparent decision-making with attention to accountability and sustainable resource management (Tamrin et al., 2024). Local community engagement is so important; they are among the most affected when tourism activity occurs. Through participatory management, the community can be not only an economic beneficiary but also a key player in environmental conservation and the development of sustainable tourism destinations.

The implementation of ecotourism governance still faces obstacles, such as conflicts of interest among stakeholders, limited institutional capacity, low environmental awareness, and high pressure from the abstraction of natural resources due to rising tourism demand. Poor inter-agency coordination and inconsistent regulations hamper the effectiveness of ecotourism destination management in numerous studies (Lujan-Vera et al., 2025; Zoysa, 2022). Hence, a robust mechanism for collaboration is essential to balance economic, social, and environmental objectives.

Previous studies also revealed that the quality of institutions, support from government policies, community participation, and commitments to sustainability principles have significant effects on the success of ecotourism governance. Firms engaged in collaborative governance are more likely than others to maintain environmental balance while enhancing local community welfare. Consequently, the governance of ecotourism is a critical area for research into how a sustainable governance model can be incorporated into tourism destination management to develop inclusive, competitive, and environmentally friendly tourism destinations.

## Method

This study is a qualitative comparative study analyzing the implementation of Ecotourism Governance in the Tongke-Tongke Mangrove Forest. Interviews, documentation, participant observation, and FGDs were among the data collection methods. Qualitative data were collected through interviews to support perceptions of policies, challenges, and opportunities for Ecotourism Governance in the Tongke-Tongke Mangrove Forest. The key

informants in this study consisted of officials from the Sinjai Regency Tourism Office, members of the Sinjai Regency Regional People's Representative Council (DPRD), local tourism industry players, academics, and local communities involved in sustainable ecotourism management. We collected in-depth information through semi-structured interviews with around 20 key informants, using sector-specific purposive sampling to select individuals most involved and experienced in ecotourism management roles.

Apart from that, to enrich the data and provide a broader perspective on Ecotourism Governance implementation, Focus Group Discussions (FGDs) were also conducted with ~ 10 participants per stakeholder group. Documentation was used to obtain secondary data from various official sources (e.g., regional tourism regulations, strategic reports, BPS reports, and relevant studies/previous research on this issue). Data were included during documentation by selecting documents directly linked to tourism management and ecotourism sustainability in the Tongke-Tongke Mangrove Forest. Similarly, exclusion was applied to irrelevant or weak documents. This ensured the quality of the recorded information and kept the analysis on track about what we were looking at. Direct observation at Tongke-Tongke Mangrove Forest was used to assess the condition of the ecosystem, management infrastructure, and stakeholder interactions to support sustainable tourism. We organized Focus Group Discussions (FGDs) by inviting a few representatives from different stakeholder groups, exploring other points of view to improve the research analysis and decide together on solutions for maintaining sustainable ecotourism destinations.

During the data analysis process, NVivo 12 Plus software was used in this study, a safer and more organized qualitative analysis tool. The analysis phase commenced by exporting data from the interview transcripts, policy documents, and observational notes into a format compatible with NVivo 12 Plus. The approach was to code the data into pre-defined categories and themes guided by the key research indicators. Coding was performed using an inductive/deductive approach, whereby initial categories were formed from the Ecotourism Governance concept, and additional elements were derived from field data. Some visualizations of the data were created using word clouds, concept maps, and a cluster analysis method to visualize patterns of relationships among research variables after post-coding. In accordance with standards for the validity and reliability of qualitative data, this study employed source triangulation by comparing various data sources. Primary data was obtained from in-depth interviews with key informants in Sinjai Regency. The outcomes of the interviews were subsequently matched with supplemental data, such as provincial tourism policy papers, strategic documents, BPS reports on the tourism industry, and research findings from earlier studies. Additionally, data from interviews and documents were corroborated through direct field observations. Cross-comparison of information from these different sources ensured that the data collected was more accurate, objective, and reliable.

## Result and Discussion

The Tongke-Tongke Mangrove Forest has ecotourism potential as a sustainable tourism resort in Sinjai Regency (Sabir, 2020).



Source: Researcher Documentation, 2025

**Figure 2.** Tongke-tongke Mangrove Forest

Current management status itself faces multiple challenges including inadequate infrastructure, low inter stakeholder coordination and poor local community involvement. The management situation that needs analysis is crucial to get an idea of how far the principles of sustainable tourism have been implemented and what can be improved for its contribution to environmental conservation, community empowerment and local economic development.

**Table 1.** Condition of Tongke-Tongke Mangrove Forest Management

| Management Aspect        | Current Condition                                                                                 | Impact on Sustainable Tourism                                                                                                                           |
|--------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tourism Infrastructure   | Limited visitor information facilities                                                            | Reduces visitor comfort and limits access to environmental education.                                                                                   |
| Community Participation  | Low involvement of local communities; no formal coordination forum established                    | Limits local economic empowerment and community participation in decision-making processes. This was identified during the Focus Group Discussion (FGD) |
| Stakeholder Coordination | Poorly structured coordination; sporadic communication among government, private sector, and NGOs | Hinders the implementation of integrated conservation and tourism management policies.                                                                  |

|                            |                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                           |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Environmental Conservation | Threats from coastal erosion and illegal logging; ecosystem rehabilitation efforts remain limited. The ecosystem of the Tongke-Tongke Mangrove Forest is experiencing a comparatively high degree of degradation. Of the overall area surveyed, around 24.8% (5.5 ha) was severely damaged, 67.6% (15 ha) was damaged, and only about 7.6% (1.7 ha) was classified as healthy (Eugenio et al., 2025). | May degrade ecosystem quality and reduce the attractiveness of ecotourism experiences.    |
| Environmental Education    | Educational programs are limited and not conducted regularly                                                                                                                                                                                                                                                                                                                                          | Fails to adequately promote visitor awareness of the importance of mangrove conservation. |
| Marketing and Promotion    | Limited social media presence and promotional activities; destination brand remains relatively unknown                                                                                                                                                                                                                                                                                                | Restricts tourist arrivals and reduces opportunities for local economic growth.           |

Source: Researcher Documentation, 2025

This was reflected in the current state of tourism infrastructure in Tongke-Tongke Mangrove Forest, which remains a major challenge for sustainable tourism. Finally, the lack of information facilities (such as interpretation boards or information centers) diminishes the scope for environmental education for inhabitants and visitors. Poor infrastructure compromises tourists' comfort and can impede conservation activities and ecosystem monitoring conducted by officers or researchers, who currently have limited access. Situations like these highlight that infrastructure improvements need to be well-planned and sustainable, not only to maintain the destination in a safe, comfortable, or enlightening manner but also to improve it toward environmental sustainability (Karmansyah & Firman, 2020).

Their involvement in local communities remains low, as evidenced by their limited participation in decision-making regarding the management of the Tongke-Tongke Mangrove Forest. The newly established local economic empowerment has not yet functioned to its full potential due to the lack of a minimum coordination forum among the community, the government, and relevant parties. Such an inactive role of the community is likely due to a balance between the benefits received and the contributions to conservation (Nasrun & Andriandi, 2025). It also raises social risks such as a low sense of ownership towards the destination, which makes the community passive in ensuring the sustainability of the mangrove ecosystem. This also includes social risks, namely low awareness of community ownership of the destination, thus resulting in a passive role for the community in maintaining

the sustainability of the mangrove ecosystem. Thus, enhancing the community's capacity through training programs, empowerment, and the establishment of a coordination forum should be strategically prioritized to influence their engagement significantly.

Coordination mechanisms remain poorly structured, with occasional coordination (between stakeholders) in this destination. Ineffective communication among local governments, the private sector, and NGOs leads to limited awareness of primary conservation policies, resulting in a lack of synergy between national tourism development and local protected area management (Karinda et al., 2024). Such dis-coordinated behaviour could create a duplication of effort or, worse, programmatic contradiction with programs designed to promote economic development and environmental stewardship. This situation highlights the necessity of a formal coordination mechanism that facilitates consultation and decision-making, linking all stakeholders through an agreed-upon multi-stakeholder forum, institutionalized interval meetings, and a continual monitoring system to ensure ecotourism mechanisms are adaptive and responsive to realities found in the field.

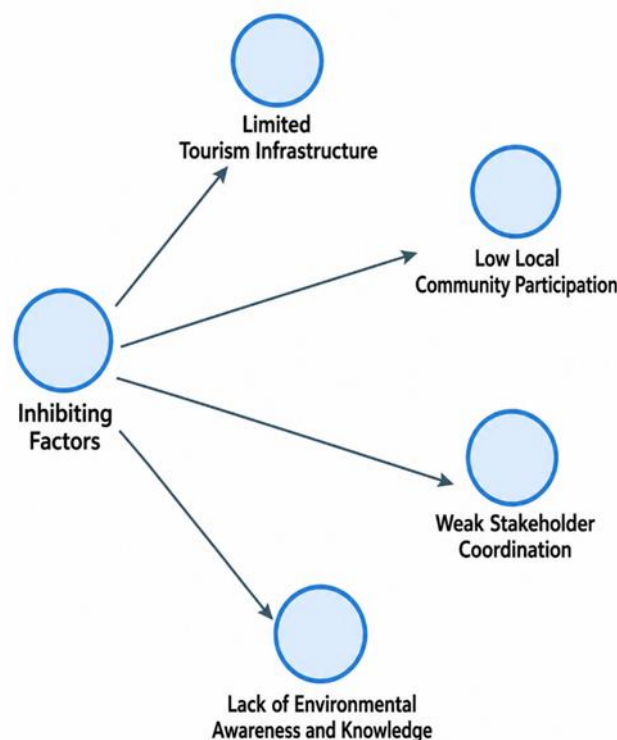
From an environmental conservation perspective, Tongke-Tongke Mangrove Forest faces serious threats, including erosion, illegal logging, and habitat degradation. It should be noted that while environmental restoration efforts are currently underway, these endeavors are extremely labor-intensive and will ultimately prove futile. This condition diminishes the quality of mangroves as a habitat for local flora and fauna and also affects the quality of nature tourism for visitors. The destination's educational and recreational value is diminished by a damaged ecosystem, reducing its niche potential for sustainable tourism development. As such, enhancing regulatory support and community-based conservation programs is essential to strike a balance between tourism use and ecosystem preservation.

Environmental education programs are already scarce and inconsistently used. The lack of understanding of the vitalistic functions and benefits of mangroves in preserving coastal ecosystems, disaster resilience, and community well-being is driven by unstructured educational activities (Fidaus et al., 2023). As a result, visitors are less knowledgeable about the site and may litter or damage mangrove vegetation. Interpretation programs, workshops, and interactive tour guides can enhance visitors' knowledge of the environment, which is critical for encouraging pro-environmental behavior and thus realizing tourism's genuine contribution to conserving biodiversity.

The marketing and promotion variable also demonstrates considerable constraints. Social media and destination promotion remain weak, and the Tongke-Tongke Mangrove Forest brand is not yet known regionally or nationally. This then restricts the amount of tourism visits and spending that local communities can attract. This can be used to promote and raise awareness of ecotourism, attract more visitors, generate revenue, and encourage community participation in its development. Marketing strategies to increase destination visibility through the promotion of selected domestic and international markets, along with digital technology, can help support the establishment of sustainable ecotourism development (Khan et al., 2022).

The problem-solving approach and strategy in this research prioritize the application of Ecotourism Governance principles, which involve collaboration between the government, local communities, and the private sector (Musa Samdi & Nmadu, 2022). The first strategy is to strengthen local institutional capacity through training and human resource development to increase active community involvement in decision-making and tourism destination management. Second, the inhibiting and supporting factors affecting the implementation of Ecotourism Governance, such as limited infrastructure and a lack of environmental awareness, will be mapped and identified. Third, this research will design a development strategy based on economic sustainability, ecosystem preservation, and local community empowerment, with an emphasis on improving the quality of the tourism experience and enhancing the destination's competitiveness.

Findings in Figure 3 illustrate the obstructing factors influencing the extent of ecotourism governance implementation in Tongke-Tongke Mangrove Forest. This finding was constructed from thematic coding findings using NVivo 12 Plus and validated through data triangulation with interviews, Focus Group Discussions (FGDs), field observations, and documentary analysis.



Source: Optimized by researchers with Nvivo 12 Plus, 2025

**Figure 3.** Several Factors Hindering Ecotourism Governance in the Tongke-Tongke Mangrove Forest

The poor condition of Tourism Infrastructure in the Tongke-Tongke Mangrove Forest is a prime challenge hindering Ecotourism Governance. Less well-developed information facilities and other supporting infrastructure, including rest and parking areas, as well as low

accessibility within the transportation system itself, subsequently reduce tourists' comfort (Rahman, 2023). Poor infrastructure affects not only the tourism experience but also environmental education activities and ecosystem monitoring (Chen et al., 2026). Hence, monitoring studies focusing on key predictors along that direct pathway are appropriate to assist in establishing ecotourism management frameworks and their ancillary practitioners for this industry through planned interventions such as end-of-life repairs, rehabilitation, or sustainable facility development.

Moreover, low participation by local communities is a major barrier to envisioning Ecotourism Governance (Fidaus et al., 2023). Imagine low community participation and a lack of a formal coordination forum that hinder the realization of economic empowerment opportunities at the local level, environmental conservation services, and human resource capacity building. Another interesting aspect that negatively affects shared ownership of the destination where pro-environmental behaviour can occur is low participation from the local community. Thus, there is a need to develop community capacity through training, workshops, and multi-stakeholder forums so they may actively participate in destination management.

Stakeholders in the Tongke-Tongke Mangrove Forest also currently work less well-coordinated. Interview findings indicate a lack of consultation with, or involvement of, local parties in the formulation of an integrated conservation system. This failure to communicate can result in duplicated programs, conflicts of interest, and ineffective decision-making. Regular forums, fully integrated monitoring systems, and clear lines of communication with all parties are needed, especially to ensure they operate synergistically in accordance with the principles of Ecotourism Governance.

The lack of environmental awareness among local communities and visitors is another inhibiting factor. Such ignorance of the importance of mangroves in averting disasters and enhancing biodiversity and human development leads to adverse environmental activities, including illegal logging, rampant waste disposal, and damage to vegetation. This aspect reduces the quality of the ecosystem and natural tourism experience, thus making the destination less appealing. Regular, interactive, and community-based environmental education and awareness programmes should be introduced to engage all stakeholders actively (Nurkaidah et al., 2024).

In general, these inhibiting factors are connected and should thus be addressed as a whole (Ningsih et al; 2026). For the best practice of Ecotourism Governance, it is necessary to simultaneously improve existing and needed infrastructure, in conjunction with community participation, coordination among different stakeholders, and environmental education activities. Thus, the integrated strategy of Tongke-Tongke Mangrove Forest could be a truly sustainable ecotourism destination that provides economic benefits to local communities while maintaining the long-term sustainability of the mangrove environment.

The development of mangrove ecotourism management in the Tongke-Tongke Mangrove Forest can only be developed through an integrated approach to Ecotourism Governance principles. Strengthening tourism infrastructure is another critical step to ensure

visitors' comfort and safety. Environmental impacts associated with support facilities such as boardwalks, information centres and parking areas must be mitigated and managed. Sufficient infrastructure not only enhances the tourist experience but also provides a basis for environmental education programmes and improved ecosystem surveillance programs, leading to effective and sustainable destination monitoring.

Another important aspect of sustainable management of an ecotourism site is local community empowerment. Training, workshops, and coordination forums to develop community capacity will enable them to participate in decision-making, destination management, and ecosystem monitoring. Strong involvement generates destination ownership, boosts pro-environmental behavior, and enhances community contributions to local economic sustainability. Such empowerment also ensures that the proceeds of ecotourism development accrue directly in support of communities.

Connectivity among stakeholders needs to be improved to enable the progressive and efficient execution of the program. Interactions among local governments, NGOs, the private sector, and the locality itself need to be systematized via communication mechanisms and multi-stakeholder forums. A joint monitoring system can reduce the risk of conflicts of interest, duplication of programs, and ineffective policy implementation. Careful orchestration can enable all parties to coalesce harmoniously around a triple bottom line of leveraging ecological value, community-oriented economic development, and efficient delivery of the tourism experience.

Creating environmentally sustainable interpretation programs is a vital component of developing community and visitor awareness and understanding (Darminto et al., 2024). Scholar-led interactive and community-based educational activities can support a better understanding of the role played by mangrove ecosystems, including interpretative tour guides, hands-on workshops, and participatory activities. It promotes not only green practices but also destination attractiveness, while reinforcing local participation in mangrove conservation through education.

Design incentive and reward mechanisms to motivate stakeholder engagement. Incentives for communities participating in mangrove restoration should include compensation, options that motivate participation and increase investment in the program, and sustainable measures for tourism enterprises. They also promote collaboration among the different actors, with all parties being incentivised to implement their functions effectively and sustainably. This is further reinforced by the results of the interviews, as follows:

*"Clear incentives have to be given to communities that are actively protecting the mangrove zone. These kinds of compensatory payments do not necessarily have to be monetary; they might include assistance with business areas or training needs, and facilities provided for groups supporting conservation."*

*(Sinjai Regency Tourism and Culture Office, Interview, April 2026).*

Regarding the foundational aspect, one of the informants also explained the following:

*"Regional public budgets cannot bear the entire burden of conservation funding. Sustainable ecotourism management will require collaboration with the central government, corporate CSR and partnerships with the private sector."*

*(Member of Commission II, Sinjai Regency DPRD, Interview, May 2026).*

In the criteria for recipients of incentives, it is also encouraged that active community groups can receive incentives that are capable of.

*"Rewards should be given to civic organizations that actively participate in planting mangroves, keeping the area clean, and participating in tourism activities. Throttle the idea that those who never paid in emerge as the relative conquerors."*

*(Chairperson of the Tongke-Tongke Community Group, Interview, April 2026).*

As for destination promotion/marketing, it is a very important and strategic effort to improve image/visibility. Many strong tourism areas use it to introduce Taman Mangrove Tungku Tongke-Tongke as an alternative sustainable ecotourism location. Using social media, official websites and other avenues to raise awareness nationally and internationally on the environmental education principles of biodiversity, nature-based tourism experiences, as well as how well an area contributes to conservation movements on a local or broader level. These promotional tools should, however, be applied in a balanced way, and only as long as visitor preferences do not exceed an ecological threshold that threatens the sustainability of mangrove areas through increased visitor numbers beyond their corresponding carrying capacity. As a result, tourism promotion needs to include visitor management systems, primarily restricting numbers and/or providing zoning; creating interpretive trails; educating tourists with environmental knowledge; and monitoring visitors.

Under this approach, enhancing tourist activity becomes sustainable only if balanced by adaptive management efforts aimed at ensuring that economic use is consistent with environmental protection (Maeda et al., 2014; Saavedra, 2025). In addition, the areas' carrying capacity needs to be regularly assessed, and the status of the mangrove ecosystem and changes caused by tourism activities should be monitored for timely management adjustment. In addition, some of the generated tourism revenue should be redirected back to manage mangrove restoration and conservation efforts, as well as environmental education, community capacity building and strengthening management institutions. Therefore, promotion in Tongke-Tongke Mangrove Forest should not only increase visits but also prioritize quality and an eco-friendly tourism experience to protect the environment sustainably, in general and across ecological, social, and economic areas.

A structured framework for monitoring and evaluation should be reapplied to ensure the continuous implementation of ecotourism governance in Tongke-Tongke Mangrove Forest. This framework includes ecological, social, and economic indicators that are evaluated through regular measurement cycles. It includes ecological indicators such as mangrove health, vegetation coverage area, water quality, and waste volume in the tourism area (Syahiib

& Safe'i, 2024). Social indicators involve the degree of community engagement, stakeholder synergy, visitor satisfaction levels and compliance with conservation laws (Blanton et al., 2024). On the other hand, the economic aspect includes indicators such as tourist entrances and community income from ecotourism activities, as well as supporting facilities that develop local tourism-based enterprises (Purwoko et al., 2023). Specific monitoring duties are carried out by the Sinjai Regency Tourism and Culture Office, the Environmental Agency, the ecotourism management group, village government and community representatives through an integrated coordination mechanism.

All indicators can be measured bi-annually, with full evaluations completed annually to provide a basis for strengthening management policies and strategies. Threshold for action is formulated in relation to changes in indicator state, which might include one or more of the following: mangrove ecosystem condition has declined (e.g. decreased area of healthy mangroves); community interest, involvement and resilience (visitor participation satisfaction) decline; economic benefits to the adjacent community from its use relative to previous evaluations or pre-specified management targets decrease. If these indicators drop significantly, managers are compelled to immediately take corrective actions such as limiting visitor densities according to the area's carrying capacity, intensifying the mangrove rehabilitation program, strengthening stakeholder coordination, and promoting community empowerment strategies. Therefore, the monitoring system acts as an evaluative-to-adaptive decision-making framework that will preserve the ecological, social and economic sustainability of ecotourism within the Tongke-Tongke Mangrove Forest.

## Conclusion

The results of this study showed that ecotourism governance has not been fully implemented in the Tongke-Tongke Mangrove Forest, caused by various interrelated factors including minimal tourism infrastructure development, low sense of community involvement and decision-making, ineffective communication in coordination among stakeholders, limited environmental education programs, as well as ineffective ecotourism destination marketing and integrated monitoring systems. The results show that a lack of institutional capacity building and multi-stakeholder collaboration has led to suboptimal effectiveness and social dividend from mangrove conservation. However, the study also shows that the Tongke-Tongke Mangrove Forest has functioned significantly as a smart ecotourism area; thus, this governance has to be interlinked to generate intuitive sustainability through institutional development, improved capacity of local communities to realise their own context's needs, a more systematic coordination relying on participatory processes enabled by adaptive management accommodating competing land use demands towards far greater prosperity for all. These results highlight that the success of ecotourism governance is not only a function of the availability of natural resources, but it also requires high-quality governance that ensures an effective integration of ecological, social, economic, and institutional dimensions.

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