



Conservation as Foundation, Destination as the Future: Transforming Mangrove Ecotourism in Tapak Semarang through Community Empowerment and Innovation

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Abstract: This community service program aims to transform a mangrove conservation area into an attractive and sustainable ecotourism destination through a community empowerment approach. The main partner of this program is the Tourism Awareness Group (POKDARWIS) of Tapak Village, Semarang City, which serves as a key actor in the management, development, and promotion of community-based mangrove ecotourism. The implementation methods consisted of field observations, focus group discussions (FGDs), training and counseling sessions, mentoring and hands-on practice, as well as evaluation and reflection. The assistance focused on developing structured ecotourism packages, strengthening digital marketing strategies, and improving service quality through the development of Standard Operating Procedures (SOPs). Data were analyzed using descriptive and comparative approaches to assess changes before and after program implementation. The results indicate increased community knowledge and skills in managing and promoting mangrove ecotourism, the establishment of structured tourism packages, the creation of digital promotional content, and the initial implementation of tourism service SOPs. The program significantly enhanced the readiness of local managers to receive visitors and created opportunities to improve the economic prospects of the local community. Therefore, this initiative contributes to the development of a community-based mangrove ecotourism model that emphasizes environmental conservation and local economic empowerment.

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Introduction

Mangrove ecosystems play a vital ecological and socio-economic role in Indonesia's coastal regions, functioning not only as natural coastal buffers and carbon sinks but also as essential resources supporting community livelihoods (Triyanti et al., 2025). As one of the countries with the largest mangrove coverage in the world, Indonesia faces the dual challenge of preserving ecological sustainability while creating economic opportunities for coastal communities. In recent years, mangrove-based ecotourism has emerged as a strategic approach to bridge conservation and economic development by transforming environmental



assets into educational tourism experiences that generate local value without compromising ecological integrity (Susanti et al., 2025).

Table 1. Semarang City Tourism Statistics, 2024–2025

| Type of Tourist Attraction | 2024 – Number of Objects | 2024 – Number of Visitors | 2025 – Number of Objects | 2025 – Number of Visitors |
|----------------------------------|--------------------------------|---------------------------------|--------------------------------|---------------------------------|
| Cultural Tourist Attractions | 59 | 4.641.338 | 59 | 4.683.764 |
| Marine Tourist Attractions | 5 | 751.695 | 5 | 809.319 |
| Agricultural Tourist Attractions | 6 | 5.055 | 6 | 15.397 |
| Natural Tourist Attractions | 43 | 939.108 | 43 | 1.143.105 |
| Historical Tourist Attractions | 5 | 3.656.424 | 5 | 3.690.645 |
| Religious Tourist Attractions | 41 | 3.545.983 | 41 | 3.661.150 |
| Educational Tourist Attractions | 3 | 3.545.983 | 3 | 3.661.150 |
| Culinary Tourist Attractions | 15 | 3.953.838 | 15 | 3.935.956 |
| Shopping Tourist Attractions | 23 | 4.895.804 | 23 | 4.900.755 |
| Man-made Tourist Attractions | 58 | 1.522.735 | 58 | 1.397.079 |

The rapid growth of the tourism sector in urban areas such as Semarang City reflects changing travel patterns and increasing demand for experiential tourism. Tourism statistics indicate a steady rise in visitor numbers, reaching approximately 7.6 million visits by November 2025. However, this growth is unevenly distributed across tourism categories. As illustrated in Table 1, mainstream attractions such as cultural, historical, religious, and shopping destinations dominate visitor preferences, while nature-based and educational tourism segments remain relatively marginal. Iconic destinations such as Kota Lama Semarang, Lawang Sewu, and Simpang Lima continue to attract millions of visitors annually, highlighting the dominance of visually appealing and recreational tourism experiences (Perkasa, 2025; BPS, 2025). This pattern suggests that although tourism demand is increasing, environmentally oriented educational tourism has yet to fully capture broader market interest. Within the nature-based tourism category, which recorded approximately 1.14 million visits in 2025, the contribution of community-based destinations such as Eduwisata Mangrove Tapak Semarang remains relatively limited. It is estimated that mangrove ecotourism in Tapak Village contributes only around 1–3% of total nature-based tourism visits, equivalent to approximately 11,000–34,000 visitors annually. Despite its significant ecological value and potential as an environmental education hub, this relatively low contribution indicates that the destination has not yet been optimally developed in terms of promotion packages, visitor experience, and institutional capacity.

The imbalance in visitation patterns reflects a broader trend in which tourists tend to prioritize leisure-oriented experiences over conservation-based learning activities. Eco-edutourism is often perceived as overly formal or educational, limiting its appeal to wider market segments such as families and general leisure travelers (Citaristi, 2022; Putra et al., 2022). In mangrove tourism, activities are commonly associated with planting programs or structured environmental education, reinforcing the perception of mangrove areas as niche destinations rather than inclusive recreational spaces (Zakaria & Yusof, 2024). As a result, visitation remains limited despite the ecological and educational potential of mangrove ecosystems.

In Semarang City, Tapak mangrove eco-edutourism represents an emerging destination that integrates conservation education with community-based activities. However, its potential remains underutilized due to limited visitor engagement, unstructured tourism products, and weak marketing capacity among local stakeholders (Budiantoro et al., 2025).



Previous studies highlight the need for stronger promotion and product innovation to enhance competitiveness within the urban tourism landscape (Semarangkota, 2018; Putra et al., 2025). Experiences from other mangrove ecotourism sites in Indonesia demonstrate that community-based management combined with innovative marketing strategies, such as structured tourism packages, partnerships with educational institutions, and digital media utilization can significantly improve visitation and local economic outcomes (Sangari et al., 2024). However, challenges remain, including limited service standardization, weak marketing integration, and insufficient managerial capacity, as well as potential environmental risks if tourism growth is not properly managed (Tumanggor et al., 2023). Despite growing attention to mangrove ecotourism, integrated community-based interventions that simultaneously address marketing, service quality, and product development are still limited, particularly in urban contexts. Therefore, this community service program aims to implement an integrated marketing strategy for Tapak mangrove eco-edutourism through community empowerment to enhance its competitiveness and sustainability (Mahmud et al., 2025).

The managers of mangrove ecotourism in Tapak Village are the Tourism Awareness Group (POKDARWIS), which serves as the primary community-based organization responsible for managing, maintaining, and promoting the ecotourism site. Prior to the implementation of this program, the average number of visitors was estimated at approximately 900 to 2,800 visitors per month. This group has digital promotion through social media (Instagram - [@ekoeduwisata.mangrove_tapak](#)) with 236 followers, although its utilization has not yet been fully optimized. This relatively low level of visitation highlights the gap between the site's ecological potential and its current tourism performance, thereby emphasizing the need for strategic interventions focused on community empowerment and innovation.

The program seeks to increase awareness and visitation among schools, universities, and family groups while strengthening local capacity in developing structured educational tourism packages and value-added products. Key interventions include the development of eco-educational tourism packages, digital marketing and hospitality training for local residents, and integrated promotional campaigns involving educational institutions, social media platforms, and local tourism stakeholders. Through this approach, the initiative aspires to transform mangrove conservation into a sustainable eco-edutourism destination that balances ecological preservation with inclusive local economic development.

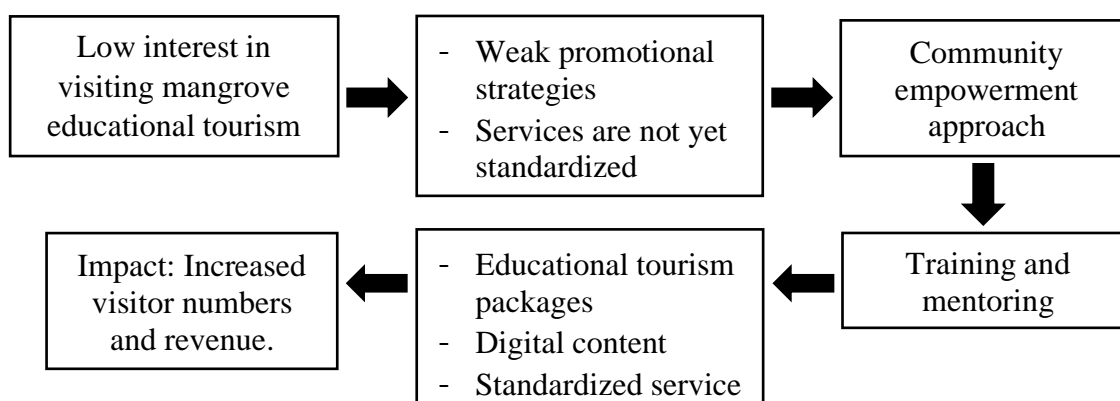


Figure 1. Conceptual Framework



Method

This community service program adopted a participatory, community empowerment–based approach, recognizing that sustainable mangrove eco-edutourism development requires the active involvement of local communities as primary managers. This approach supports social, economic, and environmental sustainability by strengthening local capacity and ownership. The program focused on developing marketing strategies for Tapak Semarang mangrove eco-edutourism through capacity building in promotion, eco-edutourism product development, and tourism service management (Mahmud et al., 2024). Implementation was carried out through a series of training sessions, mentoring activities, and limited-scale practical applications adapted to local conditions. The activities were conducted at Tapak Mangrove Eco-edutourism in the coastal area of Semarang City, Indonesia. Participants included eco-edutourism management groups and local community members selected purposively based on their involvement in tourism activities and their potential to sustain the program. The implementation methods consisted of several stages as follows:

a) Field Observation

Field observation was conducted as an initial stage to identify the existing conditions of Tapak Semarang mangrove eco-edutourism, including physical infrastructure, supporting facilities, management practices, and ongoing tourism activities. This stage aimed to provide a comprehensive baseline understanding of environmental, operational, and social aspects, as well as to assess visitor engagement and stakeholder readiness for future development. The observation was carried out systematically by the community service team, consisting of lecturers and student assistants, in collaboration with local managers and community members. This collaboration ensured that contextual insights and practical challenges were accurately captured. Conducted over one to two days at the beginning of the program, the observation also included informal discussions and documentation to complement field findings and strengthen the understanding of local conditions.

b) Focus Group Discussion (FGD)

Focus Group Discussion (FGD) was employed as a primary participatory method to explore the perspectives, experiences, and needs of local stakeholders in the development of Tapak mangrove eco-edutourism. This approach facilitated open dialogue and knowledge exchange among eco-edutourism managers, community members, and the community service team, enabling participants to identify challenges, opportunities, and locally relevant solutions. The FGD was conducted after the field observation stage and the session lasted approximately 90–120 minutes and was held in an accessible location to support participant comfort and inclusivity. Its participatory nature encouraged active engagement, strengthened stakeholder trust, and supported the collaborative formulation of practical strategies for tourism development and marketing.

c) Training and Educational Workshop

Training and educational workshops constituted a core component of the community service program, aimed at enhancing participants' knowledge and practical skills in tourism marketing, eco-edutourism product packaging, and the use of digital media for promotion. These activities were designed as participatory learning processes that combined theoretical explanations with interactive discussions and simple practical exercises, ensuring relevance and applicability within the local context. Participants included eco-edutourism managers, local community members, and youth groups involved in tourism activities. To maintain an effective learning environment, the number of participants ranged from 15 to 25 individuals. The training was conducted after the observation and FGD stages, allowing the materials to



be tailored to the community's actual needs and challenges. Workshops were delivered through face-to-face sessions using interactive lectures, group discussions, question-and-answer sessions, and simulation-based practices to encourage active participation and experiential learning.

d) Mentoring and Hands-on Practice

Mentoring and hands-on practice served as a continuation of the training phase, focusing on translating knowledge into real-world application. This stage aimed to ensure that participants could apply newly acquired skills in managing and promoting Tapak mangrove eco-edutourism. The mentoring emphasized a learning-by-doing approach, where participants actively engaged in practical activities under the guidance of the community service team. Practical sessions included the simulation of eco-edutourism package development, creation of simple promotional content using accessible digital tools, and planning of visitor-oriented tourism activities. Continuous mentoring enabled participants to receive feedback, refine their ideas, and build confidence in implementing new strategies. In addition, this process fostered collaborative learning, encouraging peer support and collective problem-solving among participants.

e) Evaluation and Reflection

The evaluation phase was conducted to assess the effectiveness of the community service program in improving tourism promotion and increasing visitor numbers. Evaluation indicators included improvements in managerial readiness, digital marketing performance, and tourism visits. A performance observation checklist was used to assess the implementation of digital promotion by the Tourism Awareness Group (POKDARWIS), covering aspects such as posting consistency, responsiveness, follower growth, and visitor statistics to measure program outcomes. Data were analyzed using descriptive quantitative and comparative approaches to identify changes before and after the program, supported by qualitative interpretation of observed improvements in promotional practices. Reflection sessions were conducted as the final stage to facilitate participatory learning between the community service team and stakeholders. This process allowed participants to share experiences, challenges, and expectations, while supporting the sustainability of mangrove eco-edutourism development in Tapak Village, Semarang City.

Result and Discussion

This section presents the outcomes of the community service activities focused on developing marketing strategies for Tapak Semarang mangrove eco-edutourism to enhance tourist visitation interest. The presentation of results is structured systematically based on the stages of program implementation, including field observation, Focus Group Discussions (FGD), training and educational workshops, mentoring and hands-on practice, as well as evaluation and reflection. Each stage contributes to understanding existing challenges while gradually strengthening community capacity in managing and promoting eco-edutourism.

Implementation Stages

a) Field Observation

The results of the field observation reveal that Tapak Semarang mangrove eco-edutourism possesses significant ecological and educational potential; however, this potential has not yet been fully optimized as a tourism destination. Existing tourism activities remain largely limited to environmental education and mangrove planting programs, while supporting facilities and promotional efforts are still insufficient to create a comprehensive visitor experience. The limited diversification of activities indicates that the destination is still



positioned primarily as a conservation site rather than as an integrated eco-edutourism attraction.

Table 2. Key Findings from Field Observation

| Observation Aspect | Key Findings |
|-------------------------|--|
| Environmental condition | Mangrove ecosystem relatively well preserved |
| Tourism activities | Dominated by educational and conservation activities |
| Supporting facilities | Limited and not yet supporting full visitor experience |
| Accessibility | Not yet integrated with city tourism routes |
| Promotion | Sporadic and minimal use of digital media |
| Visitation pattern | Seasonal and irregular |

These findings indicate that the relatively low level of tourist visitation is not caused by limitations in natural resources, but rather by challenges related to destination management and marketing strategies. The mangrove ecosystem itself remains in good condition, suggesting strong ecological capital that could be transformed into a more attractive eco-edutourism experience if supported by proper management and promotion. This situation aligns with previous studies by Yulianda et al. (2018) and Utami et al. (2025), which highlight that mangrove ecotourism initiatives in various regions often encounter similar constraints in promotion, accessibility, and tourism product packaging. Therefore, the observation stage served as a critical foundation for identifying strategic interventions aimed at bridging the gap between ecological potential and tourism performance.

b) Training and Educational Workshop

Training and educational workshops were conducted to enhance community capacity in understanding mangrove eco-edutourism and tourism marketing strategies. The results indicate notable improvements in participants’ knowledge, attitudes, and initial practical skills in managing and promoting Tapak Semarang mangrove eco-edutourism. Prior to the training, participants generally perceived eco-edutourism as limited to conservation-based environmental education, such as mangrove planting or school visits. After the workshops, however, their understanding expanded to view eco-edutourism as an integrated concept combining education, recreation, and community economic empowerment. This shift is important, as community perceptions directly influence how tourism products are developed and delivered.

These findings align with Yulianda et al. (2018), who highlight the importance of integrating educational and economic values in community-based ecotourism development. In terms of marketing, participants showed increased awareness of tourism promotion strategies. Previously, promotional efforts were informal and unstructured; after the training, participants demonstrated improved understanding of market segmentation, promotional messaging, and the use of digital platforms as effective marketing tools. This is consistent with Tumanggor et al. (2023), who emphasize the role of marketing communication and social media in enhancing tourism attractiveness and visitation.

Table 3. Changes in Participants’ Understanding Before and After Training

| Aspect | Before Training | After Training |
|---------------------|--|--|
| Posting consistency | Irregular posting (only during events) | More consistent posting (~1 post every 2 months) |
| Responsiveness | Low responsiveness (response rate <30% of comments/messages) | Improved responsiveness (response rate ~50–60%) |
| Follower growth | 236 followers | 363 followers (+127 followers / +53.8%) |
| Content quality | Basic content with limited | Improved content with better visuals, |



| Aspect | Before Training | After Training |
|--------------------|----------------------------------|--|
| Visitor statistics | variation and low visual appeal | structured captions, and hashtag usage |
| | Approx. 900–2,800 visitors/month | Increased to approx. 1,200–3,100 visitors/month (+20–25% growth) |

The table illustrates that training and educational workshops contributed significantly to improving the cognitive capacity of community members, which serves as a foundational requirement for the development of mangrove eco-edutourism. In addition to increased knowledge, participants also developed initial practical skills in designing eco-edutourism package concepts. They began to identify various activities that could be offered to visitors, such as guided mangrove tours, environmental education sessions, and planting programs, and to structure these activities into more systematic visitation flows. These findings indicate that the training phase functioned as a transitional stage, bridging theoretical understanding and practical tourism management. The results are consistent with Hidayat and Nugroho (2017), who emphasize that community skill development is a key factor in enabling ecotourism initiatives to generate tangible economic benefits for local communities. By strengthening both conceptual understanding and initial practical competencies, the training stage laid an important foundation for the subsequent mentoring and implementation phases of the community service program.

c) **Mentoring and Hands-on Practice**

Mentoring and hands-on practice represented an advanced stage following the training and educational workshops, aimed at ensuring that the knowledge and skills gained by the community could be translated into practical implementation within the management and marketing of Tapak Semarang mangrove eco-edutourism. This stage emphasized a *learning-by-doing* approach, allowing community members to actively apply newly acquired competencies under the guidance of the community service team. Rather than functioning solely as technical assistance, the mentoring process encouraged collaborative problem-solving and experiential learning, enabling participants to gradually develop confidence and autonomy in managing eco-edutourism activities.

The results of the mentoring phase indicate that local managers began to develop more structured eco-edutourism packages compared to the pre-intervention stage. The resulting packages integrated several key components, including mangrove education activities, environmental tours, and mangrove planting experiences, all organized within a clear visitor flow. The mentoring process was conducted gradually and systematically through several interconnected activities, as described below.

• **Eco-edutourism Package Development Mentoring**

The community service team assisted local stakeholders in designing eco-edutourism packages by identifying potential activities—such as mangrove tours, environmental education, planting programs, and coastal biodiversity introduction—and translating them into structured tourism products. This process included determining visit duration, organizing visitor itineraries, and setting appropriate pricing strategies, with the aim of developing attractive, marketable, and economically viable packages while maintaining conservation values. In the initial phase, participants were encouraged to map available tourism resources, which helped shift their perspective from viewing eco-edutourism as a single conservation activity to a more diverse and integrated tourism experience. Based on this mapping, participants were guided to design a sequential visitor journey, including reception, briefing, educational storytelling, core activities, and closing sessions. This structured flow was

intended to improve visitor comfort, enhance engagement, and strengthen the overall tourism experience. Further mentoring focused on aligning package duration and content with target market segments, such as students, families, and community groups. Participants were also guided in setting realistic pricing by considering operational costs, affordability, and the educational value offered. Overall, this stage enabled the community to develop more structured and market-ready eco-edutourism packages, representing a significant improvement compared to the pre-mentoring condition.

Table 4. Mangrove Eco-edutourism Package Concepts

| Package Name | Activities | Duration | Target Market |
|-------------------------------|--|------------|------------------------|
| Mangrove Education Package | Mangrove education, area tour | ±2 hours | Students |
| Mangrove Conservation Package | Education and planting activities | ±3 hours | Students & communities |
| Environmental Tourism Package | Mangrove tour and environmental activities | ±2.5 hours | Families |



Figure 2. Tourism Package Poster

Digital Marketing Practice Mentoring

Digital marketing practice mentoring was conducted as a key component of the mentoring and hands-on implementation stage, aiming to strengthen the community's capacity to independently promote Tapak Semarang mangrove eco-edutourism through digital platforms. Participants were guided in practical activities, including the creation of social media content such as photographs, short videos, and promotional captions, uploading content to official accounts, and organizing simple yet consistent posting schedules. Throughout the process, the community service team provided examples and real-time feedback to ensure that the content aligned with the unique characteristics of mangrove eco-edutourism and the expectations of target visitor segments.

This mentoring activity addressed previous limitations in conventional promotion methods and low public awareness of the destination. Participants were introduced to various digital platforms suitable for tourism promotion, such as Instagram, TikTok, YouTube, and Facebook, with platform selection adjusted to ease of use and visitor behavior. In addition, participants were guided in developing promotional messages that emphasize the educational,

experiential, and conservation values of mangrove eco-edutourism, enabling them to communicate the destination’s uniqueness in a more persuasive manner. The mentoring continued with hands-on content creation using readily available tools such as smartphones, ensuring that the acquired skills could be easily replicated after the program. Participants were also trained in writing concise and engaging captions and managing simple posting schedules to maintain consistency in promotion. Overall, this stage contributed to improving digital visibility and strengthening the destination’s online presence, which is essential for attracting broader visitor segments in the contemporary tourism landscape.



Figure 3. Mentoring Activities

Tourism Service Mentoring

In the marketing capacity development, tourism service mentoring was conducted to enhance visitor experience through the implementation of standardized service procedures. This process emphasized the importance of the developed Standard Operating Procedures (SOP) in Figure 4 as a practical guide for improving service quality. Mentoring activities included simulations of visitor reception, delivery of mangrove educational content, and management of visitor flow to ensure safe, orderly, and engaging tourism experiences. In addition, participants were trained in interactive communication and effective complaint handling to strengthen responsiveness and professionalism. These improvements play a crucial role in building visitor trust and enhancing overall tourism experience quality.



Figure 4. Poster of Tourism Service Mentoring Procedure



The SOP stages above introduce several transformative improvements in community-based tourism management. The most significant transformation lies in the briefing and education stage, which standardizes the delivery of environmental knowledge and safety procedures, shifting the tourism model from informal recreation to structured eco-edutourism. The activity implementation and mangrove planting stages further enhance visitor experience by incorporating participatory learning, allowing visitors to actively engage in conservation activities. In addition, the complaint-handling stage introduces a structured feedback mechanism that strengthens service responsiveness and continuous improvement. These key elements demonstrate the technical depth of the tourism service mentoring by establishing standardized service procedures, integrating educational content, and embedding participatory and evaluative practices. As a result, the Tourism Awareness Group (POKDARWIS) is transformed from informal organizers into more professional, service-oriented, and sustainability-driven tourism managers. These transformations were achieved through a structured tourism service mentoring process that focused on improving service quality and visitor experience.

These findings are consistent with Rahmawati and Sunaryo (2019), who state that service quality and visitor experience significantly influence revisit intention and destination recommendation behavior. Moreover, the mentoring process strengthened the role of local communities as primary actors in eco-edutourism management, reinforcing the principles of community-based ecotourism that emphasize local capacity development as a key factor for long-term sustainability (Yulianda et al., 2018).

Conclusion

This community service program demonstrates that the development of Tapak Semarang mangrove eco-edutourism through a community empowerment approach is an effective strategy to enhance the attractiveness and readiness of conservation-based tourism destinations. Key challenges, including limited promotion, unstructured tourism products, and the absence of standardized services, were addressed through participatory and structured interventions. The results indicate significant improvements in tourism promotion performance and visitor outcomes. Posting consistency improved from irregular activity to a more regular schedule (approximately once every two months), while responsiveness increased from below 30% to around 50–60%. Social media performance also showed significant growth, with followers increasing from 236 to 363 (+53.8%). Content quality improved in terms of visuals, captions, and hashtag usage. In terms of tourism impact, visitor numbers increased from approximately 900–2,800 to 1,200–3,100 visitors per month, reflecting an estimated growth of 20–25%.

Overall, the program enhanced the readiness of Tapak mangrove eco-edutourism as a sustainable educational tourism destination while strengthening local economic potential. Furthermore, this initiative offers a replicable model for community-based mangrove eco-edutourism development that balances environmental conservation with socio-economic sustainability.

Recommendation

Based on the outcomes of this community service program, several recommendations are proposed for the future development of Tapak Semarang mangrove eco-edutourism. First, managers are encouraged to consistently implement the developed eco-edutourism packages and service Standard Operating Procedures (SOPs) to ensure service quality and enhance



visitor experience. Second, digital marketing efforts should be strengthened through consistent social media management and strategic collaborations with educational institutions and community networks to expand promotional reach. Third, continuous mentoring support from universities and government institutions is essential to strengthen institutional capacity and ensure program sustainability. Fourth, ongoing innovation in eco-edutourism products is needed to provide diverse and engaging educational experiences while maintaining conservation principles. Finally, further studies are recommended to examine the long-term impacts of eco-edutourism on local economic development and environmental sustainability.

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