

## THE DEVELOPMENT OF RAFFLESIA FLOWER ECOTOURISM IN INCREASING THE INCOME OF THE MANDAILING NATAL REGENCY COMMUNITY



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### Abstract

The development of the Rafflesia flower as an ecotourism object in Mandailing Natal has great potential to provide economic, social, and environmental benefits to the local community. The Rafflesia flower, known for its uniqueness and rarity, can become a major attraction for tourists interested in rare flora and biodiversity. This research explores the potential of Rafflesia flower ecotourism in Mandailing Natal, the factors influencing its success, and the management and conservation strategies needed to ensure its sustainability. The findings indicate that the development of Rafflesia flower ecotourism can increase local income, create jobs, and empower communities through active involvement in tourism management. In addition, conservation-based ecotourism can support the preservation of the natural habitat of the Rafflesia flower and raise environmental awareness. However, there are several obstacles and challenges that must be addressed, including habitat limitations, lack of public awareness, limited funding and infrastructure, as well as the risks of climate change and natural disasters.

**Keywords:** Ecotourism, Conservation, Tourism Management, Rafflesia

## INTRODUCTION

Ecotourism is a type of tourism that began to gain popularity around the 1990s. Indonesia, as a country with various natural unique features, has considerable potential in developing ecotourism (Kia, 2021). Most foreign tourists come to Indonesia because of its natural beauty. Natural resources enhance the competitiveness of Indonesian tourism. In the World Economic Forum, Indonesia ranked 14th in Natural Resources Potential in 2017. Observing the positive impact of ecotourism on enhancing tourism competitiveness, there is a need for community-based regional ecotourism development to improve environmental conditions, undertake conservation/reforestation/planting efforts within ecotourism sites, and the importance of ecotourism infrastructure as well as capacity building for ecotourism managers involving the community in ecotourism development (RAFEE & Ramadhani, 2024).

Indonesia is a country that has a variety of cultural diversity and natural wealth. Each region has traditional clothing used by its people. Similarly, Indonesia has a vast wealth of natural resources, so to preserve Indonesian culture and natural wealth, it is necessary to protect and conserve them. Indonesia is known as a tropical country with a lot of biodiversity, including jasmine, orchids, and *Rafflesia arnoldii*, which are native plants of Indonesia (Juny & Myra, P, 1994). These three flowers have been designated as the national flowers of Indonesia, as recorded in the Presidential Decree of the Republic of Indonesia No. 04 of 1993. The *Rafflesia Arnoldi* flower is known as a rare flower because its existence is difficult to find due to the unique characteristics of the *Rafflesia Arnoldi* flower. The *Rafflesia arnoldii* flower was first discovered in Indonesia, specifically in Bengkulu, South Sumatra. The *Rafflesia Arnoldi* flower has a beautiful color, which is red with spots scattered on its petals. The *rafflesia arnoldi* flower only has 5 petals (Runtunuwu & Rajasekera, 2023).

The *Rafflesia* flower, with its uniqueness and beauty, has become one of the main attractions in Mandailing Natal's ecotourism. Its rare and exclusive presence captivates tourists to explore this untouched natural beauty (YUNOH et al., 2021). By combining natural beauty and environmental care, Mandailing Natal ecotourism offers an unforgettable experience for visitors. Amid global concerns about environmental preservation, the *Rafflesia* flower in Mandailing Natal has become an important symbol of the significance of conserving biodiversity. This article will explore the uniqueness of the *Rafflesia* flower, the ecotourism appeal in Mandailing Natal, and the conservation efforts being made to ensure the sustainability of this natural beauty for future generations. Therefore, the author is interested in discussing "Rafflesia Flower As Ecotourism In Mandailing Natal.

## REVIEW OF LITERATURE

Ecotourism development is a tourism strategy that prioritizes the principles of environmental, social, and economic sustainability (Pynanjung, 2021). Ecotourism focuses on utilizing natural resources without damaging ecosystems and provides direct economic benefits to local communities through conservation and sustainable environmental management (Muâ, 2021). In the context of Mandailing Natal Regency, the potential of unique flora, such as the *Rafflesia* flower, can become a major attraction with the right ecotourism approach (Pynanjung, 2021).

The basic principles of ecotourism development include nature conservation, environmental education, community empowerment, and sustainable management (Rachmanto, 2018). This approach positions communities as central actors, acting not only as providers of tourism services but also as preservers and managers of natural resources with high economic value (Suprana, 2019). Several studies have shown that ecotourism development in conservation areas can increase community income through various activities such as tour guides, accommodation, sales of local products, and other related services (Tonny, F., & Fredian, 2025). This success depends on active community participation in tourism management and integrated tourism area development, while also taking environmental carrying capacity into account (J. T. Haryanto, 2024). Emphasized that ecotourism development requires careful planning, including an inventory of natural resources, an assessment of ecosystem vulnerability, and the development of environmentally friendly infrastructure. This also provides added educational value for visitors, thereby building awareness of sustainable conservation (Fadeli, 2000).

In a case study of a protected area (Rachmanto, 2018) found that ecotourism management must be adapted to the land's capabilities and the characteristics of the local ecosystem to avoid environmental degradation. This approach supports increased community income by creating responsible and sustainable tourism destinations. Revealed that the main obstacles to ecotourism development in Indonesia are a lack of human resource competency and minimal community involvement. Therefore, training and coaching ecotourism managers are key to optimizing economic benefits for local communities.

Research by (Suprana, 2019) emphasizes the importance of developing a tourism object and attraction (ODTW) strategy integrated with local socio-cultural contexts to enhance the competitiveness and sustainability of ecotourism. This program should include potential evaluation, development planning, marketing, and professional area management. Research by (J. T. Haryanto, 2024) shows that a community-based ecotourism development model with an emphasis on conservation and education can create a positive cycle of environmental conservation while increasing community income, particularly for ecotourism with rare flora such as the Rafflesia flower. Research related to the development of Rafflesia flower-based ecotourism demonstrates significant potential for community income generation, provided it is supported by adequate accessibility, good facilities, and local government policies that support local community empowerment (Martha, 2025). This is also reflected in the success of several other unique flora-based tourism areas in Indonesia. Overall, the development of Rafflesia flower ecotourism in Mandailing Natal Regency can serve as a model for sustainable economic development that aligns biodiversity conservation with improving community welfare through active participation and responsible use of natural resources (Basyar, 2024).

## **RESEARCH METHOD**

This research examines various scientific articles focused on the discussion of ecotourism evaluation that have been published in reputable international journals by comparing the concept of ecotourism evaluation in selected articles with the proposed framework (Dinç et al., 2023). The research method used is a systematic literature review, following recommendations that assist the authors in presenting findings from all forms of

published research. There are five steps that must be taken in conducting a systematic literature review (E. Haryanto et al., 2024).

## RESULTS AND DISCUSSION

The findings of this study demonstrate that the Rafflesia flower holds significant potential as a unique ecotourism attraction in Mandailing Natal. This potential is rooted in several core aspects. First, the biological uniqueness and rarity of the Rafflesia—as one of the largest flowers in the world, which lacks stems, leaves, and true roots—make it an extraordinary natural phenomenon. This botanical singularity attracts both domestic and international tourists, particularly those interested in exotic flora, rare ecosystems, and biodiversity exploration (Malabrigo et al., 2023).

Second, Mandailing Natal's ecosystem is rich in biodiversity and endemic species, making the region a suitable destination for conservation-based tourism. The existence of Rafflesia within this ecosystem enhances the region's ecotourism appeal by providing a focal point for educational and scientific tourism. Many schools, universities, and research institutions have shown interest in this flower, making it an effective tool for environmental education and biological research.

Third, the potential for community-based ecotourism is substantial. Involving local residents as guides, homestay operators, cultural performers, and local product vendors provides a direct economic benefit to the community. The study found that many community members expressed interest in participating in the tourism sector if proper training and infrastructure were provided. This aligns with the principles of sustainable tourism, which emphasize local participation and empowerment.

Fourth, ecotourism centered around the Rafflesia flower can enhance environmental awareness among both locals and visitors. The educational aspect of tourism not only informs tourists about rare plant species but also emphasizes the importance of preserving natural habitats. Tourists who visit these areas often gain a deeper appreciation of conservation issues and become more supportive of environmental protection efforts. In terms of infrastructure and accessibility, the findings highlight the need for strategic improvements. The current access to Rafflesia habitats is still limited due to challenging terrain and lack of proper trekking paths. However, the development of eco-friendly infrastructure—such as informative signposts, rest areas, observation platforms, and clean sanitation facilities—can significantly enhance the visitor experience while ensuring minimal environmental impact.

Promotion and marketing also emerged as key findings. Currently, the Rafflesia flower in Mandailing Natal is not widely known to the broader public. With proper branding, social media engagement, partnerships with travel agencies, and digital content creation, the region could attract more ecotourists. Integrating Rafflesia-centered tourism with local cultural and culinary experiences can diversify tourism products and enhance the region's appeal. Finally, the study confirms that the development of ecotourism based on Rafflesia contributes not only to economic growth but also to the preservation of natural resources and the promotion of sustainable development. Community income is projected to increase through job creation and the growth of micro, small, and medium enterprises (MSMEs). At the same time, ecotourism can reduce pressure on traditional livelihoods that may harm the

environment, such as illegal logging or unsustainable farming practices.(Badaruddin Mohamed, 2010)

While the research reveals promising opportunities for Rafflesia-based ecotourism, several challenges and complexities must be addressed to ensure long-term sustainability and success. The first major challenge is the ecological sensitivity of the Rafflesia flower itself. Rafflesia is a parasitic plant with a highly specialized life cycle and is dependent on a specific host plant (*Tetrastigma* species). The flower blooms unpredictably, and its lifecycle is not yet fully understood, which makes it difficult to manage as a consistent tourism object. Furthermore, Rafflesia blooms are highly sensitive to environmental disturbance. Increased foot traffic, pollution, and improper tourism practices could damage the host plants and surrounding habitats, ultimately threatening the flower's survival.

The lack of public awareness and environmental education among local communities is another barrier. Although some communities express interest in participating in tourism, many still lack knowledge about the ecological value of Rafflesia or the principles of sustainable ecotourism. Without adequate education and community engagement programs, the risk of habitat degradation due to human activity remains high. Community members may inadvertently exploit or harm the natural environment if they do not fully understand the implications. From an infrastructural perspective, accessibility to Rafflesia sites is still inadequate. Many of the blooming sites are located deep in forested areas that require long and challenging hikes. This limits tourist access, especially for older visitors or those with mobility issues. Additionally, the lack of basic amenities such as safe trails, signage, rest stops, clean water sources, and waste disposal facilities can make the experience less enjoyable and even hazardous. These infrastructural gaps need to be addressed through eco-sensitive development plans that prioritize minimal ecological impact.

Financial constraints represent another significant hurdle. Sustainable ecotourism development requires investment in infrastructure, human resource training, promotional activities, conservation monitoring, and community education. However, funding from government or private sources remains limited. Furthermore, the tourism industry in Mandailing Natal competes with other better-known destinations that offer more developed facilities and easier access, making it challenging to attract substantial tourist traffic in the early stages. Stakeholder coordination is also lacking. Effective ecotourism requires collaboration between government agencies, conservation NGOs, academic researchers, private investors, and local communities. Unfortunately, the research found that institutional coordination in Mandailing Natal is still fragmented, leading to inefficiencies in planning, implementation, and resource allocation. Without a unified strategy and shared goals, conservation and tourism efforts may be duplicated or misaligned, reducing overall effectiveness.

Climate change and natural disasters add further complexity. Shifting weather patterns, prolonged droughts, forest fires, and landslides can all disrupt Rafflesia's delicate ecosystem. A long-term conservation plan must include climate-resilient strategies and continuous ecological monitoring to anticipate and respond to these threats. Despite these challenges, the study proposes several strategies for success. These include:

1. Developing ecotourism packages that integrate *Rafflesia* viewing with cultural, educational, and outdoor experiences to diversify appeal.

2. Strengthening environmental education for both locals and tourists to build support for conservation.
3. Establishing community cooperatives for tourism services and ensuring equitable benefit-sharing.
4. Enhancing eco-friendly infrastructure to improve accessibility without harming the environment.
5. Forming multi-stakeholder partnerships to ensure comprehensive planning, funding, and implementation.
6. Encouraging scientific research and ecological monitoring to inform adaptive management strategies.

The Rafflesia flower presents a valuable opportunity for Mandailing Natal to position itself as a center for biodiversity-based ecotourism. With careful planning, investment in education and infrastructure, and the empowerment of local communities, this rare natural treasure can generate sustainable economic benefits while preserving the region's unique ecological heritage.

## CONCLUSION

The development of Rafflesia flowers as an ecotourism object in Mandailing Natal has great potential to provide economic, social, and environmental benefits to the local community. The uniqueness and rarity of the Rafflesia flower can be the main attraction for tourists interested in rare flora and biodiversity. The development of this ecotourism can increase local income, create jobs, and empower the community. In addition, conservation-based ecotourism can also help preserve the habitat of the Rafflesia flower and raise environmental awareness among the community and tourists.

However, this development is not without challenges and obstacles. The challenges faced include habitat limitations, lack of public awareness, limited funding and infrastructure, as well as the risks of climate change and natural disasters. Therefore, a comprehensive and collaborative strategy is needed to address these challenges and ensure the sustainability of Rafflesia Flower ecotourism. Improvement of Education and Awareness. Increasing awareness and education among the local community about the importance of the Rafflesia flower and the benefits of ecotourism through educational programs and environmental awareness campaigns.

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