

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

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

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

**Article History:** Submitted 20 March 2025 | Revised 11 April 2025 | Accepted 2 June 2025

**How to Cite:** Wandikbo, I., Murni, N. G. N. S., Ginaya, G., Antara, D. M. S., & Trisnayoni, R. A. (2025). Ecotourism Development Isyo Hill's Bird Watching, Nimbokrang District, Jayapura Regency, Papua Province. *International Journal of Green Tourism Research and Applications*, 7(1), 39–48. <https://doi.org/10.31940/ijogtra.v7i1.39-48>

### Introduction

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

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

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

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

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

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

## Methodology

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

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

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

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

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

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

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

## Results and discussions

### Results

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

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

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

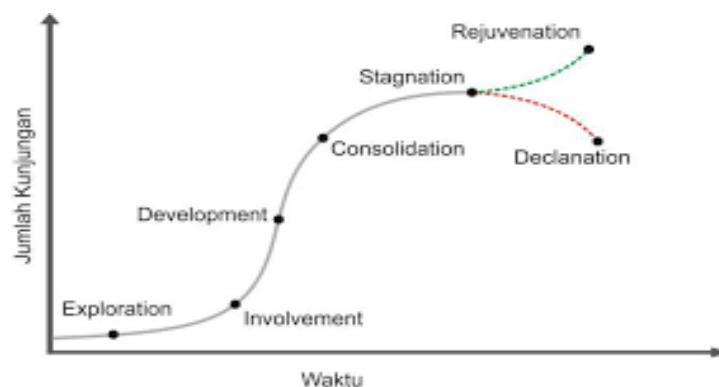
### *Isyo Hill's Position Based on Tourism Area Life Cycle Analysis (TALC)*

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

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

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

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



(Source: Data processed, 2023)

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

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

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

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

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

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

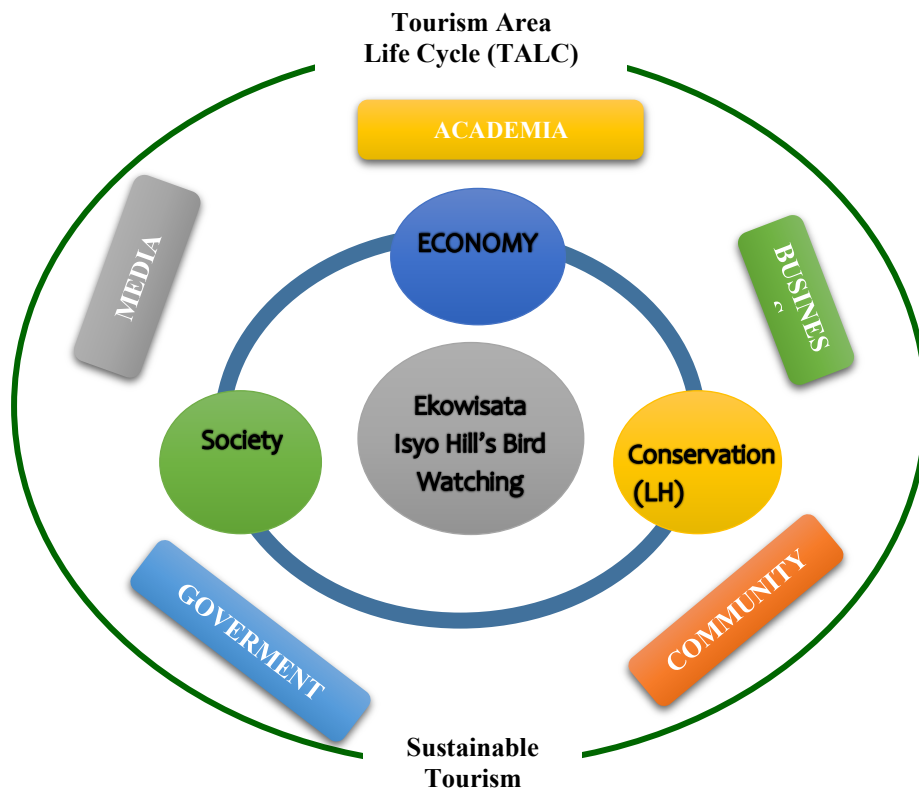
## Discussions

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

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

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

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



(Source: Data processed, 2023)

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

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

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

1. Government

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

The contribution of Government to Isyo Hill such as follows.

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



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

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

## 2. Business

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

Contribution of Business to Isyo Hill such as follows.

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

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

## 3. Academia

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

The contribution of Academia to Isyo Hills such as follows.

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

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

## 4. Media

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

Contribution of Media to Isyo Hill such as follows.

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

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

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

## 5. Community

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

Contribution of Community to Isyo Hill such as follows.

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

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

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

Collaboration Evidence:

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

Siloed Work Evidence:

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

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

## Conclusions

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



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

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