

ECOTOURISM AS A LIVELIHOOD BOOST FOR COASTAL COMMUNITIES: ANALYSIS OF FIVE LIVELIHOOD CAPITAIS USING THE SUSTAINABLE LIVELIHOODS APPROACH ON LEMUKUTAN ISLAND

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ABSTRACT

This study examines ecotourism as a lever for coastal community livelihood using the Sustainable Livelihood Approach (SLA) on Lemukutan Island, Bengkayang Regency. The purpose of the research is to analyze how ecotourism development is related to the five livelihood capitals of the community, namely natural, human, social, physical, and financial capital. The research was conducted with a qualitative approach through case studies, using in-depth interviews, participatory observations, and focus group discussions, and supported by secondary data from official reports and scientific literature. The results of the study show that ecotourism on Lemukutan Island makes a significant contribution to increasing household income, expanding employment, and developing local businesses based on homestays, MSMEs, and tourism services. In terms of natural capital, the marine ecosystem that is still maintained is the main attraction, despite facing pressure due to the increasing number of tourists. Human capital develops through the involvement of youth and women in tourism management, although the limitations of formal training remain an obstacle. Social capital is reflected in the practice of mutual cooperation and the role of tourism-aware groups, while physical and financial capital is shown through infrastructure improvements, distribution of clean water, electricity, and increased sources of community income. These findings confirm that SLAs are relevant to understanding the dynamics of livelihoods in ecotourism, as well as to providing recommendations for strategies to strengthen community capacity and manage resources in a sustainable manner.

Keywords: Ecotourism; Livelihood; Coastal Community; Sustainable Livelihood Approach; Lemukutan Island

INTRODUCTION

Lemukutan Island is a village in the administrative area of Sungai Raya Kepulauan Subdistrict, Bengkayang Regency, West Kalimantan. Geographically, this village covers two islands, namely Lemukutan and Randayan (masterplandesa.com, 2024). Lemukutan Island has marine tourism potential, with natural characteristics such as white sandy beaches, clear blue sea, and relatively pristine coral reefs (Tangkudung et al., 2018). Several tourist sites that are the main attractions in Lemukutan Island Village are Teluk Melanau Beach and Teluk Cina Beach (Tania et al., 2021).

Lemukutan Island has now been promoted as one of the leading marine tourism destinations in Bengkayang Regency, and in 2022, Lemukutan Island won first place in the Water Tourism category at the Anugerah Pesona Indonesia (API) awards (jadesta.kemenparekraf.go.id, 2022). With this potential, the government has designated it as a marine tourism area based on coral reef conservation. The community's livelihood has also transformed, no longer relying solely on fishing activities but also on tourism activities that increase household income. Its main attractions are Teluk Melanau Beach and Teluk Cina Beach, which feature white sand and well-preserved coral reefs, serving as habitats for ornamental fish such as clownfish or Nemo fish.

In an effort to optimize its marine potential, the Lemukutan Island Village Government has partnered with the Nusa Impian and Lumba-Lumba Putih Tourism Awareness Groups to design tourism packages. Tourists can now enjoy a variety of activities, ranging from snorkeling, fishing for large reef fish, exploring the surrounding islands, to sampling local cuisine (Marini et al., 2024). Visitor comfort is also taken into account with the provision of tourism support facilities, such as a seaport, 200 villas managed by the local community, a health center, and adequate sea transportation services (Hasanah et al., 2023).

These efforts have borne fruit with an increase in the number of visitors from year to year. Based on the number of tickets sold, there were 12,762 visitors in 2023 (masterplandesa.com, 2024), and in 2024 there were 14,844 visitors in one year, with the highest number of visitors during the school holidays in June and July. This shows that there is ecotourism development that not only aims to preserve the environment but also to improve the welfare of local communities through a community-based approach (Paisal et al., 2022). Sustainable ecotourism should be able to meet current needs without compromising the ability of future generations to meet their own needs (Harefa et al., 2025). This includes fulfilling the environmental, economic, and socio-cultural aspects of the surrounding community. However, in practice, there are challenges in ensuring that ecotourism development truly provides equitable benefits for all levels of society.

On the other hand, the increase in tourist visits to Lemukutan Island has indeed provided new economic opportunities, but it has also put pressure on the environment and the community's way of life. Coral reef damage due to excessive snorkeling activities (Guntara et al., 2023), the accumulation of waste on the beach (Muliadi et al., 2022), and the conversion of coastal land into homestays on the water (Hasanah, 2023) In addition, pressure on the marine ecosystem also occurs due to the lack of public awareness of conservation, even though Lemukutan Island has been designated as a Regional Marine Conservation Area (KKLD) (Muliadi et al., 2022). These are some examples of negative impacts that can threaten the sustainability of the marine ecosystem. This situation indicates the need for an analytical framework that not only considers economic benefits but also balances social, cultural, and ecological aspects.

The Sustainable Livelihood Approach (SLA) is able to comprehensively map the interaction between tourism and the five livelihood assets of the community (Tao & Wall, 2009). Natural capital includes coral reefs, marine biota, and white sandy beaches, which are the main attractions for tourism but are also vulnerable to degradation. Financial capital is evident in the development of homestays, guides, motorbike rentals, cameras, canoes, banana boats, snorkeling equipment, and local cuisine, which are additional sources of income for households (Marini et al., 2024).

Physical capital is evident in the availability of supporting infrastructure, such as seaports, tourist villas, and sea transportation that supports the mobility of tourists and the community. Human capital is evident in the community's skills in managing tourism businesses, serving visitors, and maintaining ecosystem sustainability. Meanwhile, social capital is found in the role of the Nusa Impian Tourism Awareness Group (Pokdarwis), which encourages collective participation, builds cooperation networks with the government, and maintains social norms related to resource conservation.

SLA is used in this study to analyze in depth how the people of Lemukutan Island balance the economic opportunities of tourism with the risk of environmental damage. This framework also identifies the necessary adaptive strategies, such as business diversification, ecotourism education, and strengthening local institutions, so that marine tourism development can take place in an inclusive and sustainable manner.

Previous researchers have conducted numerous studies on ecotourism and coastal communities' livelihoods. For example, research conducted by Fachry (2021) shows that the development of marine ecotourism in South Sulawesi can improve community welfare through livelihood diversification and increased local income. Furthermore, a study by Harefa et al. (2025) confirms that community participation in ecotourism in the coastal area of Kuala Lama Village contributes positively to social, economic, and environmental aspects, despite still facing challenges in the form of limited human resource capacity. Another study by Sukuryadi et al. (2021) found that ecotourism management in coastal Lombok has an impact on increasing household income, but has not fully considered the sustainability of natural resources.

Most of the studies that have been conducted tend to focus on economic and social aspects, while a comprehensive analysis of the five livelihood capitals (natural, human, financial, physical, and social) as emphasized in the Sustainable Livelihood Approach (SLA) is still rarely conducted. Therefore, this study plays an important role in filling this gap by analyzing the role of ecotourism as a lever for coastal community livelihoods through the SLA framework on Lemukutan Island. The novelty of this research lies in its comprehensive approach, which assesses the impact of ecotourism not only from an economic or social perspective, but also in relation to the five types of coastal community livelihood capital. The aim is to analyze how the development of ecotourism impacts natural, human, social, physical, and financial capital. This study is expected to contribute theoretically to the development of livelihood-based ecotourism studies, while also offering practical recommendations for local governments and communities in designing sustainable ecotourism management strategies.

The SLA Concept

Chambers and Conway (in Odoom et al., 2022) define livelihood as "the capabilities, assets, and activities required for a means of living." Livelihoods are said to be sustainable if they are able to withstand shocks, maintain and increase assets, and do not damage long-term natural resource bases.

Five Livelihood Assets

1. Natural Capital: natural resources such as land, water, forests, and biodiversity.
2. Human Capital: knowledge, skills, health, and labor capacity.
3. Social Capital: social networks, relationships of trust, norms, and institutions that support cooperation.
4. Physical Capital: basic infrastructure (roads, bridges, transportation, electricity, water) and means of production.

5. Financial Capital: economic resources such as savings, income, credit, and other financial access.

Chambers and Conway (in Gai, 2020) emphasize that a livelihood can be called sustainable if it meets three basic conditions:

1. Able to withstand external shocks and stresses, such as natural disasters, climate change, market price fluctuations, or economic crises.
2. Able to maintain and increase the assets owned by households or communities, so that future generations can continue to benefit from these assets.
3. Does not damage long-term natural resource bases, meaning that the livelihood strategies implemented do not sacrifice the environment, but rather maintain the sustainability of ecosystems to support life in the future.

RESEARCH METHOD

This research uses a qualitative approach with a case study type to gain an in-depth understanding of how ecotourism development on Lemukutan Island relates to the five types of coastal community livelihoods based on the Sustainable Livelihood Approach (SLA) framework. Primary data was obtained through in-depth interviews, participatory observation, and focus group discussions with village officials, Pokdarwis Nusa Impian, homestay owners, fishermen, MSME actors, and community leaders, while secondary data was collected from official documents, government reports, and scientific literature. Informants were determined purposively and expanded using snowball sampling. Data analysis was conducted thematically through a process of reduction, presentation, and conclusion drawing by mapping the findings on the five livelihood assets, while data validity was maintained through triangulation of sources, methods, and member checks. The entire research process was conducted with due regard for social research ethics, including informant consent, data confidentiality, and the principle of not harming any party.

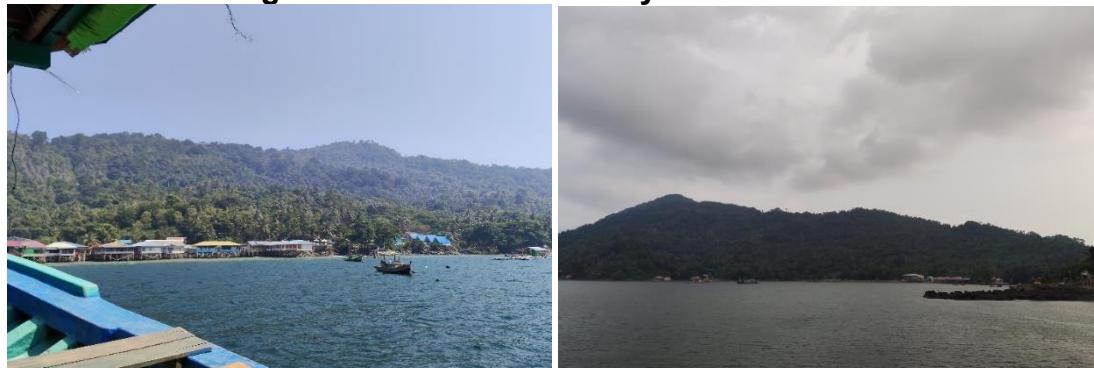
RESULTS AND DISCUSSION

1. NATURAL CAPITAL

a. Authentic Natural Beauty of the Sea

Most tourists who visit Lemukutan Island are attracted by the relatively pristine condition of the sea. The sea around the island offers a clear, calm, and clean coastal panorama, which is suitable for activities such as snorkeling and diving. This is an important asset that cannot be engineered or built artificially, and is the main attraction that distinguishes Lemukutan from artificial or urban *tourism* destinations.

Figure 1 The Natural Beauty of Lemukutan's Seas



Source: researcher documentation, 2025

b. Coral Reefs Still Preserved in Some Areas

Coral reefs are a highly sensitive marine ecosystem, but they are also very important in creating tourist attractions. Based on information from homestay owners and residents, there are still relatively intact coral reef areas that are favorite snorkeling spots for tourists. However, at the same time, they are also concerned about damage caused by visitors stepping on or being unaware of the reefs. When snorkeling, almost all visitors hold or even hug the coral reefs to take pictures with nemo fish, and the more visitors there are, the greater the chance of damage to the coral reefs due to being stepped on by visitors' feet. As stated by the informant, who is a homestay owner and snorkeling guide

The informant explained that there are many visitors interested in snorkeling, even during the holiday season, with up to 1,000 visitors, 50% of whom usually go snorkeling. In order to protect the coral, visitors who want to snorkel are required to use a guide (it is not recommended to go alone) as a form of control by the guide to ensure that the coral reefs are protected. Additionally, no-treading zones have been established in several areas, and tourists are directed to only enjoy the surface with aids or accompanied by local guides.

Figure 2 Coral Reefs and Snorkeling Activities



Source: Researcher documentation, 2025

Figure 2 shows that the coral is still in good condition and there are hundreds of coral reefs on Lemukutan Island, specifically in Teluk Cina, and other images show snorkeling poses that are no longer recommended, such as holding or hugging coral, as an effort to preserve and protect coral and other marine life.

c. Sea Water Clarity

The sea water around Lemukutan Island is known to be very clear, especially during the dry season, making it an important asset in the development of nature-based ecotourism. These conditions support tourist activities such as snorkeling, diving, and underwater photography, while also raising public awareness of the importance of keeping the sea clean. The clarity of the water also provides comfort for tourists because marine life can be clearly seen even from their accommodations. This uniqueness distinguishes Lemukutan from other coastal areas in West Kalimantan, which are generally murky due to river flows and urban waste (Ruslianysah, 2017; Tangkudung et al., 2018). The main factors contributing to this clarity include: its geographical location far from urban centers, well-preserved land cover, the absence of extractive industries (Lemukutan Village Profile, 2024), the support of open ocean currents, and the active role of the community through a culture of mutual cooperation and local regulations to maintain ocean cleanliness. The combination of these ecological, geographical, and social aspects gives Lemukutan high-value natural

capital, which not only supports the sustainability of ecotourism but also reflects the community's success in managing the environment independently and sustainably.

d. Marine Biodiversity

Marine biodiversity is an important natural asset of Lemukutan Island, with natural habitats for ornamental fish, starfish, seagrass, and coral reefs that maintain the balance of the ecosystem and are the main attraction for ecotourism. In the past, marine catches were abundant near the coast, but now fishermen must venture further out to sea, indicating pressure on the ecosystem. Despite this, the economic value of marine life remains high, shifting from a consumptive function to an attractive and educational one through snorkeling, underwater observation, and conservation education. The presence of species such as clownfish, blue starfish, and seagrass beds indicates that the ecosystem still supports marine tourism. This diversity is not only ecologically valuable, but also economically and educationally valuable, in line with the pillars of sustainable ecotourism: conservation, economic empowerment, and environmental education. To maintain its sustainability, community-based marine zoning management, training of tour guides who understand conservation, and tourist awareness not to disturb marine life are required (Erwiantono et al., 2017). The community (tourists and local residents) must participate in protecting the environment (kehati) through encouragement or socialization to raise awareness of its importance. By restoring the community's environmental awareness, ecological balance can be restored (Alamri et al., 2025).

e. Natural Coastal and Beach Landscapes

In addition to the sea and its underwater ecosystems, the coastal landscape and shoreline of Lemukutan Island are an important part of the natural capital that supports ecotourism. The natural, expansive, and tranquil coastal character provides unique aesthetic value and emotional experiences for tourists. One of Lemukutan's geographical advantages is its long coastline surrounding the island, allowing the community to develop homestays built directly on the water or jutting out into the sea. This type of homestay is not only functional but also offers the unique sensation of staying above the sea surface, with the sound of waves as a natural backdrop and a direct view of the open sea. This becomes a distinctive attraction that sets Lemukutan apart from other marine tourism destinations in West Kalimantan and Indonesia in general.

Figure 3 Homestay on the Water



Source: Researcher documentation, 2025

Although homestay development is increasing along the Lemukutan coast, particularly in Teluk Cina, many areas still retain their original landscapes, such as Teluk Melanau. However, some beaches are beginning to be overwhelmed by tourist structures that

obstruct views of the sea. Natural coastal landscapes serve important ecological functions while also acting as tourist attractions, as visitors seek experiences that integrate with the sea through floating homestays or beachfront accommodations. The presence of water-based homestays with local aesthetics symbolizes the balance between space utilization and nature conservation. This is in line with the view of The International Ecotourism Society that the success of ecotourism is determined by the authenticity of the landscape and the uniqueness of locally-based cultural accommodation (Handayani et al., 2023; Syah & Said, 2020).

2. HUMAN CAPITAL

Human capital can also be referred to as the knowledge, skills, health, and experience possessed by individuals in a community and used to strengthen their livelihoods. In tourism development activities, human capital is crucial because the quality of service, environmental awareness, and local creativity greatly determine the tourist experience. On Lemukutan Island, ecotourism development has provided opportunities for the local community, especially the younger generation and women, to build new skills, adapt to the tourism service sector, and develop micro-businesses. The average level of education among the people of Lemukutan is elementary and junior high school, as there is a junior high school on Lemukutan, but no high school. Children who want to continue their high school education must leave the island to attend school in Singkawang, Sambas, Mempawah, or even Pontianak. Despite the need to leave the island for high school, parents strongly support their children's education by providing facilities for high school outside the island and continuing their studies at universities. Many children in Lemukutan continue their studies at the Sambas State Polytechnic and the Pontianak State Polytechnic, majoring in fisheries, marine science, and tourism.

The following activities demonstrate the presence of social capital:

a. Youth Involvement in Tourism Management

Youth play a central role in driving the success of community-based ecotourism on Lemukutan Island. There are around 20–30 young people actively involved in various tourism activities, ranging from snorkeling guides, marine transportation managers, homestay staff, to digital content creators. This role shows that young people are not only workers but also the main driving force connecting tourists with the marine ecosystem while maintaining safety and comfort. This finding aligns with the research by Ardiyansari et al. (2019), which emphasizes that young people in village ecotourism have a dual function: as creative economic actors and conservation agents.

Furthermore, the involvement of Lemukutan youth in homestay management and digital promotion through Instagram, TikTok, and Facebook demonstrates the emergence of organic community-based digital transformation. This is consistent with research explaining that tourism digitalization by the younger generation can increase destination visibility and expand market reach without relying on external agents (Ichsan et al., 2024). The creativity of young people in utilizing social media proves that human capital is not only born from formal education, but also from direct experience and collective learning within the community.

Young people are also involved in social activities such as beach clean-up competitions, mangrove planting, and welcoming tourists with local arts, demonstrating their role as a bridge between environmental conservation, cultural strengthening, and tourism experiences. This is in line with the study by Sabandar et

al. (2025), which emphasizes the importance of youth empowerment in community-based tourism as a strategy for maintaining the sustainability of social and ecological ecosystems. However, this involvement still faces obstacles, such as a lack of formal training, limited promotional facilities, unstable internet networks, and the absence of formal institutions to support youth capacity.

b. Homestay Management and Community Skills

Homestays are an important pillar in the development of ecotourism on Lemukutan Island, with around 200 units managed by the local community, spread across Teluk Cina, Teluk Melano, and around the pier. Some homestays are built on water, offering a unique experience for tourists. Managers generally acquire skills through self-study, so services are still limited to basic needs such as clean rooms, local food, and hospitality. Service standards are uneven, with some providing modern facilities while others remain basic. The lack of formal training, guidance, and tourism standards is a major challenge in maintaining quality and tourist satisfaction. However, homestays are an important point of interaction between tourists and the community, with the potential to serve as a medium for cultural exchange, culinary promotion, and household economic improvement. Therefore, strengthening the capacity of managers through hospitality, management, and digital marketing training is urgently needed. Additionally, although some homestays have begun to initiate environmentally friendly practices, sustainability efforts are still sporadic and need to be standardized to support sustainable ecotourism.

c. Women and Their Productive Role in MSMEs

Observations and interviews show that women contribute to the household economy through MSMEs based on local potential and tourist needs. Although homestay management and field activities are mostly carried out by men, women play an important role in the culinary sector, seafood processing, handicrafts, and consumer services. The leading products they produce include seaweed sweets, nutmeg sweets, fish floss, and snacks such as squid crackers and fish chips. These products are produced at home and sold directly to tourists or through small shops. During peak season, income from sweet sales can reach IDR 700,000–800,000 per day, depending on the number of visitors and weather conditions.

Figure 4 Processed Products of MSMEs



Source: Researcher Documentation, 2025

The following table summarizes the role of women in MSMEs and the training needs to enhance the capacity and capabilities of women with their diverse skills.

Table 1: Women's Roles in MSMEs and Their Training Needs

Type of SME	Women's Roles	Ecotourism Value Added	Training/Mentoring Needs
Seaweed Candy	Processors, packagers, sellers	Lemukutan specialty souvenirs, environmentally friendly products	Training in packaging, labeling, and inventory management
Nutmeg Candy	Seasonal producer and seller	Local flavors, suitable for domestic tourists	PIRT certification, product branding
Fish floss & sea crackers	Home-based processors	Diversification of seafood products, easy to carry	Food production hygiene, marketing strategy
Homestay catering	Home cooks, local food servers	Providing a unique coastal culinary experience	Food sanitation training, menu package preparation
Crafts from Waste	Artisans making bags/wallets from raffia rope and recycled plastic	Unique eco-friendly products, reinforcing a green image	Product design, natural dyeing techniques, online sales
Traditional beverages	Suppliers of young coconuts and local herbal drinks	Enhancing the local experience for homestay guests	Natural preservation techniques, visual product promotion
Homestay Support Services	Washing utensils, cleaning rooms, welcoming guests	Maintaining local comfort and hospitality	Basic hospitality training, communication with guests

Source: Researcher Data Analysis, 2025

3. HUMAN CAPITAL (MUTUAL ASSISTANCE, COLLECTIVE AWARENESS)

One of the key strengths in the development of ecotourism on Lemukutan Island is the social capital in the form of mutual cooperation and collective awareness among the community. Every Friday morning, residents from various backgrounds routinely engage in joint activities such as cleaning beaches, repairing public facilities, and caring for plants. The presence of tourists actually strengthens the residents' motivation to maintain cleanliness, as they realize its connection to the image of the environment and the sustainability of their income. Mutual cooperation not only reflects the local culture, but also strengthens human capital through character building, cooperation, and community integrity. In addition, these activities strengthen the network of trust between residents, which is an important social foundation for the success of ecotourism. Institutional support is also evident through the Pokdarwis policy, which collects a contribution of Rp. 500 per homestay guest to fund social activities such as cleanliness and mutual cooperation.

4. PHYSICAL CAPITAL

The growth of ecotourism on Lemukutan Island has had a tangible impact on the transformation of the community's physical capital, particularly in the provision of accommodation facilities, access to clean water, footpath networks, and other tourism support facilities. One of the most prominent manifestations is the increase in the

number of homestays as the main choice of accommodation for tourists. Based on interview results, it is estimated that there are around 25 to 30 homestays in the Teluk Cina area, some of which are even built above sea level. In total, there are more than 200 homestays along Lemukutan Island. These homestays are generally built independently by the local community using semi-permanent materials, such as boards, ironwood, and zinc roofs, which shows the community's initiative in taking advantage of ecotourism opportunities to strengthen their livelihoods.

Figure 5 Homestays



Source: Researcher Documentation, 2025

The development of ecotourism on Lemukutan Island has also encouraged improvements in the clean water distribution system, which was previously a major challenge for coastal communities. In the past, residents had to walk or use boats to fetch water from mountain sources, but now water distribution is managed by the Village-Owned Enterprise (BUMDes) through a pump system that distributes water directly to residential areas. However, the capacity and scalability of this system still need to be improved in order to meet the needs of both the community and tourists. Other physical infrastructure has also seen improvements, such as footpaths that have mostly been paved so that motorcycles can pass, a standard boat dock that is only available in one unit but is supported by several sets in various locations, as well as tourism support facilities in the form of trash bins, wooden stairs at snorkeling spots, and snorkeling equipment and life jacket rentals by the community or tourism awareness groups (Pokdarwis). Despite significant progress, there are still gaps, especially in coastal areas such as Melanau Bay, which lacks infrastructure, as well as limited resources and technical training, resulting in tourist safety and comfort standards not being fully met.

Figure 6 Road Conditions, Life Jackets, and Snorkeling Equipment

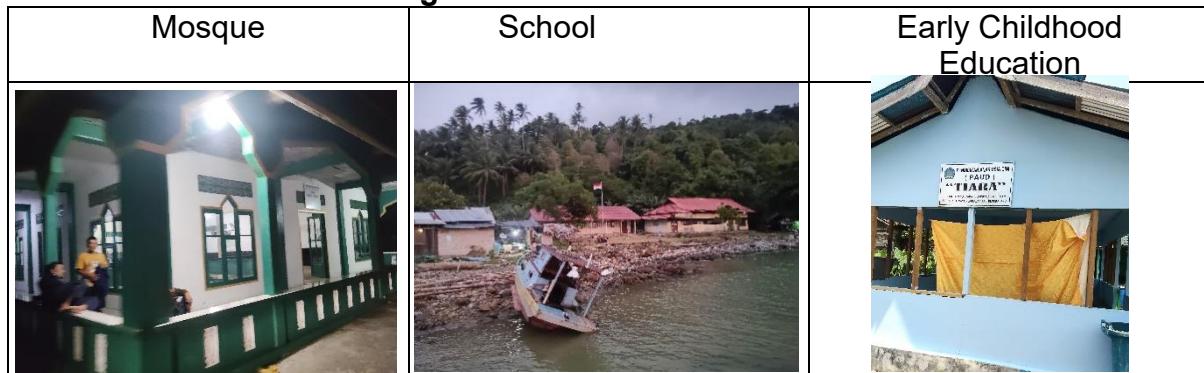


Source: Researcher Documentation, 2025

The existence of the PLN electricity network, which covers almost the entire Lemukutan Island, is an important physical asset in supporting tourist comfort. PLN electricity operates from 4:00 p.m. to 6:00 a.m., so that night lighting, fans, charging electronic devices, and homestay facility operations can run more smoothly. Some residents also use generators and solar panels to meet their electricity needs during the day, especially in homestays that offer additional facilities such as air conditioning. In addition, the telecommunications and internet networks, although not yet fully

stable, are now functioning better. This can be used for online promotion and homestay reservation systems via WhatsApp or social media by homestay owners and local youth. Internet services are also available through village Wi-Fi and private networks that are widely installed around homestays as additional facilities for tourists. Not only tourism infrastructure, the existence of basic social facilities also strengthens the physical capital of the community and supports the sustainability of ecotourism. In the main residential center, there is a large mosque that serves as a place of worship, a social space, and a source of information for residents, including for welcoming guests or celebrating religious holidays that often coincide with tourist season. In terms of education, there are formal institutions such as early childhood education centers, elementary schools, and junior high schools that serve local children, thereby creating a social ecosystem that supports the sustainability of human capital while strengthening the community's foundation in managing sustainable ecotourism.

Figure 7 Basic Infrastructure



Source: Researcher Documentation, 2025

Lemukutan Island also has health infrastructure. Although there is no hospital, there is a health center that provides basic health services for residents and tourists experiencing minor ailments such as illness, fever, injury, or seasickness. Interestingly, Lemukutan Island also has a water ambulance as an emergency medical transport facility () that connects the island to cities or referral hospitals on the mainland (Singkawang City, Mempawah Regency, and Pontianak City). Overall, the development of physical infrastructure in Lemukutan demonstrates the direct positive impact of the ecotourism sector on village development, although several challenges such as access to clean water, limited sanitation facilities, and tourism safety standards still require further attention.

5. Financial Capital

Ecotourism has become a major lever in driving the increase in financial capital of the coastal communities of Lemukutan Island. One of the direct impacts felt by residents is the increase in household income from various economic activities, both direct, such as homestay management and sea transportation services, and indirect, such as the production of specialty foods, the sale of souvenirs, and the provision of guest services.

Figure 8 Several Types of Businesses Run by Lemukutan Residents



Source: Researcher Documentation, 2025

Figure 8 shows the variety of services provided by residents to tourists visiting Lemukutan, with these diverse business types contributing to increased income for residents. The following table lists the sources of income for Lemukutan residents.

Table 1 Sources of Income for the Community from Lemukutan Island Ecotourism

Income Source	Main Actor	Type of Activity	Estimated Income	Additional Information
Homestay	Local family	Provides rooms, meals, and tour services	IDR 200,000–400,000 per room/night	Approximately 25–30 homestays, some built on stilts over water (Teluk Cina) and some on land (Teluk Malanau). Homestays are a key pillar of ecotourism
Marine Transportation Services	Fishermen/boat owners	Tourist shuttle service, snorkeling trips, boat rental	IDR 500,000–IDR 1,000,000 per trip	Often done by fishermen who switch functions during the tourist season
Culinary & Catering Homestay	Women/families	Providing local food (grilled fish, young coconut drinks), BBQ packages.	Rp50,000–Rp100,000 per serving	Served to homestay guests and direct orders
Local Processed Products	Women (household SMEs)	Seaweed candy, nutmeg candy, fish floss, seaweed crackers	Rp700,000–Rp800,000 per day (during peak season)	Home-based business, depending on the tourist season; sold directly to tourists
Tourism Equipment Rental	Youth & Tourism Promotion Group	Snorkel sets, life jackets, fins, and snorkeling guide services	Rp25,000–Rp50,000 per item/day	Also serves as a gateway for youth involvement in tourism activities
Village-Owned Enterprises	Village government through BUMDes	Tourist fees, paid clean water services, community internet	±Rp30 million/year	Source of village revenue, reused for public services and development

Income Source	Main Actor	Type of Activity	Estimated Income	Additional Information
Local Events & Activities	Youth & Pokdarwis	Beach clean-up events, festivals, environmental education tour packages	Incidental income (depending on events)	Often collaborates with communities or schools from outside the area

Source: Research Data Analysis, 2025

CONCLUSION

This study shows that the development of ecotourism on Lemukutan Island has become an important lever in strengthening the livelihoods of coastal communities. Through the Sustainable Livelihood Approach (SLA) framework, it was found that ecotourism has an interrelated impact on five livelihood assets. Natural capital in the form of clear seas, coral reefs, and biodiversity is the main attraction for tourism, although it is beginning to face pressure due to increasing visitor numbers. Human capital is developing through the involvement of young people as tour guides and digital promoters, as well as women in the management of marine-based MSMEs, although the lack of formal training remains an obstacle. Social capital is reflected in mutual assistance practices, community cohesion, and the active role of tourism awareness groups in maintaining cleanliness and managing tourism contributions. Physical capital is strengthened by the increase in homestays, improvements in clean water distribution, footpath infrastructure, electricity, and tourism support facilities. Meanwhile, financial capital is reflected in increased household income, the opening of new jobs, and the growth of tourism-based businesses. The results of this study confirm that SLA is relevant for understanding the livelihood dynamics of coastal communities in ecotourism. However, the sustainability of Lemukutan ecotourism requires strengthening community capacity through formal training, service standardization, and community-based regulations to maintain a balance between economic utilization and environmental preservation.

SUGGESTIONS AND RECOMMENDATIONS

1. Local governments need to provide integrated training programs in hospitality, homestay management, and environmental conservation to ensure more uniform tourism service standards.
2. Tourism awareness groups (Pokdarwis) are expected to strengthen their institutions through clearer internal rules, especially regarding waste management, tourism zoning, and benefit redistribution mechanisms.
3. Local communities need to develop innovative products based on marine resources and local culture to diversify income sources while maintaining the identity of Lemukutan ecotourism.
4. Young people and women need to be facilitated in mastering digital technology and online marketing to expand tourism promotion independently.
5. Researchers are advised to explore aspects of environmental *carrying capacity* and local institutional dynamics to strengthen sustainable ecotourism management policies.

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