



Regenerative Marine Tourism Strategy in The Ecosystem of Momparang Archipelago, East Belitung

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Abstract

This research formulates a regenerative marine tourism strategy for the Momparang Archipelago, East Belitung, using the seven regenerative tourism principles. Key results show that conservation initiatives, such as coral reef restoration and environmental education, have engaged local fishermen and tourism operators in sustainability efforts. However, challenges in waste management and governance remain, requiring stronger frameworks to ensure long-term success. The study employs a qualitative approach with Logical Framework Analysis (LFA) to systematically identify goals, objectives, activities, and expected outcomes. Leveraging the region's unique cultural and ecological assets, such as shipwreck sites and Bugis Buton heritage, has been shown to enhance the destination's appeal. Community involvement in conservation and waste management is critical to achieving a sustainable tourism model. Key recommendations include the formation of a multi-stakeholder regenerative tourism advisory board and continuous public education on sustainable practices. Future research should explore the broader application of regenerative tourism principles in other coastal areas, focusing on collaboration between government, local communities, and the private sector. Additionally, innovative waste management strategies that involve active tourist participation should be further investigated to enhance both environmental sustainability and visitor experience. This research offers a foundation for transforming the Momparang Archipelago into a model for sustainable regenerative tourism

Keywords: Regenerative tourism, marine conservation, sustainable tourism development, community engagement

1. INTRODUCTION

The Momparang Archipelago in East Belitung is one of the emerging marine tourism destinations in Indonesia. With its underwater natural beauty, white sandy beaches and rich culture of coastal communities, the area has great potential to become a sustainable ecotourism destination. However, like many other marine tourism destinations, the Momparang Islands also face the challenge of balancing economic growth through tourism with environmental conservation and the welfare of local communities. The Momparang Archipelago has been recognized recently as a world-class tourist destination with beautiful underwater scenery. This is mainly because the Momparang Archipelago provides not only shipwreck cargo object tourism, but also complete and interconnected areas, such as:

1. Bukulimau Island, the heart of the Momparang archipelago with its friendly natives who will warmly welcome tourists through a cultural custom called "Hantu Laut". In addition, there is a coral reef conservation area;
2. Penanas Island, a world paradise for snorkeling, diving and coral reef conservation. The island is labeled as the Momparang island geosite conservation center area where you can see dolphin attractions;
3. Siadong Island, a place where you can find mangrove forests on the coastline;
4. Nangka Island, a magical rock garden with beautiful natural scenery; and



5. Pesemut Island, an endemic hawksbill turtle conservation and turtle breeding educational tour.



Figure 1. Momparang Archipelago Consists of Various and Diverse Nature Conservation and Tourism Destination (Coral Reefs, Sunken Ship Sites, and Diving Areas).

Sources: Momparang Archipelago Developer, 2024

Regenerative tourism is currently the concept of a potential mechanism for destination development - and is gaining momentum globally. In contrast to the concept of sustainable tourism that focuses on smaller negative impacts, in regenerative tourism-the focus is to create very positive impacts through the restoration of ecosystems and communities. This approach not only tries to maintain existing conditions, both environmentally and socially, but also seeks to improve and develop them. Regenerative tourism is defined as a transformational approach that aims to fulfill the potential of tourist attractions to thrive and create net positive effects through enhancing the regeneration capacity of human communities and ecosystems (Bellato, Frantzeskaki, & Nygaard, 2022). Regenerative tourism is a concept that involves diverse stakeholders and requires responsible work to achieve mutually agreeable goals and monitor outcomes over time (Sharma & Tham, 2023).

Regenerative tourism requires a mindset shift, systems change, and a bottom-up approach that prioritizes place, community, and environment (Dredge, 2022). Several studies highlight the importance of case studies in implementing regenerative tourism. For instance, the development of Restorative Marine Ecotourism in Tutukaka, New Zealand, showcases how ecological restoration initiatives can be integrated with marine ecotourism to create sustainable and regenerative practices (Ferretti, Lewis, Thrush, Lucrezi, & Hillman, 2023). A landscape-scale regenerative tourism management strategy can transform coastal destinations into carbon sinks by promoting restoration projects and providing long-term presence and resources for ecosystem recovery (Alvarez, 2023).

Tin mining that continues in Bangka Belitung Province is a threat to environmental sustainability and the sustainability of marine ecosystems, damaging coral reefs, polluting waters, and disrupting the welfare of coastal communities. The degradation of marine habitats due to tin mining can lead to a significant loss of biodiversity, many species that depend on these ecosystems for survival may face extinction or decline in population (Yusuf, Hudatwi, Adi, & Robin, 2021; Wulandari, Agus, Rosita, Mansur, & Maulana, 2022). Illegal tin mining in Bangka Belitung negatively impacts ecosystem and human life sustainability, requiring increased environmental law enforcement and community engagement (Handini & Hariansah, 2021).

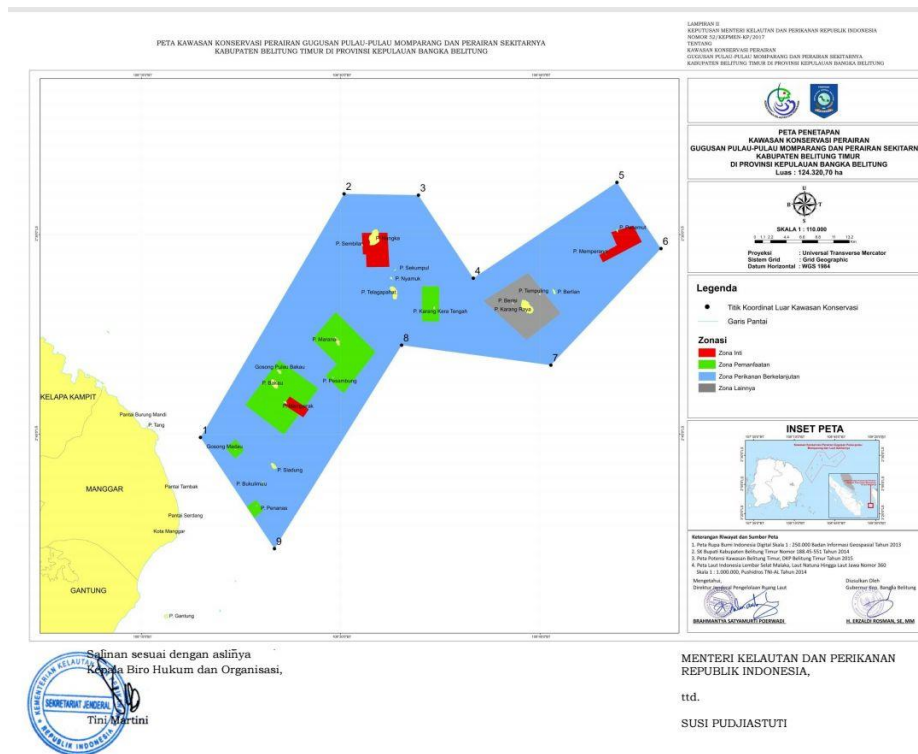


Figure 2. Momparang Archipelago Area (East Belitung)
Source: serumpun.babelprov.go.id (2018)

Besides environmental issues, one of the challenges of managing the Momparang Islands is the deficiency of human resources. The lack of certified local tour guides reflects a critical competency gap within the regional tourism sector. This not only hampers the tourist experience, but also limits the participation of local communities in the industry. This limitation can lead to inaccurate interpretation of local natural and cultural treasures, as well as increase safety and environmental sustainability risks. Trained tour guides play a significant role in environmental interpretation, which involves educating visitors about the natural and cultural values of a site (Lima, 2016). The development of a comprehensive training and certification program is a priority to build a strong foundation of regenerative tourism in the region. Inaccurate interpretation can damage the tourism industry's reputation, deter future visitors, and hinder repeat visits, highlighting the importance of high-quality interpretation in maintaining a positive image of destinations (Cheng, Kuo, Chang, & Chen, 2018).

In addition, the supporting infrastructure for marine tourism is also considered to be limited, especially in sea transportation that has not been standardized and accommodation facilities that are less than optimal on Buku Limau Island. A non-standardized marine transportation system leads to inconsistent service quality, safety issues and operational inefficiencies. Many boats do not meet international safety standards, posing a risk to passengers, especially during bad weather. The lack of reliable and well-maintained boats also hinders tourist accessibility to key locations such as coral

reefs and snorkeling spots. Sea transportation in Indonesia has not been optimally developed, leading to accidents often due to natural and human factors (Buchari & Victoria, 2021).

Standardized training and certification initiatives for local tour guides, in the context of regenerative tourism where the improvement of marine transportation infrastructure is highly contributing to safe, educative, and regenerative tourism experiences, can be quite important. Professionally trained tour guides can interpret local natural and cultural attributes accurately, which is considered essential for raising environmental awareness and encouraging sustainability. In the meantime, international safety standard marine transportation infrastructure will improve both tourists' accessibility and safety, which also contributes to a better positive destination image and supports responsible tourism.

This research aims to formulate a regenerative-based marine tourism strategy in the Momparang Islands, East Belitung, to address environmental challenges due to environmental degradation and unsustainable tourism practices that damage marine ecosystems. International marine tourism needs management reforms, scientific research, clustering, externalization, and further development of the blue economy and coastal natural resources for sustainable development (Troian, et al., 2023). The urgency of this research lies in the need for immediate action to repair the environmental damage that has and could potentially occur and prevent further negative impacts through a tourism approach that is not only sustainable, but also regenerative. The novelty of this research is the application of the regenerative tourism concept in an island group that not only focuses on reducing negative impacts, but also on creating ecosystem restoration and empowering local communities, which can be a new model for other marine tourism destinations in Indonesia.

2. RESEARCH METHODOLOGY

This study used a qualitative method with a Logical Framework Analysis (LFA) approach to formulate a regenerative-based marine tourism strategy in the Momparang Island Cluster. This approach involves several stages, including the identification of goals, outcomes, outputs, and activities. Secondary data was obtained from literature studies and related documents describing the ecosystem and tourism conditions in Momparang. LFA systematically identifies the goals, objectives, activities, and expected outcomes of a project, ensuring all components are considered in strategy development (Kumar, 2021). This research is expected to produce a systematic and measurable regenerative-based marine tourism strategy, which can integrate environmental conservation in the Momparang Island Cluster. This research interviewed a key informant who plays an important role in the management of the Momparang Archipelago, who is entrusted with overseeing tourism efforts and conservation activities in the area, and provided keen insight into the current issues and opportunities surrounding the realization of regenerative tourism.

3. FINDINGS AND DISCUSSION

3.1 Findings

This research uses the seven regenerative principles proposed by Bellato et al. (2022) as a framework in analysing regenerative-based tourism strategies in the Momparang Islands. These principles include an ecological worldview, living systems thinking, exploring the unique potential of the destination, and collaboration in building sustainable places and communities. With this approach, this research not only assesses the impacts of tourism on the environment and local communities, but also identifies opportunities to improve ecosystems and empower communities in regenerative endeavours. The results of the researcher's interview with the manager of Momparang Archipelago can be found in the following table:

Tabel 1. Interview Results

No	Principles	Key Takeaways from Interview
1	Draw from an ecological worldview	a. The Momparang Islands management actively educates fishermen and tourism players about the importance of preserving the environment. They are required to provide rubbish bins when bringing guests.

	<ul style="list-style-type: none"> b. Plastic waste is considered very risky, so the tourism actors in Momparang Archipelago provides plastic bags for tourists to manage waste after activities. c. Education is also provided to tour guides to make them more aware of the importance of protecting the environment in marine tourism activities. d. At the beginning of the launch of Penanas Island as a tourist destination, it was found that there were many piles of garbage left by local tourists on Belitung Island, so the tourism actors in Momparang Archipelago took the initiative to conduct an island/beach clean-up action that managed to collect 7 tonnes of garbage. e. The biggest challenge is to educate the local community regarding waste, so that they can play an active role in preserving the environment in tourist areas.
<p>2 Use living systems thinking</p>	<ul style="list-style-type: none"> a. Local communities in Momparang are not yet fully engaged in the tourism sector, with most still working in the mining sector. b. The decline of the tin mining sector provides an opportunity for managers to encourage the community to switch to the marine tourism sector as an alternative livelihood. c. Community awareness of the tourism potential is still low, but there are efforts to educate them on the benefits of the tourism sector. d. Two fishermen from Bukulimau and Manggar Islands have switched from fishermen to tourism operators because they feel the tourism sector is more profitable and has lower risks. e. The income from bringing tourists for one day is equivalent to one week's income from fishing, making tourism a more attractive option for fishermen. f. Managers pay close attention to weather conditions, seasons and wind direction to ensure safety and the best experience for tourists visiting the Momparang Islands.
<p>3 Discover the Unique Potential of a Regenerative Tourism Place</p>	<ul style="list-style-type: none"> a. Momparang has unique potential in the form of sunken shipwrecks from Chinese dynasty ships that sank in the area, which are not found in other marine tourism in Indonesia or the world. b. There are 13 sunken shipwrecks points that have been recorded, with many Chinese dynasty relics, such as ancient jars. c. Some of these sunken shipwrecks relics are displayed at the Manggar Gallery Museum, allowing tourists to see samples of the artefacts before diving. d. Nangka Island also has a beautiful rock formation that is ideal for a Geopark, but until now no geological research has been conducted there. e. Momparang Archipelago has coordinated with the Jambi Region V Cultural Preservation Centre to propose BMKT spots as underwater cultural heritage, so that they can be managed sustainably by the Centre.
<p>4 Leverage the capability of tourism living systems to catalyse transformations</p>	<ul style="list-style-type: none"> a. In 2015, many fishermen in Momparang were using illegal methods such as trawling and fish bombs to catch fish, which damaged the coral reefs. b. The organisers mediated and educated the fishermen, explaining that these practices would destroy fish habitat and threaten their future livelihoods.

		c. As a result of this education, fishermen in Momparang no longer use illegal methods to catch fish.
5	Adopt healing approaches that promote cultural revival, returning lands, and privileging of the perspectives, knowledges and practices of indigenous and marginalised peoples	<p>a. Bukulimau Island is the only inhabited island in the Momparang Archipelago, with around 600 families, 90% of whom are from the Bugis Buton tribe who still uphold their customs and traditions.</p> <p>b. Whenever tourists arrive, the local community often offers performances of typical Bugis tribal dances as part of the cultural experience.</p> <p>c. Although travellers are sometimes scantily clad, the local community still upholds Bugis cultural values after being educated about the differences in Western culture.</p> <p>d. The tour package offered in the context of cultural preservation is the tradition of 'Makan Bedulang,' which is eating together on a large tray with a typical coastal menu, and tourists can directly buy seafood products that are being dried in the local community's yard as part of a unique experience.</p>
6	Create regenerative places and communities	<p>a. Conservation-based tours are regularly conducted in Momparang, where tourists can participate in planting coral reefs and mangroves, motivating the community to protect the environment.</p> <p>b. The main obstacle faced is waste management by the local community, which is still haphazard, creates odours and attracts flies, reducing the comfort and quality of the tourist experience.</p> <p>c. The Pokdarwis (Tourism Awareness Group) was only formed in mid-2024, and they are now open to tourism and willing to learn together to improve the tourism potential of the Momparang Islands.</p>
7	Collaborate to evolve and enact regenerative tourism approaches	<p>a. Cooperation with village communities is done implicitly, without formal agreements.</p> <p>b. With the private sector in East Belitung, there is an official agreement to increase the number of travel agents which is currently still limited.</p> <p>c. The manager has collaborated with academics from the Tourism Program Study, Muhammadiyah University of Bangka Belitung for the development of tourism human resources.</p> <p>d. A cooperation agreement has also been made with Angkasa Pura II to maximise tourism potential on Penanas Island through underwater photography and videography media.</p> <p>e. There are investment opportunities from the Middle East for the construction of resorts on Penanas Island, with technical and environmental studies that have been prepared to preserve the environment.</p>

The interview results reveal that the management of Momparang Archipelago has implemented several regenerative tourism strategies based on seven key principles. These include educating fishermen and tourism operators about environmental preservation, encouraging community participation in tourism over mining, and leveraging unique cultural and ecological assets such as sunken Chinese shipwrecks and local traditions. Efforts to promote sustainability are ongoing, with conservation-based tourism activities, like coral reef planting, helping foster environmental stewardship among locals. Challenges persist, particularly in waste management, but partnerships with local communities, private sectors, and academic institutions are helping drive the transition towards a more sustainable and regenerative tourism model. Regenerative tourism requires a mindset

shift, systems change, and a bottom-up approach that prioritizes place, community, and environment (Dredge, 2022).

3.2 Logical Framework Analysis

Furthermore, an LFA was conducted to systematically formulate a regenerative-based tourism strategy by linking measurable goals, outcomes and activities to ensure environmental sustainability and local community well-being.

Tabel 2. Logical Framework Analysis

Goals	Objectives	Activities	Expected Outcomes
Draw from an Ecological Worldview	Foster an ecological consciousness in all stakeholders, ensuring tourism activities respect and enhance natural ecosystems.	<ul style="list-style-type: none"> ❖ Conduct regular ecological awareness workshops for local communities, fishermen, and tourism operators. ❖ Implement conservation programs like coral and mangrove restoration. 	<ul style="list-style-type: none"> ❖ Improved ecological awareness among stakeholders. ❖ Healthier marine ecosystems and biodiversity recovery.
Use Living Systems Thinking	Adopt a holistic approach to managing tourism systems, seeing them as part of interconnected living systems.	<ul style="list-style-type: none"> ❖ Develop community-based tourism plans that integrate ecosystem health into economic activities. ❖ Collaborate with local stakeholders to align tourism activities with the natural rhythms of the environment. 	<ul style="list-style-type: none"> ❖ Tourism systems that function in harmony with the natural environment. ❖ Improved resilience of both the community and ecosystems.
Discover the Unique Potential of a Regenerative Tourism Place	Leverage the distinctive ecological and cultural characteristics of the Momparang Archipelago.	<ul style="list-style-type: none"> ❖ Promote and protect the unique shipwreck sites and cultural relics through sustainable tourism packages. ❖ Highlight the unique geology and potential Geopark on Nangka Island. 	<ul style="list-style-type: none"> ❖ Increased tourism appeal through authentic, place-based experiences. ❖ Preservation of cultural heritage and natural landmarks.
Leverage the Capability of Tourism Living Systems to Catalyse Transformations	Use tourism as a transformative tool to shift the local economy from extractive industries to sustainable livelihoods.	<ul style="list-style-type: none"> ❖ Offer training to locals in tourism services (e.g., eco-tourism guiding, cultural heritage interpretation). ❖ Integrate conservation and cultural revival 	<ul style="list-style-type: none"> ❖ Transition of the local economy from mining to tourism-based livelihoods. ❖ Positive cultural and ecological transformations driven by tourism.

			into tourism experiences.
Adopt Healing Approaches that Promote Cultural Revival and Privilege Indigenous Knowledge	Revive local Bugis Buton traditions while prioritizing indigenous knowledge in tourism.	<ul style="list-style-type: none"> ❖ Organize traditional performances and cultural immersion experiences for tourists. ❖ Involve indigenous community leaders in developing tourism programs. 	<ul style="list-style-type: none"> ❖ Enhanced cultural pride and preservation. ❖ Increased tourist interest in authentic cultural experiences.
Create Regenerative Places and Communities	Establish a tourism model that regenerates both the environment and local communities.	<ul style="list-style-type: none"> ❖ Develop community-led waste management programs. ❖ Engage tourists in conservation activities like coral reef planting. 	<ul style="list-style-type: none"> ❖ Cleaner, more sustainable tourism environments. ❖ Empowered communities actively participating in regeneration.
Collaborate to Evolve and Enact Regenerative Tourism Approaches	Build strong partnerships with local communities, private sector, and academic institutions to continuously improve tourism practices.	<ul style="list-style-type: none"> ❖ Formalize collaborations with local universities and the private sector for ongoing training and research. ❖ Establish a regenerative tourism advisory board involving all stakeholders. 	<ul style="list-style-type: none"> ❖ Sustained collaboration across sectors, driving continuous improvement in tourism. ❖ Increased innovation and adaptability in tourism management.

3.3 Discussion

The research findings indicate that the application of the seven regenerative tourism principles proposed by Bellato et al. (2022) has shown significant potential in addressing key challenges in the Momparang Archipelago. The integration of ecological awareness, community participation, and the use of cultural and natural assets has been pivotal in shifting the tourism model from extractive practices towards more sustainable and regenerative ones. Ecological self-awareness positively influences the development of ecotourism by enhancing individuals' attitudes towards environmental benefits and promoting ecological education (Nakonechnykh, Zhuravleva, Volokhova, & Vilchinskaia, 2021). Through the education of local fishermen and tourism operators, environmental stewardship has improved, particularly in areas like coral reef restoration and waste management, although the latter remains a challenge that needs more structured solutions.

The regenerative tourism approach requires systemic changes that involve the local community as key stakeholders. By encouraging sustainable livelihoods through eco-tourism, the local economy has begun to move away from dependency on mining and illegal fishing practices. Moreover, the preservation of unique cultural practices, such as traditional dances and culinary experiences, has been integrated into tourism offerings, providing authentic experiences for tourists while safeguarding local heritage. Authenticity significantly influences mindfulness in heritage tourism, leading to a more positive tourist experience and increased satisfaction and loyalty (Eck, Zhang, & An, 2023). These efforts are being bolstered by partnerships with private sectors and academic institutions, creating a collaborative framework to drive continued improvement and sustainability.

However, to fully realize the potential of regenerative tourism, there is a need for stronger governance and formalization of initiatives. The creation of a formal regenerative tourism advisory board, along with further community education in sustainable practices, will help ensure the long-

term success of the tourism strategy. The ongoing challenges in waste management, particularly in tourist areas, also necessitate the development of a comprehensive, community-led waste management program to enhance environmental quality and improve tourist satisfaction. Sustainable solid-waste management in coastal and marine tourism is influenced by stakeholder participation, tourism activities, policy and legal framework, and environmental co-creation (Tsai, Bui, Tseng, Lim, & Tan, 2020). This holistic approach positions the Momparang Archipelago as a model for how regenerative tourism can address environmental, economic, and cultural challenges simultaneously.

4. CONCLUSION

The implementation of regenerative tourism principles in the Momparang Archipelago has transformed the region's tourism model from one focused on extractive industries to a more sustainable and regenerative approach. This shift, driven by ecological awareness, community participation, and the use of unique cultural heritage, has led to improvements in coral reef recovery. However, waste management remains an area that requires further attention. Education of local stakeholders, including fishermen and tour operators, has been key in fostering environmental stewardship, though stronger governance and formalization of initiatives are necessary to achieve the full potential of regenerative tourism.

Future research should investigate the long-term application of regenerative tourism principles in different settings, emphasizing effective collaboration among government, local communities, and the private sector. Additionally, more research is needed to assess the broader impacts of regenerative tourism, especially in terms of economic, social, and environmental benefits, with a particular focus on community empowerment and cultural preservation. Innovative approaches to waste management that engage tourists should also be explored to enhance sustainability efforts in tourism destinations.

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