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REGENERATIVE TOURISM MODEL IN BRASTAGI DISTRICT: INTEGRATION OF LOCAL WISDOM, AGROECOTOURISM, AND NATURE CONSERVATION

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Abstract

This research aims to design a regenerative tourism model in Brastagi District by integrating local wisdom values, agroecotourism practices, and community-based conservation approaches. The main problem raised is the lack of a tourism governance model that is able to answer the need to comprehensively improve socio-ecological conditions in mountainous agroecological areas. This research uses an exploratory qualitative method with a participatory case study approach. Data were obtained through in-depth interviews, participatory observations, focus group discussions, and document studies analyzed using grounded theory techniques. The results of the study show that local values such as customary deliberation and mutual cooperation play a role as the foundation of inclusive governance, while agroecological practices and customary forest conservation can be used as educational and ecological tourism attractions. The conceptual model built reflects the integration of social, agricultural, and natural systems that support each other in creating tourist destinations that are not only sustainable but also able to regenerate the environment and improve the welfare of local communities. The conclusion of the study states that regenerative tourism can be a strategic approach in designing a more equitable and resilient tourism future in rural areas. These findings open up space for the replication of the model in other regional contexts with similar characteristics and serve as the basis for policy advocacy and the development of locally-based regenerative tourism success indicators.

Keywords: Regenerative Tourism, Local Wisdom, Agroecotourism, Community Conservation, Participatory Governance

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INTRODUCTION

The development of tourism in Indonesia increasingly shows the complex dynamics between the drive for economic growth and the need for environmental conservation and the preservation of local culture. In this context, the concept of regenerative tourism has emerged as a cutting-edge paradigm that not only aims to maintain sustainability, but also actively improve and revitalize local ecosystems and communities affected by tourism activities (Walia & Mandić, 2023). The need for this regenerative approach is becoming increasingly important amid challenges such as the climate crisis, environmental degradation, and cultural homogenization due to mass tourism. Brastagi District in North Sumatra is known as an agroecotourism area with the potential for biodiversity and distinctive Karo culture. However, the region also faces serious challenges in the form of degradation of highland agricultural ecosystems, spatial conflicts between agricultural land and tourism, and a lack of inclusive and community-based governance schemes. In this situation, the development of regenerative tourism becomes not only relevant, but also urgent, as a form of tourism governance innovation that integrates local wisdom, agroecological practices, and community-based conservation (Astarini et al., 2024).

As illustrated by the zero-waste business model in the culinary industry in Medan studied by Daryana et al. (2025), a circular economy-based approach is able to increase operational efficiency, customer loyalty, and reduce waste by up to 70% compared to conventional models. The study shows that a contextually and participatory design sustainability model can create a competitive advantage while addressing urban ecological challenges. This logic can be translated into the context of Brastagi tourism: if local practices such as peruaren (mutual cooperation) and ngawan (traditional deliberation) are synergized with agroecotourism and conservation, then the regenerative model that is born will be adaptive, inclusive, and have a long-term impact.

However, there is no conceptual model that can holistically bridge tourism governance, local agroecological systems, and nature conservation strategies in the mountainous tropics. This gap reflects the need for interdisciplinary research that not only develops a theoretical framework, but also tests the

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feasibility and relevance of such models in the field. Therefore, the research question raised is: How to design a regenerative tourism model in Brastagi District that integrates local wisdom, agroecotourism, and nature conservation in one coherent governance system that is adaptive to ecological and social changes?

Figure 1. Comparison of Waste Reduction in Culinary Business Models

This graph illustrates that a model integrated with sustainability and regeneration principles can deliver significant results in waste reduction and operational efficiency. This approach is in line with the principles of good governance in community-based tourism governance (Fay et al., 2011), where transparency, accountability, and participation are the main foundations for the development of a resilient and inclusive tourism ecosystem.

By considering the relationship between local wisdom, agroecotourism, and conservation, as well as examining previous studies in the framework of circular economy and industrial ecology, this study aims to develop a conceptual model of regenerative tourism that can be used as a reference in community service programs and regional tourism governance policies.

METHODS

This study uses an exploratory qualitative approach with a participatory case study design located in Brastagi District, Karo Regency, North Sumatra. This method was chosen to explore in depth local practices, patterns of social interaction, and ecological dynamics that influence the development of regenerative tourism. Data collection was carried out through triangulation techniques, namely participatory observation on agroecotourism activities and customary forest conservation, in-depth interviews with indigenous leaders, tourism actors, and local government representatives, as well as document studies on spatial planning regulations and regional tourism policies. The selection of informants was carried out purposively, consisting of 5 traditional leaders, 4 agroecotourism farmers, 3 local tourist destination managers, and 2 officials of the Tourism Office. Data analysis uses *the*

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grounded theory approach (Glaser & Strauss, 1967) to construct a conceptual model from the ground up based on thematic categories that arise inducively from field data. In addition, to validate the results and improve the validity of the data, a focus group discussion forum (FGD) with a *deliberative participatory method* approach is used which allows local communities to play an active role in verifying and strengthening the findings. Theoretically, this method is based on *participatory rural appraisal* and the concept *of community-based tourism governance* (Murphy, 1985) which emphasizes the importance of direct community involvement in planning and decision-making to realize ecologically and socially equitable tourism.

Table 1. Samples Criteria

Types of Respondents	Number (People)	Selection Criteria
Traditional Leaders	5	Local traditional leaders who understand Karo cultural values
Agroecotourism Farmers	4	Farmers who are directly involved in agroecological practices and educational tourism
Tour Manager	3	Community-based and conservation local destination managers
Tourism Office Officials	2	Officials authorized in tourism policy planning and supervision
Conservation Activist/NGOs	2	Environmental activists or NGO members who are active in local nature conservation

RESULT AND DISCUSSION

Stage 1: Open Coding (Initial Conceptual Labeling). At this stage, the raw data (interview transcripts, observation notes, and FGD results) is read repeatedly to identify important pieces of information. Each piece is labeled or open-coded that is descriptive. Some examples of code that appear:

Table 2. xxxx

Empirical Data	Open Code
"We always deliberation the village before opening tourist land."	*Naawan as a governance mechanism*
"We plant organic horticulture and invite tourists to learn to plant."	*Educational and organic agrotourism*
"We protect customary forests, tourists are invited to go on educational paths."	*Community conservation and educational tourism*

Stage 2: Axial Coding (Grouping and Relationships between Codes). Furthermore, the codes that have a relationship are classified into *the main thematic categories*. At this stage, *model paradigm questions* are used such as: *What are the causative conditions? Who is the actor? What are the consequences?*

Table 3. xxxx

Category	Related Codes	Actor	Context/Field Findings
Custom-Based Governance	*Naawan, Peru, Rehat mbelin.*	Traditional leaders, village people.	Becoming a system of collective decision and environmental ethics
Educational Agroecotourism	*Organic Horticulture, Crop diversification, Argicultural educational tourism.*	Farmers, tourism managers.	Blending agricultural and tourism in a hands-on experience

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Community Conservation	*Customary forests, educational trekking trails, Ecological interpretation.*	NGOs, conservation communities.	Maintaining the ecosystem with the participation of residents and tourists

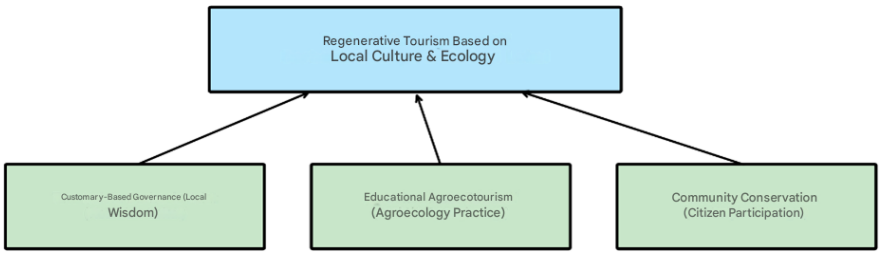
Stage 3: Selective Coding (Integration and Synthesis into Conceptual Models). At this stage, the main categories are combined into one *central proposition* or *core category*, namely: "Regenerative tourism based on local culture and ecology". Other categories are supporting elements that reinforce each other's core categories.
Conceptual Model:

1) Core Category: Regenerative tourism based on local culture and ecology
2) Supporting Elements:
   a) Customary-Based Participatory Governance → ensure social legitimacy and sustainability of tourism decisions.
   b) Education- and Ecology-Based Agroecotourism → create economic added value and meaningful tourism experiences.
   c) Community-Based Conservation and Nature Interpretation → to maintain ecosystems and build tourists' ecological awareness.

This model illustrates the interdependent relationships between elements and shows that the success of regenerative tourism depends on the integration of locally-based socio-cultural, ecological, and economic aspects.

The results of this study produced three main thematic categories that form the foundation of the regenerative tourism model in Brastagi District, namely: (1) revitalization of the local wisdom of the Karo community, (2) strengthening agroecotourism based on agroecology, and (3) integration of community-based conservation into tourist destinations. Each category was obtained from the open coding and axial coding process through a grounded theory approach carried out on the results of observations, in-depth interviews, and FGDs.

Conceptual Model of Regenerative Tourism in Brastagi District



First, the findings show that cultural values such as peruaren (mutual cooperation), mbelin rest (respect for nature), and ngawan (traditional deliberation) are still strongly carried out by the Karo people and have great potential to be used as a framework for community tourism governance. The revitalization of these values not only supports socio-cultural sustainability, but also increases social cohesion in regenerative-based tourism management. These findings confirm the theory of Community-Based Tourism Governance (Murphy, 1985) which emphasizes the importance of local participation as a condition for the legitimacy and sustainability of tourist destinations.

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Second, direct observation on educational tourism farmland shows that some farmers have applied agroecological principles such as crop rotation, the use of organic fertilizers, and the diversification of horticultural products. These practices are the foundation for the development of agroecotourism that is not only economically oriented, but also forms a harmonious relationship between humans and nature. This approach is in line with the Circular Food Economy Theory (Ouro-Salim & Guarnieri, 2022), which promotes resource efficiency in the local food cycle, and strengthens the resilience of local ecosystems to the impacts of climate change.

Table 4. xxxx

Theme	Sub-Findings	Observation Results	Analysis Theory
Revitalizing Local Wisdom	A Sense of Community, A Sense of Community, and A Sense of Belonging as a Way of Governance	Traditional rituals are carried out during land clearing and tourism harvesting	Community-Based Tourism Governance (Murphy, 1985)
Strengthening Agroecotourism	Agroecology: crop rotation, organic fertilizers, horticultural diversification	Farmers use compost fertilizer and attract educational tourism	Circular Food Economy Theory (Ouroâ€Salim & Guarnieri, 2022)
Integration of Nature Conservation	Preservation of customary forests, conservation tourism, eco-interpretation	Forest management by the community has succeeded in preventing land conversion	Industrial Ecology Theory (Han et al., 2021)

Third, community-based nature conservation efforts in the slopes of Mount Sibayak and customary forest lands have shown success in maintaining local biodiversity and reducing the pressure of land conversion. In interviews with conservation activists and customary forest managers, it was found that community involvement through educational conservation tourism programs (eco-interpretation) encourages collective ecological awareness. This reflects the principles of Industrial Ecology Theory (Han et al., 2021) where waste and resource management is carried out synergistically between local sectors (agriculture, tourism, conservation).

Table 5. xxxx

Discussion Topics	Majority Response	Category Stakeholder
Key challenges in developing locally-based tourism	Lack of training and capital for local tourism innovation	Traditional Figures, Farmers
The potential of local wisdom to support regenerative tourism	Values such as peruaren and rest are considered important for governance	Traditional Leaders
Training or assistance needs for tourism actors	Training in tourism management and digital marketing is required	Tourism Actors, NGOs
Synergy between farmers and tourism managers	Strong support for the integration of agricultural produce into educational tour packages	Farmers, Tourism Managers
Policy proposals or local government support	Need incentives, protection of customary forests, and access to digital promotion	Office of Agencies, NGOs

Through the Focus Group Discussion Forum (FGD), it was agreed that the development of regenerative models should pay attention to three main indicators: social sustainability, ecological efficiency, and equitable economic impact. This conclusion is also supported by the results of field

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observations that show that locations that successfully adopt regenerative principles experience increased citizen participation, decreased use of chemical inputs, and increased added value of tourism products based on nature education. These findings are in line with the research results of (Daryana et al., 2025) which prove that the adoption of circular and zero-waste based models in the culinary industry can result in increased operational efficiency and customer loyalty—a concept that can be adapted in the context of Brastagi agroecological ecotourism.

Overall, the results of this study confirm that a regenerative tourism model in Brastagi can be developed with a transdisciplinary integration between local cultures, sustainable agricultural systems, and nature conservation packaged in an educational tour package. The three strengthen each other in creating a destination model that is not only sustainable, but also improves socio-ecological conditions that have been degraded. With this approach, the resulting model is not only adaptive to the local context, but also offers replication for other tourist areas in Indonesia that have similar potential.

CONCLUSION

This study confirms that a regenerative approach in tourism management is not just an alternative, but an urgent need amid socio-ecological damage and the limitations of conventional sustainable tourism models. By integrating local wisdom, agroecological practices, and community-based conservation in a single conceptual framework, this study develops a regenerative tourism model that is adaptive to the characteristics of the Brastagi region. The model proves that the success of social and ecological regeneration can be achieved through participatory governance, innovations in education-based agriculture, and ecological landscape restoration carried out with the community.

Theoretically, this result reinforces the thinking of Glaser & Strauss, (1967) in grounded theory, that relevant and applicable scientific concepts are born from the depth of direct interaction with the reality of the field. In this case, the concept of Community-Based Tourism Governance (Murphy, 1985) has proven to not only provide social legitimacy for tourism activities, but also to be a tool for distributing ecological values and responsibilities in local communities. Meanwhile, the Circular Food Economy (Ouro-Salim & Guarnieri, 2022) provides a foundation for the development of agroecotourism as a system that is not only efficient in terms of resources, but also sustainable from economic and educational aspects. Furthermore, Industrial Ecology (Han et al., 2021) explains how the interaction between social, agricultural, and natural systems can form "regenerative ecosystems" that complement and nurture each other. With this approach, Brastagi can become a representation of a regenerative ecotourism model that can be replicated in other regions that have similar cultural diversity and ecological challenges. Not only does it serve as a tourist destination, it creates a local resilience system to external pressures such as urbanization, climate change, and cultural commercialization. These findings also open up space to revisit the conventional perspective on tourism as an extractive activity into a transformative one.

In the future, this research opens up opportunities for further development in three main directions: (1) the establishment of a toolkit of success indicators for regenerative destinations based on local values; (2) the application of digital participatory mapping to map the potential of agroecotourism and conservation areas collaboratively; and (3) policy advocacy based on field data to urge fiscal incentives, infrastructure support, and policies to protect customary forests and sacred areas. In addition, follow-up studies that test the performance of these models over longer timescales as well as replication tests in regions with different cultures and ecology are needed to expand the generalization of the model nationally.

Thus, the conclusion of this study is not a conclusion, but rather a starting point to build a new narrative about the future of Indonesian tourism tourism that not only visits and admires, but also heals and regrows the social and ecological life of its people.

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