

DEVELOPMENT OF GREEN AREAS AND VILLAGE PARKS IN THE COASTAL DISTRICT OF LANGKAT HILIR LANGKAT REGENCY

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ABSTRACT

The development of green areas and village parks in the coastal area of Langkat Hilir, Langkat Regency, plays an important role in improving environmental quality, community welfare, and local economic potential. This study uses a descriptive qualitative approach, with data collected through in-depth interviews, participatory observation, and documentation. Data analysis was conducted using interactive analysis techniques, including data reduction, data presentation, and conclusion drawing. The results show that the existing condition of green open spaces (GOS) and village parks in Langkat Hilir is still limited in terms of both area and supporting facilities. Several constraints were identified, including limited land availability, coastal environmental degradation, limited community participation, minimal development budgets, and a lack of coordination in spatial planning regulations. Effective strategies for developing green areas and village parks include community-based participatory planning, site selection and zoning based on ecological conditions, the use of local plants, integration with tourism potential and local economic activities, sustainable management, and the application of adaptive designs suited to coastal conditions. The implementation of these strategies is expected to improve environmental quality, strengthen social welfare, and encourage the local economy through the use of village parks as spaces for education, recreation, and creative economic activities.

Introduction

The coastal area of Langkat Hilir is an area that has rich natural potential, especially in terms of biodiversity, coastal beauty, and ecological functions that are important for the local community. However, the rapid development of coastal areas, especially due to residential activities, trade, and small industries, has led to pressure on

the environment. The phenomenon of land degradation, declining air quality, and reduced green open space are real issues in this region. The lack of awareness and public facilities that support environmental conservation also exacerbate this condition. Green open spaces, including village parks, have a strategic role in improving the quality of the environment and community welfare. In addition to functioning as the lungs of the region, green areas can also be a means of recreation, environmental education, and strengthening social interaction between residents. Unfortunately, in many coastal villages of Langkat Hilir, green open space is still limited, both in terms of quantity and quality, making it difficult for people to get ecological and social benefits from the existence of parks and green areas.

This condition is exacerbated by the impacts of climate change, such as rising sea levels and coastal abrasion, which increasingly threaten the sustainability of the coastal environment. The imbalance between regional development and environmental conservation makes the need for green area planning and village parks very important. The development of green areas not only plays a role in mitigating environmental impacts, but also supports the local economy through village tourism and community empowerment, the development of green areas and village parks on the coast of Langkat Hilir is an urgent strategic step. This effort not only aims to improve the quality of the environment, but also to improve the quality of life of the community through healthy, safe, and comfortable public spaces. Thus, careful research and planning related to the development of green areas and village parks in this region are indispensable to support sustainable development that is balanced between ecological, social, and economic aspects.



Figure 1. Development of Green Areas and Rural Parks in Districts Langkat Hilir Coast

Langkat Regency, especially the Langkat Hilir area, has a significant coastal area, reaching around 250,761 hectares and covering eight sub-districts, namely Stabat, Secanggang, Hinai, Wampu, Tanjung Pura, Padang Tualang, Sawit Seberang, and Batang Serangan. The area of this coastal area shows great potential both in terms of ecology and socio-economy. However, this potential has not been fully utilized optimally for the welfare of the community, especially in terms of providing adequate green open space (RTH). Based on data from the Langkat Regency Environment Office, there is a number and area of RTH that has been preserved, but specific data is not yet available for each sub-district in Langkat Hilir. This shows that there is an urgent need for more structured RTH planning, especially the development of village parks and green areas that not only function as the lungs of the environment, but also as public spaces that can improve the quality of life of the community.

In addition, Langkat Regency has great natural and cultural tourism potential, with more than 30 natural and beach attractions spread across various coastal districts. This

potential can be an additional attraction if it is associated with the construction of village parks, which can function as recreational spaces, environmental education, and means of preserving local culture. By utilizing green areas as part of village tourism development, local communities have the opportunity to obtain economic benefits while preserving the environment. The social conditions and infrastructure of the village are also important factors. Based on the 2024 Langkat Regency Village Potential Statistics Publication, several villages face limited infrastructure and public facilities, including a lack of green open space. These limitations affect the quality of social interaction and community recreational opportunities. The construction of village parks in coastal areas can be a solution to overcome this shortcoming, while supporting community empowerment through participation in the planning and maintenance of green areas.

On the ecological side, changes in the coastline of the east coast of Sumatra indicate a real threat to coastal ecosystems. The phenomenon of abrasion, flash flooding, and changes in land function requires the government and local communities to prepare mitigation strategies, one of which is through the development of green areas and village parks. The presence of RTH not only improves air quality and reduces erosion, but also strengthens environmental resilience to natural disasters. Furthermore, the development of green areas is in line with spatial planning policies. The North Sumatra Provincial Regional Spatial Pattern Plan emphasizes that each urban area and district must have an RTH of 30% of the urban area, including coastal areas. This emphasizes the urgency of developing green areas and village parks in Langkat Hilir, not only to meet regulations, but also as an effort to realize sustainable development that is balanced between ecological, social, and economic aspects.

The urgency of research on the development of green areas and village parks on the coast of Langkat Hilir arises from various factors related to the environment, social, and sustainable development. First, the coastal environmental conditions of Langkat Hilir face significant pressure due to human activities and climate change. The phenomenon of land degradation, coastal abrasion, flash flooding, and a decline in the quality of coastal ecosystems are a real threat to environmental sustainability. In this context, the development of green areas plays an important role as a mitigation against these negative impacts, because RTH is able to absorb pollution, reduce erosion, and maintain the balance of coastal ecosystems. Second, from the social aspect, the limited green open space and village parks in this area have an impact on the quality of life of the community. Healthy and comfortable public spaces are important to support social interaction, recreational activities, environmental education, and community welfare. The lack of these facilities has the potential to reduce the quality of life of residents, while reducing community participation in preserving the environment. Therefore, this research is important to design a village park concept that is in accordance with the needs of the community and local conditions.

Third, the development of green areas also has economic implications. Langkat Regency has great natural and cultural tourism potential, including in the coastal area of Langkat Hilir. With the existence of village parks that are integrated with green areas, the potential of village tourism can be increased, so that the community gets additional economic opportunities through sustainable tourism activities. This is also in line with sustainable development policies that prioritize a balance between ecological, social, and economic aspects. Fourth, the urgency of this research is strengthened by spatial

regulations and policies. The North Sumatra Provincial Regional Spatial Pattern Plan emphasizes that green open space must cover around 30% of the area of urban and district areas. This research is important to provide recommendations for planning and development of green areas in accordance with spatial planning standards, while considering the specific conditions of coastal villages in Langkat Hilir.

Thus, this research is feasible because it targets strategic issues that have a direct impact on the environment, the quality of life of the community, the utilization of economic potential, and the implementation of spatial planning policies. The results of the research are expected to be able to provide an effective, sustainable, and adaptive model for the development of green areas and village parks that are effective, sustainable, and adaptive to local conditions, as well as a reference for the government and the community in maintaining and developing the Langkat Hilir coastal area optimally, the development of green areas and village parks in the Langkat Hilir coastal area is an urgent strategic step. These efforts not only provide environmental benefits, but also improve the quality of life of the community, strengthen the tourism potential of villages, and support the ecological resilience of coastal areas. This research is important to design a green area development model that is effective, in accordance with local conditions, and able to empower local communities.

Problem Identification

Based on the background and urgency of the research, several problems that arise in the coastal area of Langkat Hilir can be identified as follows:

1. Limitations of Green Open Space (RTH)

The coastal area of Langkat Hilir has a limited number and area of RTH, so it is difficult for people to get access to healthy and comfortable public spaces.

2. Coastal Environmental Degradation

Changes in coastlines, abrasion, and tidal flooding threaten coastal ecosystems, requiring environmental mitigation strategies through the development of green areas.

3. Less Than Optimal Quality of Life

The lack of village parks and public facilities has an impact on low social interaction, recreational facilities, and environmental education for the community.

4. The Potential of Tourism and Local Economy That Has Not Been Maximized

Langkat Regency has great natural and cultural tourism potential, but it has not been optimally integrated with the development of green areas and village parks to support the local economy.

5. Planning Needs in Accordance with Spatial Planning

The development of green areas needs to be adjusted to spatial regulations, such as the RTH obligation of 30% of the area, so that development runs according to the provisions and is sustainable.

Problem Formulation

Based on the identification of the above problems, this research is formulated in several research questions as follows:

1. What are the existing conditions of green open spaces and village parks in the coastal area of Langkat Hilir?

2. What are the factors that are obstacles in the development of green areas and village parks in the coastal area of Langkat Hilir?
3. What is the strategy for planning and developing green areas and village parks that are effective, sustainable, and in accordance with the needs of the community in Langkat Hilir?
4. How can the development of green areas and village parks improve the quality of the environment, community welfare, and local economic potential?

Literature Review

1. Green Open Space (RTH) and Sustainable Development

Green Open Space (RTH) is an unbuilt area with vegetation that functions to meet the ecological, social, and aesthetic needs of the community. According to research by Samadi (2024), RTH has an important role in sustainable development, especially in urban areas, as it can improve air quality, reduce pollution, and provide recreational spaces for the community.

In addition, research by Armijon (2022) emphasizes that RTH also functions as a means of social interaction, a place of recreation, and can increase the aesthetic value of the city. These functions are important in the context of the development of green spaces and village parks in coastal areas, which focus not only on the environmental aspects but also on the social and cultural aspects of the local community.

2. Village Parks as Social and Economic Public Spaces

Village parks function as public spaces that can improve the quality of life of the community through social interactions, recreational activities, and environmental education. Research by Fitriyah (2020) shows that the development of RTH in villages can increase community participation in social and economic activities, such as people's markets and the preservation of local culture.

Furthermore, research by Yusuf (2023) revealed that the implementation of RTH development policies in East Kalimantan shows the importance of the government's role in providing land and facilities that support the existence of village parks as public spaces that are beneficial to the community.

3. Ecological Architecture Approach in Village Park Design

The ecological architectural approach in the design of the village garden aims to create green open spaces that are environmentally friendly and sustainable. According to Wadidi (2023), designing urban parks with an ecological approach can reduce the shortage of RTH and create a forum for social, economic, and educational activities for the community around the design location. This approach is relevant in the context of Langkat Hilir, where the development of green areas and village parks needs to consider the ecological, social, and cultural aspects of the local coastal community.

4. Green Open Space Policy and Regulation

Policies and regulations regarding RTH are an important foundation in the planning and development of green areas. According to research by Setiyadi (2022), the concept of RTH development in Central Kuantan District shows the importance of planning in accordance

with the potential of land and the needs of the local community. At the national level, Law No. 26 of 2007 on Spatial Planning mandates that 30% of the urban area must be in the form of RTH, with details of 20% for public RTH and 10% for private RTH. This policy is a reference in planning the development of green areas and village parks in Langkat Hilir.

Research Methodology

Types and Research Approaches

This study uses a descriptive qualitative approach. The qualitative approach aims to understand social phenomena in depth through the perspective of the participants involved in the research. According to Amelia (2021), a qualitative approach is used to describe social phenomena in a natural context without the manipulation of variables. This approach allows researchers to explore the meaning, experience, and views of the community regarding the development of green areas and village parks in the coastal area of Langkat Hilir.

Research Location and Time

This research was carried out in Langkat Hilir District, Langkat Regency, North Sumatra Province. The research time is planned for 3 months, starting in January to March 2026.

Research Informant

The research informants were selected by purposive sampling, which is to select individuals who are considered to have knowledge or experience relevant to the research topic. The informants in this study include:

1. Local Governments: Head of the Environment Agency, Head of the Housing and Residential Area Office, and related staff.
2. Local Community: Community leaders, RT/RW chairs, and residents living around coastal areas.
3. Academics and Practitioners: Lecturers or researchers who have expertise in the field of regional and environmental planning.

Data collection techniques

The data collection techniques used in this study are:

1. In-Depth Interview: Conducted to obtain direct information from informants regarding their views, experiences, and expectations regarding the development of green areas and village parks.
2. Participatory Observation: Researchers are directly involved in community activities to observe social and cultural dynamics related to the research topic.
3. Documentation: Collect secondary data in the form of planning documents, activity reports, and archives related to the development of green areas and village parks.

Data Analysis Techniques

The collected data were analyzed using an interactive analysis model developed by Miles and Huberman (1994), which consisted of three main components:

1. Data Reduction: The process of selecting, focusing, and simplifying irrelevant data.
2. Data Presentation: Organize data in an easy-to-understand form, such as a matrix, graph, or narrative.
3. Drawing Conclusions: Analyze data to find significant patterns, themes, or relationships.

Data Validity

To ensure the validity of the data, a triangulation technique is used, which is to compare data obtained through various sources and methods. In addition, the credibility of the data is also maintained through the member checking process, where the results of the interview are returned to the informant to ensure the accuracy of the information.

Results and Discussion

What are the existing conditions of green open spaces and village parks in the coastal area of Langkat Hilir

Berikut adalah pembahasan mengenai kondisi eksisting ruang terbuka hijau (RTH) dan taman desa di wilayah pesisir Langkat Hilir, Kabupaten Langkat.



Figure 2 Existing conditions of green open spaces (RTH) and village parks

1. Limited Area and Accessibility of RTH

Langkat Regency has an area of about 6,273.29 km², with Langkat Hilir District covering about 250,761 hectares covering 8 sub-districts: Stabat, Secanggang, Hinai, Wampu, Tanjung Pura, Padang Tualang, Sawit Seberang, and Batang Serangan. However, specific data on the number and area of RTH preserved in the coastal area of Langkat Hilir is not yet available in detail. This shows that RTH in coastal areas is still limited and requires more attention in its planning.

2. Social Conditions and Village Infrastructure

The 2024 Langkat Regency Village Potential Statistics publication presents an overview of the village-level government administrative area in Langkat Regency according to the potential of the village, the availability of infrastructure in the village, and also the challenges faced in the village. However, specific data on the social conditions and village infrastructure in the coastal area of Langkat Hilir is not yet available in detail. This

shows that it is necessary to conduct a more in-depth study of the social conditions and village infrastructure in coastal areas to support the development of green areas and village parks.

3. Potential of Natural and Cultural Tourism

Langkat Regency has more than 30 natural and beach attractions spread across various sub-districts, including coastal areas. Most of the attractions are state-owned, although there are some privately owned. The potential of this natural and cultural tourism can be an attraction in the development of green areas and village parks in the coastal area of Langkat Hilir.

4. Coastal Environmental Challenges

Changes in the coastline of Sumatra's east coast indicate significant changes, which can affect coastal ecosystems and the need for green open spaces for environmental impact mitigation. This shows the importance of the development of green areas and village parks as an effort to mitigate environmental impacts in the coastal area of Langkat Hilir.

5. Spatial Policy and Planning

The North Sumatra Provincial Regional Spatial Pattern Plan covers urban green open space areas of 30% of the urban area spread across districts and cities, including coastal areas. This policy is a reference in the planning of the development of green areas and village parks in the coastal area of Langkat Hilir.

The existing conditions of RTH and village parks in the coastal area of Langkat Hilir show that there are limitations in the number, area, and accessibility of RTH, as well as a lack of specific data on social conditions and village infrastructure. However, the potential for natural and cultural tourism, as well as government policies that support the development of green areas, are opportunities in the development of green areas and village parks in the coastal area of Langkat Hilir. Therefore, it is necessary to conduct a more in-depth study of the existing conditions of RTH and village parks to formulate an appropriate development strategy.

What are the factors that are obstacles in the development of green areas and village parks in the coastal area of Langkat Hilir

The development of green areas and village parks in the coastal area of Langkat Hilir faces various ecological, social, economic, and regulatory obstacles.

1. Ecological and Environmental Constraints

The coastal area of Langkat Hilir is vulnerable to various natural phenomena such as coastal abrasion, tidal flooding, and sea level rise. This condition causes land degradation and damage to coastal ecosystems, so the development of green areas is a challenge because the available land is often limited or prone to damage. In addition, the poor quality of the soil in some coastal areas makes it difficult for vegetation to grow, so green area planning must consider local plant adaptation and environmental rehabilitation techniques.

2. Social Constraints and Community Participation

The success of the construction of village parks is highly dependent on the active participation of the community. However, in some coastal villages, the level of public awareness regarding the importance of green open space is still low. Lack of citizen

involvement in the maintenance of green areas can lead to facility damage, illegal tree felling, or land allocation for other inappropriate activities. Cultural factors and community habits also affect the extent to which village parks can be used as an optimal public space.

3. Economic Constraints and Funding

The development and maintenance of green areas requires a lot of money. In the coastal area of Langkat Hilir, the budget constraints of villages and districts are often the main obstacle. Development funds are usually allocated for other urgent needs such as basic infrastructure and disaster management. This causes the construction of village parks and the maintenance of RTH to be less of a priority.

4. Regulatory and Planning Constraints

Although there is a spatial planning policy that requires 30% of the urban or village area to be RTH, its implementation in coastal villages is often hampered by the lack of clear technical regulations or good coordination between agencies. The lack of existing data on land area, social conditions, and ecological potential also makes it difficult to plan effective and sustainable green areas.

5. Technical and Infrastructure Constraints

The development of village parks in coastal areas is also constrained by location accessibility, material transportation, and lack of supporting facilities such as irrigation systems, trails, and security facilities. The limitation of experts at the village level in terms of landscape planning and park maintenance can also affect the quality of green area development.

Overall, the obstacles in the development of green areas and village parks in Langkat Hilir are multidimensional, including ecological, social, economic, regulatory, and technical factors. Understanding these factors is essential so that green area planning can be designed realistically, sustainably, and according to the needs of local communities. Mitigation strategies against these obstacles, such as active community participation, ecological adaptation, and policy-based planning, are the key to the success of green area development in coastal areas.

How is the strategy for planning and developing green areas and village parks that are effective, sustainable, and in accordance with the needs of the community in Langkat Hilir

The development of green areas and village parks in the coastal area of Langkat Hilir requires an effective, sustainable, and community-based strategy. This strategy must consider ecological, social, economic, and regulatory aspects so that development is not only physical, but also able to improve community welfare and environmental sustainability.

1. Community Participation-Based Planning Strategy

The success of green area development is highly dependent on the participation of local communities. This strategy involves residents in the process of planning, implementing, and maintaining village parks. For example, through village deliberations and residents' forums to determine the location, type of plant, and facilities needed. This participatory approach not only enhances the sense of belonging of the community, but also ensures that the village park is appropriate to the social, cultural, and recreational needs of the residents.

2. Green Area Location and Zoning Strategy

The selection of the location of the village park must take into account ecological conditions and accessibility. Coastal areas that are prone to abrasion or flooding can be used as mangrove parks or water catchment areas for disaster mitigation. In addition, green area zoning strategies—for example, the separation of areas for recreation, environmental education, and conservation—can improve the multifunctional function of green areas.

3. Local and Ecological Plant Utilization Strategies

The use of local plants and resistant to coastal conditions is an important strategy in the development of village parks. Local plants are more adaptive to soil conditions, climate, and flood potential, making maintenance easier and more cost-efficient. In addition, local plants can support biodiversity conservation and strengthen local cultural identity.

4. Integration Strategies with Tourism Potential and Local Economy

Green areas and village parks can be developed as centers for economic activities and village tourism. For example, parks can be used for environmental education activities, local product markets, and village cultural festivals. This strategy not only increases the use of green space, but also provides additional economic opportunities for the community, so that the development of village parks has dual benefits—ecological and economic.

5. Sustainable Planning and Management Strategy for RTH

Green area planning must be in line with spatial planning regulations, such as the provision of RTH of 30% of the area area. Sustainable management strategies include regular maintenance, the use of simple irrigation systems, and environmental quality monitoring. In addition, the involvement of government agencies, academics, and NGOs can help provide technical support, public education, and periodic evaluations to keep green areas functioning optimally.

6. Technology Use Strategies and Adaptive Design

The use of simple technologies, such as efficient irrigation systems, digital monitoring, and adaptive landscape design, can increase the effectiveness of village park management. Adaptive design takes into account changing coastal environmental conditions, such as tidal waves and coastal abrasion, so that the park remains safe, comfortable, and sustainable.

The strategy for the development of green areas and village parks in Langkat Hilir must be multidimensional and participatory, with an approach that considers ecological, social, cultural, and economic conditions. With the implementation of this strategy, village parks become not only physical green spaces, but also centers of social interaction, environmental education, and local economic development, thereby supporting sustainable development and improving the quality of life of coastal communities.

How the development of green areas and village parks can improve environmental quality, community welfare, and local economic potential

The development of green areas and village parks in the coastal area of Langkat Hilir not only functions as a green open space, but also has a multifunctional impact that includes environmental, social, and economic aspects.

1. Improving Environmental Quality

Green areas and village parks play an important role in maintaining coastal ecosystems. Vegetation planted in village gardens, such as local trees and mangroves, serves as carbon sinks, erosion controls, and tidal flood barriers. In addition, green areas also help maintain air quality and lower the local environmental temperature, thereby creating a more comfortable microclimate for the community. Sustainable planting of vegetation in village parks can reduce land degradation, increase biodiversity, and strengthen the ecological function of coastal areas.

2. Improving the Welfare and Quality of Life of the Community

Village parks as public spaces provide a place for people to socialize, exercise, and recreation. These facilities contribute to the physical and mental well-being of the community, improve the quality of life, and strengthen social relations between residents. In addition, community involvement in the maintenance of village gardens fosters a sense of belonging and environmental responsibility, which ultimately increases social participation and ecological awareness.

3. Boosting Local Economic Potential

Green areas and village parks can be used as a means of creative economy and local tourism. For example, a village park can be a place to hold a local product market, cultural festival, or environmental educational tour. This strategy provides additional economic opportunities for local residents, such as the sale of handicraft products, village specialties, or village tourism services. Thus, the development of green areas not only focuses on environmental and social aspects, but also plays a role in increasing the income and economic welfare of local communities.

4. Environmental, Social, and Economic Synergy

An integrated green area development approach ensures synergy between environmental quality, community welfare, and local economic potential. Village parks that are designed in a participatory and sustainable manner are able to meet ecological needs as well as become a center of social and economic activities. This is in line with the concept of sustainable development, where environmental, social, and economic aspects are balanced to support long-term quality of life.

The development of green areas and village parks in Langkat Hilir has a significant positive impact. In terms of the environment, improving the quality of coastal ecosystems and biodiversity; from the social side, improving the welfare and interaction of the community; and from the economic side, it opens up business opportunities and local tourism potential. Therefore, the development of green areas and village parks is one of the important strategies in achieving comprehensive sustainable development in the coastal area of Langkat Hilir.

Conclusion

Based on the analysis, it can be concluded as follows:

1. The existing condition of green open spaces and village parks in Langkat Hilir is still limited, both in terms of area and facilities, so careful and sustainable planning is needed.

2. Obstacles to green area development include limited land, environmental degradation, low community participation, budget limitations, and regulations that have not been well coordinated.
3. An effective green area and village park development strategy must be based on community participation, take into account ecological and social conditions, use local plants, and be integrated with tourism and local economic potential.

The implementation of the right strategy can improve the quality of the environment, community welfare, and local economic potential in a sustainable manner.

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