



## Waterfront Management in the Areas Around Lake Sidihoni to Support Sustainable Economic and Tourism Development

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### ARTICLE INFO

*Keywords:* Economy,  
Sustainable Tourism,  
Waterfront Management

*Received :* 20 November

*Revised :* 20 December

*Accepted:* 20 January

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### ABSTRACT

This qualitative study was undertaken to gather information about the present status of the Lake Sidihoni region by watching government and community members and conducting interviews. The data and information gathered utilizing the triangulation approach were checked and rechecked based on the information received. From the findings of identifying current circumstances, existing information/data is mapped using the SWOT approach to assess the organization's strengths, weaknesses, opportunities, and threats. The overall results of these stages are the concept of structuring Lake Sidihoni for sustainable economic and tourism development with a waterfront approach, namely by increasing the value and function of the waterfront that supports recreational activities by utilizing the physical conditions of Lake Sidihoni, namely: 1) The management is not well organized/managed where available facilities (amenities) where the facilities and infrastructure to support recreational activities; 2) The management is not well organized/managed where available facilities (amenities) where the facilities 2) Limited human resources (HR) and ineffective institutions, as shown by the absence of HR and social institutions in the tourist industry, as well as the private sector's lack of direct investment interest in the tourism sector. 3) Based on the regional spatial planning of Samosir Regency, it has been designated as a protected area, therefore its configuration is restricted. 4) The institutional factor is still a barrier since there is no tourism institution in the area, therefore visitors do not feel secure and protected while visiting the area.

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## **INTRODUCTION**

Samosir Regency's objective for its growth is "The Realization of a Prosperous and Dignified Samosir Community in Terms of Economy, Health, and Education." To fulfill this goal, one of the tasks that will be done is to establish economic independence based on agriculture and tourism. According to the Samosir Regency Spatial Plan for 2018-2038, Lake Sidihoni is a lake situated in Samosir Regency that is listed in the category of unique landscape places based on the criterion of having a caldera-shaped landscape. This lake is referred to as the lake above Lake Toba because of its peculiar position above Lake Toba. Lake Toba has been designated as one of five development sites for the National Tourism Strategic Area Program (KSPN). The National Medium-Term Development Plan identifies this site as one of the nation's key initiatives (RPJMN). Lake Toba is 1 (one) Lake Toba is a natural lake inside the crater of Mount Supervolcano in Indonesia.

It is required to establish the Lake Sidihoni Tourism Area in Ronggur Nihuta District, Samosir Regency, since Lake Sidihoni has a natural attractiveness that may be developed as a natural tourism item, but the circumstances for its use are not yet favorable. By implementing the agreement, it is anticipated that economic development and sustainable tourism would rise. Waterfront development is an endeavor to structure and develop urban portions or places with a wide range of activities and purposes, such as urban activities for housing, ports, commercial and industrial commerce, and tourism destinations. In general, the waterfront serves as a location where the community meets to host an event or festival, which is often hosted on an open or grassy field where everyone are invited to attend. All regions with water and land borders are considered waterfront areas. In a larger perspective, these water regions consist of oceans and rivers that are used by the surrounding people. Extremely various borders are employed to determine the shoreline area.

Current existing circumstances in the Lake Sidihoni region and the strategy for designing the waterfront idea in the Lake Sidihoni region to promote sustainable economic and tourist growth are the focus of this study.

## **LITERATURE REVIEW**

### **1. Regional Planning**

There are often three players in a regional and urban planning process: authorities/government, professional planners/expert planners, and the public or stakeholders. Four planning techniques comprise the planning process approach in Indonesia: master planning, rational comprehensive planning, strategic planning, and participatory planning (participatory planning). Each of these four planning process methods varies in terms of which stakeholders have the greatest influence on the planning process.

Planning is a deliberate attempt to solve issues and manage future sequences of events by foresight, methodical thought, study, and evaluation of value alternatives in selecting alternative action actions. In the meanwhile, a region or area (region) is an area that may be one nation, one or more provinces, one or more districts, and/or one or more cities (Achmad Djunaedi, 2012). In

one area (country, province, district, city), development planning might be sector-specific (e.g., education, tourism, health, etc.) or cross-sectoral, according to Achmad. Spatial planning and regional development planning (local/regional development planning) are the two forms of cross-sectoral planning that are used most often. A plan may be intended for certain groups, such as the poor, particular ethnic communities, disadvantaged communities, etc., or for the broader public (community in general in an area).

## **2. Waterfront Evaluation**

The waterfront (Waterfront) is a city-owned asset that may be employed for a variety of public purposes, as detailed in the journal "principles of building waterfront spaces" (Sastrawati, Isfa. 2003). In the Guidelines for Coastal Cities (2006), the Directorate General of Coastal and Small Islands defines a waterfront city as an area that is situated near to water and confronts the sea, rivers, lakes, and other bodies of water.

Additionally, waterfront regions may be construed in the following larger ways: The sections of a city (of all sizes) where land and water (rivers, lakes, seas, bays) meet (waterfront regions) are dynamic and distinct, and they must retain their individuality. And regions that may include structures or activities that are not necessarily located directly on water, but are visually, historically, or physically connected to or linked to water as part of a larger "scheme."

The notion of a waterfront city was acknowledged for the first time in 1980, specifically when there was a revival to rearrange the industrial region along the coast of San Francisco, California, United States. This notion developed in the 1970s with the ideas of an American "urban visionary," James Rouse. At the time, metropolitan areas in America were seeing an alarming decline. Baltimore is one of these cities. As a result, the execution of James Rouse's idea, backed by the local government, was eventually able to repair the city and pull Baltimore out of its economic crisis. The notion of constructing a lake/coastal metropolis originated in this city. Many towns in affluent and emerging nations, such as Dubai and a number of cities in Europe and Asia, including Indonesia, have since used the idea of a waterfront city to manage their waterfront areas.

The waterfront is split into three groups based on the type of development: conservation, redevelopment, and development. The waterfront city is classified into seven different sorts based on its function: Mixed Use Waterfront, Recreational Waterfront, Residential Waterfront, and Working Waterfront. Waterfronts are split into four groups based on the activities that take place there: cultural waterfront, environmental waterfront, historical waterfront, mixed-use waterfront, residential waterfront, and working waterfront.

Several factors are used to analyze whether or not a site is on a waterfront when deciding whether or not a location is on a waterfront. Specificity criteria for the most prevalent physical conditions and other physical conditions. This criteria defines the waterfront based on the similarity of certain physical conditions that share specific features with other regions; Political

Criteria; Administrative Criteria; Functional Boundaries (arbitrary distances); Frequently Used Selected Neighborhood Units; and Waterfront City Typology. The ensuing architectural options for the waterfront area are influenced by two crucial factors. Geographical considerations and urban setting constitute these two elements (Wren, 1983 and Toree, 1989). Several factors must be addressed in the design and development of a waterfront region. These elements include architectural, technological, and sociocultural components. Criteria for the success of creating a place are highly reliant on the area's design, which must meet some fundamental standards for visitors to feel comfortable and secure. Comfort and safety are crucial for people to be able to do any tasks. To achieve this sensation of security and comfort, it is vital to consider safety and security, comfort, and aesthetics.

## **METHODOLOGY**

This study employs the qualitative descriptive research approach, which is founded on the postpositivism philosophy. The study was undertaken in the Lake Sidihoni region of Ronggur Nihuta District, Samosir Regency, with the purpose of analyzing the management of slum regions. The Sidihoni Lake region was selected because of its uniqueness as a lake above a lake. This lake is situated above Lake Toba, but the arrangement by the local government and the local community is not optimum for developing Lake Sidihoni as an ecotourism destination, and there is no function that enables the social, economic, and cultural activities of the local population.

This research relied on primary data, that is, data that was acquired directly from respondents residing in settlements via questionnaires. Secondary data are facts and information obtained from appropriate agency literature extracts. This research used secondary data collected from the Bappeda of Samosir Regency, other relevant agencies, local community members, Samosir Regency RTRW, and other planning papers. While the primary data are gathered through the outcomes of interviews and observations at study sites, the information on primary data and informants is strengthened and enriched. This data is used by researchers to get firsthand information on the status and circumstances of the study place.

Interviews, observation, and documentation were used as data gathering strategies. The data presentation approach is implemented by an analytical procedure that includes Structuring Data (Data Grouping), Data Reduction, and Data Display (Muhadjir, 2000 in Dardjosanjoto, 2006). This study's initial issue formulation included the following phases of analysis: 1) Analysis Stages, 2) Synthesis Stage, 3). Evaluation Stage, and 4). Decision Stages. For the formulation of the second issue, the researcher employs SWOT analysis to offer an overview of the problems that need to be identified for specific goals, to examine the interaction between difficulties, and to generate development ideas based on scenarios of existing and future situations.

## **RESEARCH RESULTS**

### **1. The Existing Conditions of the Sidihoni Lake Area in Supporting the Economic and Tourism Sector**

#### **Identification of Non-physical Conditions**

**Attraction:** According to the majority of responders, Lake Sidihoni is a unique attraction for the local population, since if anything were to occur, the lake would exhibit natural signs, such as the lake's crimson water before the financial crisis. Based on field findings, this place has a nature tour as a tourist attraction and is unusual since it is situated above the lake; hence, it is dubbed "the lake above the lake." In addition, there are also savanna fields. However, no preparations have been made as of yet, and the supporting facilities are insufficient.

**Accessibility:** inadequate supporting facilities and infrastructure for pedestrian facilities, there is no street furniture at all in that location, and the environmental conditions are still chaotic and filthy, so that visitors do not feel comfortable, and respondents also suggest that this location provides toilet facilities, waste bins, places for livestock to wallow are made separately, children's playgrounds, adequate parking, and are provided with plants. The location is only pleasant to visit during the day; at night, the lighting conditions are poor, consisting mostly of local home illumination, and the practice of dumping of rubbish and engaging in bathroom operations on the lake's banks creates discomfort for visitors from outside the area. Observations on the ground indicate that this area is on the side of a major road that is accessible from several directions; the road conditions have also been improved. However, no public transit has been identified and there are no designated car lanes at this area.

**Amenities:** In this lake region, supporting amenities such as food and drink stands are provided, but hotel and conference rooms are not. Observations on the ground indicate that this site offers a huge land area for expanding or constructing hotels, adding attractions, and other uses. Which has not before found housing in that place. The development of stores, markets, and restaurants is also essential for the provision of halal cuisine, given that this is a tourist destination.

**Ancillary:** There is no tourist institution at the lake, therefore people are still concerned because they feel vulnerable or insecure, particularly at night due to the lack of illumination, which makes the area susceptible to crime. In this area, only Karangtaruna and Naposobulung (village youth organizations) exist, and there are no tourism awareness groups, as is typical in tourist villages. Additionally, there is no tourist guide available at this place.

#### **Identification of Physical Conditions**

##### **a. Aspects of Land Use Activities**

This region is included in the protected area under the category of local protected area. Boundary area requiring organization, namely the 50-meter lake border area, taking into account land use considerations according to its categorization and the formation of protected and cultivated zones. Lake Sidihoni is one of four sites in Samosir Regency with a caldera-shaped environment and the potential to be developed as a natural tourist destination

with a waterfront concept (waterfront tourism). Lake Sidihoni is included in a protected area with a clause permitting the use of protected area space for nature tourism without altering the environment, preventing the cultivation of land for communities and industry, and permitting the development of green open space. Lack of infrastructure and amenities in the region. The need for regional organization. The features, habits, and activity patterns of the locals have a negative impact on the area's friendliness and general sense of unease. And since the region is used by buffalo to wallow, it is vital to organize it. The findings of the study pertaining to components of land use activity are as follows: Based on the findings of early observations and analyses, this area may be developed for nature-based tourist activities. And given the status of land ownership as inherited land from the four existing clans (Simalango, Nadeak, Simarmata, and Saing), the planning carried out by the district government in the area will take a considerable amount of time to be realized. - The government plans to develop a waterfront by considering the function and allocation of the area's land.

Setting criteria:

The necessity for activity mapping and regional zoning at important locations inside and around the area. And defining the primary boundaries of the area needing arrangement, namely the 50 (fifty) meter lake boundary area, taking into consideration land use features according to its designation, as well as determining protection and agriculture zones.

b. Aspects of Accessibility and Liaison

Observation and Analysis Outcomes: Geographically, the region is easily accessible from a variety of locations because it is accessible from a variety of directions, with roads that are normally paved but still have potholes/damaged surfaces. There are no public/public transit facilities. And this location is less clear and less linked to the surrounding area due to the lack of guiding elements/markers, making it harder for people from outside the area to recall and recognize access and routes.

The results of the analysis pertaining to accessibility and connecting aspects are as follows: Based on preliminary observations and analysis, the condition of the area still does not provide an attraction for visitors due to deteriorating infrastructure and the absence of guiding elements/markers, so that visitors from outside the area have difficulty remembering and recognizing access and routes in the area, as well as inadequate public transportation facilities. This area's position simplifies the arranging process. The plan to provide access to public transportation/public transportation to the place is anticipated to give convenience by linking the location to its surroundings. And the structuring plan is consistent with the policies and theories. Implementation of a connection system based on current opportunities and issues.

Setting criteria:

The need to structure access in a way that facilitates orientation and positions key spots as magnets and movement generators inside the region. And the need of using the study area's and surrounding region's potential as a linking system for area management.

c. Aspects of Regional Infrastructure

Results of Observation and Analysis: most of the roads in the region are paved with holes/damaged surfaces. And the absence of supporting area infrastructure, such as environmental amenities and infrastructure, as well as utility networks, notably lighting, which makes the region less hospitable and less pleasant for visitors' support facilities.

Based on observations and early study, facilities and infrastructure as regional infrastructure are still quite limited. Efforts to implement the plan (master plan) are still hampered by land ownership. And structural planning must take into account the most important area issues, namely the comfort, safety, and protection of space users from any potential threats/disasters and disputes.

Setting criteria:

The requirement for arrangements that concentrate on the primary issues of the region, notably the provision of environmental utility services and infrastructure, street furniture, recreational facilities and infrastructure, and coastline protection that are suitable and as required. The need of using the theme/identity design idea for area infrastructure that is integrated, in line with requirements, and in harmony with the environment. And management and maintenance factors must be considered for success and sustainability; thus, partnership between the government, users/community, and management/private sector is required.

d. Economic Aspect

Results of Observation and Analysis: this area has economic potential because it has natural attractions with unique landscapes that can support the functions of the area, as well as organized recreational and attractive, adaptive programs and events that accommodate and increase the economic potential of the area, such as visitor centers and local businesses. And users of space are often limited to those who reside in the area. The absence of regional infrastructure, such as environmental infrastructure, sanitation, and lighting, diminishes the appeal of the region to those from outside the region. The region is less accessible, less welcoming, less transparent, and less pleasant to visit.

The economic research revealed the following: The region has the economic potential to be developed as a tourist destination. The government's efforts to promote the local economy by administering these tourist attractions have had little effect. And the government's area-structuring plan is consistent with the policy directives and theory of area-structuring, but more specific and sustained efforts are required to materialize the waterfront idea, particularly to accommodate the economic activities of local inhabitants.

Setting criteria:

The necessity to develop facilities that can support regional functions as well as activities and events that are recreational, appealing, and adaptable, and that accommodate and expand the region's economic potential. And in order to effectively administer the region, government, users/community, and the management/private sector must collaborate.

e. Social Aspect

Observation and Analysis Results: For outsiders, the place is less hospitable and less pleasant to visit due to the effect of features, both habits and patterns of community activities surrounding the lake, which have a negative impact on the environment of the area.

This region has the potential to be developed, but poor environmental conditions and a lack of amenities restrict the recreational activities of space users. The absence of lights and environmental amenities renders this region susceptible to crime. And the notion of development and layout of areas in line with the socioeconomic requirements of settlements remains essential.

Setting criteria:

The need of applying the idea of constructing a waterfront in line with socioeconomic circumstances and activities in the region, namely as waterfront leisure. In addition to the adaptation of the type/character/type of open space in lakeside residential communities to their recreational, diverse, and appealing purposes. And management and maintenance factors must be considered for success and sustainability; thus, partnership between the government, users/community, and management/private sector is required.

f. Aspect Environmental

Observation and Analysis Outcomes: The region has the potential for growth and arrangement, there is natural vegetation (savanna fields), although the majority of plant types, in terms of function and size, are not suited for lakefront protection. And the absence of environmental amenities and infrastructure in the region has a negative impact on the habits and activity patterns of the locals, who utilize the lakefront as bathrooms, buffalo wallows, and rubbish dumps.

The region has the potential for development/reorganization into a natural tourist item (ecotourism), and efforts are required to preserve and enhance the lakeside's environmental state as a whole. The government has produced an arrangement plan, but owing to land status restrictions, it is still confined to a plan. And efforts and structure plans have been adapted to the notion of waterfront development, but the appropriate ecological answer is required.

Setting criteria:

The need to consider ecological solutions to protect the left and right banks of river banks that are susceptible to erosion, preservation, enhancing river functions, and preventing population occupation, based on the character of the area, landscape settings, vegetation, and materials, in accordance with the application of the environmental waterfront type of waterfront development. And the necessity to include management and maintenance factors for success and sustainability necessitates government, user/community, and management/private sector partnership.

g. Conservation Facet

The region has the potential to build a lake above a lake with a savanna, thus there must be synergy between diverse land uses by various parties or stakeholders (stakeholders) so that they do not overlap. And this region lacks the infrastructure to facilitate repairs and reorganization that would enhance its



own appeal (distinctiveness), hence its existing state is nonetheless unwelcoming.

The conclusions of the study pertaining to the preservation element are as follows: The area satisfies the requirements for waterfront development since it has a distinct character and individuality. No efforts have been made to enhance the quality of the neighborhood. And due to a lack of proper infrastructure, this region is still unfriendly.

Setting criteria:

The need to identify physical and non-physical elements of the area that have a strong impression that can position, explain, and express the emotional feelings of residents or visitors, and utilize existing building/infrastructure elements, cultural elements, and local history, which are designed to be attractive, attractive, innovative, and imaginative so that it can renew the image of the area, and for success and sustainability, cooperation between the government, use of existing building/infrastructure elements, cultural elements, and local history; and for success.

## 2. Analysis of the Arrangement of the Sidihoni Lake Area to Support Sustainable Economic and Tourism Development

Table 1. Spatial utilization strategy for Lake Sidihoni area

	Strengths	Weaknesses
<b>Opportunities</b>	<b>Strategi SO</b> - The tourism potential of Lake Sidihoni is in the form of beautiful natural panoramas and a cool climate. - The market share of tourists is quite high. - Establishing more cooperation with various parties and tourism organizations in the management and development of the tourism sector	<b>WO strategy</b> - There is competition with other regions that have the same potential. - Negative issues such as terrorism, radical groups and also environmental pollution. - Foreign cultural influences.
	<b>ST Strategy</b> - Arrangement of informal activities that can support recreational activities in the Sidihoni lake area. - Management of the attractiveness of the lakeside and the environment to maintain the sustainability of the area - Improvement of facilities and infrastructure services as well as the quality of accommodation and amenities services such as the provision of good supporting facilities and infrastructure to support tourism in the Sidihoni lake area. - Make detailed, precise and effective planning such as developing better tourist amenities, for example: road	<b>WT Strategy</b> - Structuring the Sidihoni Lake area with a waterfront concept requires collaboration (net working) by all related parties by utilizing information technology for marketing and promotion. - Cross-agency and cross-regional tourism promotion both manually and online. - Increase the safety and comfort of tourists. - Socialization of the concept of tourism development - Increase cooperation and partnerships with various parties in managing, promoting and marketing Lake Sidihoni tourism, especially to tourist regions or countries. - Increase cooperation with various parties to be able to provide security
<b>Threats</b>		

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facilities, street furniture, dining services, public facilities & places of worship.	guarantees for tourists, in this case the police, military, and others.
- Maintaining the existence of local cultural wealth (local wisdom)	- Increasing the competitiveness of potential and ODTW (Tourist Objects and Attractions)
- Controlling and improving environmental hygiene by involving the community in environmental activities	- Establish regulations (Perda) in the field of tourism development.
- Promotion to investors to improve the service and quality of human resources	- Increasing the active role of the community in supporting tourism and keeping the environment clean.

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Source: Analysis results, 2022

Based on the results of the SWOT analysis, it is evident that the development or arrangement of the Lake Sidihoni area has weaknesses and threats. However, the weaknesses and threats can be mitigated by developing a strategy for utilizing the lakeside area as a tourist destination, which includes strategic planning, regional space utilization, and regional space control.

The Regional Spatial Planning Strategy is carried out by compiling a detailed, appropriate, and effective master plan for the Sidihoni Lake area, taking into account existing local knowledge and developing human resources (HR) in providing services and improving the quality of HR itself, while also taking into account existing local wisdom. Regional Spatial Utilization Strategy based on Samosir Regency Regional Regulation No. 73 of 2018 pertaining to Samosir Regency RTRW 2018-2038. According to the RTRW, the lake riparian zones of the Samosir Regency are located in the Pangururan, Simanindo, Onan Runggu, Nainggolan, Palipi, Sianjur Mula-mula, Harian, and Sitio-Tio Districts. In accordance with the district spatial pattern plan, Lake Sidihoni is included in a local protected area. In compliance with regulatory requirements, the Sidihoni Lake boundary region is judged to be at least 50 meters from the highest tide point toward the mainland. Directions for the use of regional space indicate the primary program for the administration of the Samosir Regency, which includes a description of the program or activity, financing sources, implementing agencies, and phases of execution. In addition, usage includes the arrangement of tourist sites via the construction of buildings and infrastructure to support natural tourism, as well as the improvement of tourism services. The regional spatial use directives comprise of geographic structure, spatial pattern, and district strategic area embodiments. The spatial usage control approach is implemented in an endeavor to achieve spatial order by means of general laws on zoning regulations, licensing requirements, measures for awarding incentives and disincentives, and directions for imposing fines. The main rules of the zoning laws include the general provisions for protected areas and cultivated areas. Lake Sidihoni is included in a protected area with provisions permitting the use of protected area space for nature tourism without altering the landscape, prohibiting cultivation activities for settlements and industry, and permitting the area to be developed as green open space to preserve the environment, as well as cooperating and partnering with the government, private sector, and community in managing the area.

## CONCLUSION

The findings of this study indicate that, in addition to the 4A concept in the Lake Sidihoni area, there are several obstacles, such as the weakness of the development of this area, namely the limited human resources (HR) and incompetent institutions. This is characterized by the fact that human resources and social institutions in the tourism sector are still minimal, and the private sector is not yet interested in directly investing in the tourism sector. The management has not been well structured and handled in areas where the existing facilities (amenities) and infrastructure to support tourism are insufficient, so that tourists are still not comfortable. The lack of awareness of the local community to preserve tourism objects and the absence of clear management in preserving natural objects has made Lake Sidihoni less well-maintained and organized. Based on the spatial planning of Samosir Regency, Lake Sidihoni is designated as a protected area, so there are limitations in its arrangement. There is competition in other areas that have the same potential as it is known that Samosir Regency itself has 2 (two) lakes above Lake Toba, namely Aek Natonang and Lake Sidihoni. Community organizations or tourism community groups have not contributed to service improvement and tourism development including support for the implementation of Sapta Pesona and Tourism Awareness in their respective environments. - The institutional aspect is still an obstacle because they do not yet have a tourism institution in that location so that tourists do not feel safe and protected when visiting that location, so the concept that can be applied in managing this area as a tourist destination location is to increase the value and function of the waterfront that supports tourism activities by utilizing the physical condition of Lake Sidihoni.

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