

## Environmental Approach on Optimizing Tourism Facilities at Tourism Village in Indonesia

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### Abstract

Tourism is a sector that always has a dynamic movement which will benefit the local community. Lumban Suhi-suhi is a tourist village famous for its ulos on Samosir Island that has become one of the tourist attraction. Due to the limitations of facilities arrangement make it becomes less of the attraction itself. Therefore, the environment-based mechanism becomes one of the concepts that will be applied to improve the tourist facilities in which could increase tourists in that area. The researcher uses a qualitative method in the form of direct observation and interview and analyzing data with related theory.

Keywords: Tourism Village; Facilities; Sustainable Tourism; Environment

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### 1.0 Introduction

Tourism is one of the main elements to develop an area. Areas that become tourist destinations will be able to bring a positive impact on the availability of local needs such as selling local products and supply tourist necessity (Ginting et al., 2018; Sulaiman et al., 2018). Tourism is also a sector that always has a dynamic movement; Under optimal conditions, it will benefit the local community and other parties involved. Also, tourism development aims to improve people's living standards (Ginting et al., 2018).

In the development of tourism activities, it's necessary to arrange allocation of space that can ensure sustainable development to achieve community welfare. This is in accordance with the basic principles of spatial planning aimed at increasing the utilization of natural and artificial resources in a useful, practical and appropriate manner to improve the quality of human resources, realize the protection of space functions, prevent and overcome negative impacts on the environment, and realize protection of spatial features and preventing and mitigating adverse effects on the environment (Parma, 2011).

Improperly planned tourism development can lead to degradation of the tourist landscape and loss of biodiversity through the conversion of natural habitats and damage to coastal areas, forests, coral reefs and other ecosystems (Sitek, 2007). Areas are highly susceptible to environmental degradation with high natural values, ie, coastal areas, mountain areas, freshwater ecosystems, etc (Panasiuk, 2011).

Lumban Suhi-suhi is a village famous for its ulos on Samosir Island. The lack of structuring facilities in this village makes Lumban Suhi-suhi village less attractive to tourists. For this reason, a regional arrangement based on the concept of Sustainable Tourism needs to be implemented in Lumban Suhi-suhi tourist village in order to increase the interest of foreign tourists.

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## 2.0 Literature Review

### 2.1 Area Planning

According to Wirawan(2016), Area Arrangement is one of the social engineering efforts held in a region and carried out simultaneously to create a comprehensive system that takes place in the region, with attention to environmental quality and expected presence a new order that can provide a higher quality of life expectancy.

Based on Gunn's (1997) theory which contains the principle of spatial arrangement of the tourist area, there is the model of destination zone with five key elements that are used to support the tourism as a whole that are circulation, gate, public facility, connector, and attraction. The main factors that must receive attention to help the arrangement of tourist areas in the tourist destination areas concerning the planning, implementation, and development cover five elements, namely objects and attractions, tourist infrastructure, tourism facilities, infrastructure/ infrastructure, and community (Suwanto, 2004).

Tourism infrastructure is all facilities that enable tourism infrastructure to live and also develop and can provide services to the tourists who visit the sights and also meet their diverse needs. According to Yoeti (2008), tourism product facilities are all forms of companies that can provide services to tourists. In the field of the tourism services business, such as travel agents, travel agents, guides, conventions, intensive travel and exhibitions, tourism consultants, tourism information. In the field of business means of tourism consisting of accommodation, restaurant, bar, tourist transport and so forth.

Infrastructure is all facilities that can enable the economic process can run smoothly in such a way, to allow people to be able to meet their own needs. Tourism infrastructure is a natural resource as well as human resources that can be needed by tourists in travel in tourist destinations, such as roads, electricity, water, telecommunications, terminals, bridges, and so forth (Suwanto, 2004).

### 2.2 Environmental Element

The World Commission first introduced the concept of Sustainable Tourism on Environment and Development (WCAD) in 1987. WCAD mentioned that sustainable tourism is a tourism development that meets the needs of tourism today without sacrificing the ability to meet their own needs in the future. The tourism sector is growing rapidly in accelerating the flow of accommodation capacity, local populations and the environment in which the development of tourism and new investments in the region have no adverse impact and can blend with the situation.

Sustainable Tourism aims to improve the quality of life of local communities through the improvement of positive benefits and minimize the negative consequences that exist in the destination area (Nietzioka, 2014, Sani & Mahasti, 2018). Sustainable Tourism aims to improve the quality of life of local people through the improvement of positive benefits and minimize the negative consequences in the destination area (Inskeep, 1987; Panasiuk, 2011). According to Pitana (2009) sustainable tourism management should pay attention to the following principles: Using renewable resources; Utilization for multiple uses; Zone area (designated zonation); Conservation and preservation of resources. While tourism may incur extra costs in environmental care, tourism can also be a source of positive environmental benefits. Revenues generated by the tourism sector can contribute significantly to the preservation of protected areas, such as coral reefs or forests. In addition, ecotourism can help promote eco-friendly vacations(Nietzioka, 2014).

Regarding environmental aspects according to Panasiuk(2011), there are four elements that affect sustainable tourism, namely: (1) Physical Integrity, (2) Biodiversity, (3) Effective waste management, (4) Clean Environment. Elements of environmental quality for tourism by Inskeep (1987), covering air quality, quality of water supply systems, and water for recreation, environmental hygiene, noise levels, water drainage capability, vehicle lanes, pedestrian paths, open spaces, landscaping, and roads trails.

## 3.0 Methodology

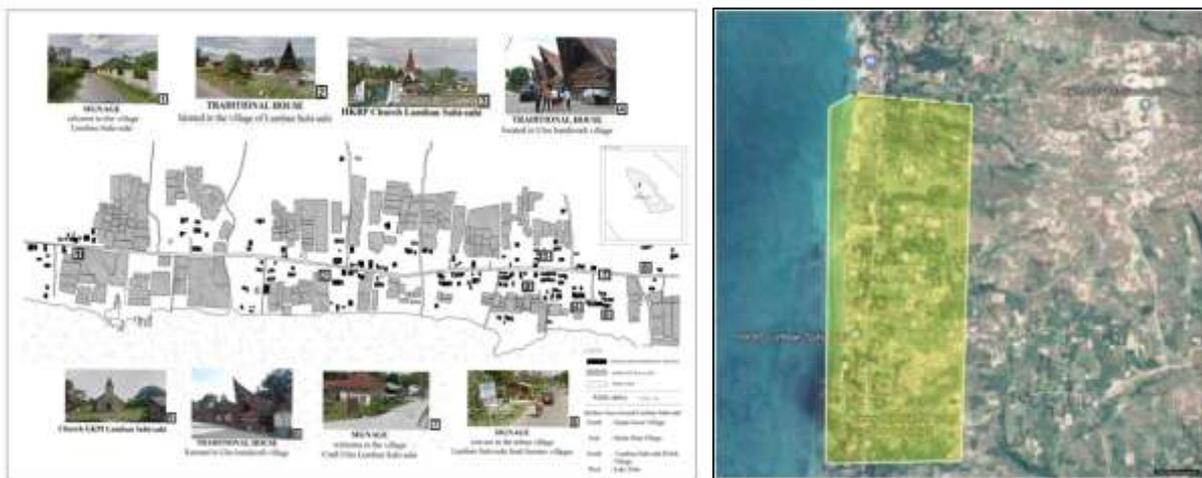


Figure 1: The Boundary Map of Lumban Suhi Village

In determining the location of the research, the authors refer to the basic principles of sustainable tourism concept that one of the most essential things in sustainable tourism is the development of the tourism sector in a region does not bring adverse impacts and can blend with the environment and also meet the needs of tourism and a tourist destination in an effort to save and give an opportunity to become more interesting in the future (Yoeti,2008). Therefore, the authors choose the area of Lumban Suhi-suhi tourist village (Figure1) located in the district of Pangururan, Samosir regency which is one of the tourist villages that has an exquisite ulos craft and can captivate tourists to visit and witness firsthand the process of weaving traditionally. The boundary of this study is a study of facilities and infrastructure in Lumban Suhi-suhi Village.

Qualitative data collected and then processed to obtain the perception of respondents who then associated with the observation results to get a conclusion from the discussion of existing issues. The result of this analysis is then used to answer the problem related to the arrangement of the Tourism Village which will be described directly to get a concept of the arrangement based on Sustainable Tourism concept with Environmental element approach (Table1).

Table 1. Research Variables and Indicators

Planning	Environmental Element	INDICATOR	
Public facilities (Gunn, 1997; Suwanto, 1997)	<b>Physical Integration</b> (Panasiuk, 2011; Niedziółka,2014)	Eco-based tourism facilities consisting of:	Environmental-based infrastructure consisting of:
	<b>Clean Environment</b> (Panasiuk, 2011; Niedziółka,2014)	- Place of worship - Education facility - Restaurant facilities - Banking System - Health - Security - Cleanliness	- Transportation - Communication - Accommodation

## 4.0 Findings and Discussion

### 4.1 Tourist Facilities

#### 4.1.1. Place of worship

Means of worship contained in Lumban Suhi village area is only a church. While other methods of worship is still not available in the village. The researcher found the mosque worship facility which is located in Pangururan city. Besides, the result of an interview with some village apparatus there is mosque worship place located in some villages which have become a tourist destination such as in tomok or Tuktuk. Lack of worship facilities such as mosques and musholla make it difficult for tourists to worship, this is because the majority of the population in the Samosir islands of Christian Protestant and Catholic Christian so that people do not build mosques due to unused due to minimal tourists who visit and stay there.

*"If the population here is the majority of the population is Christian, so the place of worship available in this village is only the church. If the mosque, tourists will find it more in the Tomok area and Pangururan city, because there are people who are Muslims."*(Source: Village Secretary).

The existence of a place of worship is also an important thing in developing tourism facilities. Because the mosque is a place where religious people worship in a congregation to meet spiritual needs (Ginting & Sasmita, 2018). In addition, the construction of musholla is expected to maintain sustainability in the area by observing the physical integrity of the environment to improve the landscape quality in the area (Panasiuk, 2011). This zoning is also useful so that it can continue according to the Pitana theory (2009) which examines the principles of sustainable tourism management.

#### 4.1.2. Education facility

There is some formal education in the village which is managed by the local government. The education is only from Playgroup to the elementary level (Primary School). For local community training on tourism, the government has implemented several programs one of the tourism awareness programs. Education Facility is one of the social supporting factors that exist within tourism facilities (Kreck, 1998) which is very needed in the development of a tourist village in terms of the tourist destination. Lumban Suhi village still does not have special educational facilities for tourism, so it is still hampered in the development of tourism potential.

*"For this village school there is but only up to primary education (SD), so for the junior high school (junior high) to high school there are in the city. If for the community development of tourism, the government's tourism awareness program has been going on until now"*(source: Village Secretary)



Figure 2. Education Facilities available in Lumban Suhi-suhi village

The people there can also be trained as tour operators who in turn can become tour guides who can also keep the environment clean because it has been trained, and built-in depth about the sustainability of tourism (Panasiuk, 2011; Sitek, 2007) and Damanik & Weber's (2006) theory tourism sustainability, ie the community should be involved in the planning and development of tourism.

#### 4.1.3. Restaurant facilities

The standardize restaurants are not yet available, most of which are in the form of rice stalls that may be considered not kosher, This is also one of the factors causing the difficulty of getting halal food if you want to visit the area. In accordance with the theory of Suwanto (2004) about the tourist destination serving the needs of society is still not appropriate. For that, it is necessary to establish an exclusive zone for Muslims so that foreign tourists do not have to worry anymore if they want to visit the village area.

*"When it comes to eating, it is rather difficult to get food that is halal, because of the passion of tourists who ask halal to the food. If special food Minang dishes or Padang can be found in Tomok area and Pangururan city area". (Source: Head of Village).*



Figure 3. Food House in Lumban village Suhi-suhi

Zoning is also consistent with the Pitana (2009) theory which examines the principles of sustainable tourism management. Apart from zoning, typical cuisine from Lumban Suhi halal-standardized area can also be developed as a tourism product according to which later can guarantee the sustainability of tourism itself Damanik & Weber, 2006).

#### 4.1.4. Banking System

The ATM and bank building are not yet available in this village. To access the banking system, locals must travel to downtown Pangururan to use the banking services. For foreign exchange system, in Lumban Suhi village is not available yet, so tourists are obliged to exchange it first in Tuk-tuk village.

*"If there is not yet ATMs, because no one manages the bank moreover. Most people have to go to the city before they can manage their savings. If the money changer is not available here, yes because there are no foreign tourists who settled here would not be prepared." (Source: Head of Village)*

The banking system is one of the factors contained in the economic means that support the tourism economy is still not available in the village of Lumban suhi (Yoeti, 2008). So that required the development/ required availability of managers in the tourist destination area to develop the economy of the local community.

#### 4.1.5. Health

Lumban Suhivillage has provided Health Centre known as *Puskesmas* that can treat the villagers. For P3K facilities in tourist areas, not yet fully available. *Puskesmas* in the village only serves some of the diseases that often appear in the village area such as fever, cough and some other minor ailments, while for severe cases of illness, Health Centre will recommend to a general hospital.

"The cleanliness of the area around the village of Lumban Suhi you can see for yourself how the condition, so that later not the father wants to, but the people here are aware of maintaining and caring for the surrounding environment. Our village also has received assistance from the government will be the availability of public facilities in the form of trash cans, so it is easier to collect the garbage and waste home so as not to any waste. For the cleanliness of the water, yes as usual people use water from the lake for their activities. When it comes to waste, people usually do not throw it directly into the lake, but they throw it on the ground, then from the soil irrigated to the lake "(source: Village Secretary).

If the statement is linked to Lothar A. Kreck's(1998) and Suwanto's (2004), the health facility is generally adequate and serves both the public and the tourists due to the available health facilities in the form of Health Centre whose services are general, but it would be better if the tourist area has an emergency public health kit in the form of first aid.

#### 4.1.6. Security

The security of tourists is not yet available specifically such as security or security officers. For parking, attendants are also not available in this place because the village of Lumban Suhi or other villages it can be spelled out very safe, the citizens here are not possible to do acts like stealing and others.

"The security factor in the village itself is pretty safe. The surrounding villages are not likely to commit a crime. Indeed, livelihoods are far above the average threshold but because they are aware of it, the people are also aware of tourism, so they serve tourists with all their heart. "(Source: Local Figure)

If the statement is linked to Lothar A. Kreck (1998) and Suwanto (2004), the security facilities here are adequate according to the local population but from the observations there is very little crime going on in the area, but it is helpful to provide a post- a police post that is useful to give a sense of security to the community, due to the theory that the tourist destination has the nature of serving tourists.

#### 4.1.7. Cleanliness

Air quality in the local area is arguably immaculate and adequate for occupied. The purity of the local area can also be said to be clean because of the availability of garbage facilities that make it easier for tourists and the community to dispose of garbage. Local people also participate actively in maintaining the surrounding environment.



Figure 4. Hygiene facilities located in the village of Lumban Suhi-suhi

The water supply in the village of Lumban Suhi-suhi comes from Lake Toba, so the community itself builds irrigation systems sourced from Lake Toba and irrigates them to residents. For the quality of the water can be reasonably clean, but not completely clean because some hotel managers who are not from the village not yet fully manage the waste system so that the waste directly flows into the lake. So, if it is associated with Panasiuk (2011), it is hoped that the community will keep the cleanliness so as not to give negative impact which can destroy the tourism area itself, and the local community has also participated in maintaining the purity of the environment.

### 4.2 Tourism Infrastructure

#### 4.2.1. Transportation

Transportation that can be accessed by tourists in the form of public transportation known as Mikrolet provided by the transportation service that supports tourists to be able to access these tourist sites. From the results of interviews with the tourism office, the government itself does not provide transportation specifically for tourists.

"Transportation if here is just a Bemo or Angkot. It is provided by the government of Pangururan district. Every Angkot passes from panguruan city to simanindo village. "(Source: Village Secretary)

Whereas if managed well by the government, transportation can be a factor in supporting the economy (Economy Infrastructure) and encourage tourists to travel long distances (Yoeti, 2008). Utilization of traffic is expected to reduce emissions of carbon dioxide produced so as not to cause climate change and air quality deteriorate (Nietzioka, 2014).

#### 4.2.2. Communication

Access to communications networks such as telephones and the internet is available at residents' homes. Based on the observations of researchers there is a monument telephone network and internet that can allow tourists to communicate directly through the Internet network, but not all providers of telecommunications provide it.

*"Telecommunication system here is adequate only for certain providers only, for other providers are still not able to reach the area here. For telecommunications may be more powerful network in the city, because in the city there are many substations for many providers."* (Source: Local Figure).

This is in accordance with the theory of facilities arrangement of communications infrastructure that links can connect tourists with their home country to communicate (Yoeti, 2008).

#### 4.2.3. Accommodation

There is no toilet facilities, parking facilities, and lighting systems that have not been easier for tourists to enjoy the area. Utilities in terms of social infrastructure is also still not well organized or well managed as pedestrian paths are still not adequate, in addition, signage sign in and out of the village yet not well laid out, the quality of street lighting is also not sufficient or not feasible article lights are available only lights from home residents.

*"Facilities that can be provided may be only parking space in front of the house residents, because if the special land tourist parker is not yet available. That is why in front of the house is being concreted its way, in order to facilitate the tourists to be able to access into."* (Source: Head of Village)

For the Tourist Information Centre itself, not yet in the village of Lumban Suhi, so the community as one source of information about the tourist destination. To access the ulos (unique fabric made by local people) craft area in Lumban Suhi village, tourists do not have to pay admission tickets due to the absence of an exceptional manager for the area of attraction, so there is no ticket sale counter.

*"For tourist information is not yet available in this village, tourists can ask directly to the local community about tourist area information. For foreign tourists may be able to coordinate with the tourism office for further purposes."* (Source: Village Secretary)

If associated with the theory of Suwanto (2004), accommodation enables the process of economy and service to run as carefully as possible and make it easier for the human to fulfill their needs. For that TIC infrastructure, in some facilities supporting the requirements such as street lighting, signage, and pedestrian path is needed in helping the economy and also the social foundation of the community itself. In addition, Utility arrangement is expected to maintain the quality of the surrounding environment without damaging the environment itself based on Inskip (1987) theory. The physical integrity of development is also likely to keep the original form of an area (Panasiuk, 2011).

The concept of structuring facility infrastructure (table 2) is needed to improve the quality of the village of Lumban Suhi-suhi.

Table 2. Structuring the whole concept of Tourism Infrastructures

Factor	Condition Before Arrangement	After Arrangement
Structuring the parking area in the area of destination		
The arrangement of street lighting facilities		
Pedestrian path arrangement		

<p>Local environmental sanitation</p>		
<p>The arrangement of the entrance gate of the village boundary Lumban Suhi-suhi</p>		
<p>Signageboard entrance to tourist attractions</p>		
<p>Lumban Suhi-suhi village boundary exit gate</p>		
<p>Tourist Information Centre</p>		

## 5.0 Conclusion & Recommendations

The Lumban Suhi village in fulfillment of tourist attraction is adequate but due to the limitations of the arrangement of facilities around the village Lumban Suhi make the village is less will the tourist attraction itself. Therefore, the arrangement of environment-based facilities is needed in terms of maintaining sustainability in the surrounding area of the village without reducing the image offered by the village.

Some facilities that must be arranged or well managed. In terms of facilities of tourism facilities, some supporting facilities must be provided in order to support the needs of tourism (Figure 5), because tourism itself must be able to serve the needs of tourists, such as worship facilities that are still inadequate due the population factor of local residents, but it is good to make a zoning system specific area. In terms of education, the lack of medium to upper educational facilities has become a limitation of science, especially from the tourism sector, so it is advisable to educate the government to help the villagers of Lumban Suhi to get education up to middle and upper levels. Inadequate restaurant facilities due to difficult for tourists to find standardized halal food, so it is advisable to make zoning of the graded halal area. The banking system that is supporting the local economy is still not available, so it is desirable for the private or government managers to be able to provide such facilities. The health facilities provided in Lumban Suhi village are sufficient, but there are only shortcomings in P3K. Security in the surrounding area is also still relatively safe, but due to the lack of security and police officers for tourists in the area makes the village again not into the safe category. Cleanliness in the village area is also sufficient; the community is fully aware and also participate actively in maintaining the purity of the surrounding environment.

In terms of tourism infrastructure, transportation in the village or only limited to public transportation, there are no special facilities for tourists, so it is advisable to provide specialized transportation using existing transportation to become an icon in the village. In terms of communication is adequate because several private providers build towers to facilitate tourists and the community to communicate with a lancer. In terms of accommodation there are still many shortcomings such as public toilets facilities, parking facilities, lighting facilities, pedestrian lines and also the gate for the village boundary is very difficult for tourists if you want to visit the village, it is expected that the concept of arrangement is easier for tourists as well as supporting the number of tourists who are at once impacting the local economy without causing negative impacts on the surrounding environment to be enjoyed in the future. For further research, the author suggests researching the management of tourism facilities in Lumban Suhi-suhi Village so that supporting facilities are maintained



Figure 5. Keyplan Concepts Planning Lumban Suhi-suhi Arrangement

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## References

- Damanik, Janianton and Weber, Helmut (2006). *Perencanaan Ekowisata dari Teori ke Aplikasi*, Yogyakarta : Puspar UGM.
- Ginting, N., Rahman, N. V., & Nasution, A. D. (2018). Distinctiveness, Continuity, Self-Esteem, & Self-Efficacy in Tourism of Karo Regency, Indonesia. *Asian Journal of Quality of Life*, 3(13), 29-38.
- Ginting, N., & Sasmita, A. (2018, March). Developing tourism facilities based on geotourism in Silalahi Village, Geopark Toba Caldera. In *IOP Conference Series: Earth and Environmental Science* (Vol. 126, No. 1, p. 012163). IOP Publishing.
- Gunn, Clare A. (1997). *Tourism Planning: Basic, Concepts, Cases*
- Inskeep, Edward (1987), "Environmental Planning For Tourism," *Annals of Tourism Research*, vol. 14 pg 118-185, 1987
- Kreck, L. A. (1998). Tourism in former eastern European societies: Ideology in conflict with requisites. *Journal of Travel Research*, 36(4), 62-67.
- Niedziółka, Iwona (2014). *SUSTAINABLE TOURISM DEVELOPMENT*, Regional Formation and Development Studies
- Panasiuk, A. (red.) (2011). *Ekonomika turystyki i rekreacji*. Wydawnictwo Naukowe PWN.
- Parma, I Putu Gede (2011) : "Kajian Perencanaan Penataan Daya Tarik Wisata Pelabuhan Buleleng"
- Pitana, I Gde. 2009. *Pariwisata, Pelangi Pariwisata Bali*. Denpasar Bali: Universitas Udayana University Press, Hal 264.
- Sani, R. M., & Mahasti, P. (2018). Sustainable Tourism Design through Preserving Regional Identity: A Study from Iran. *Journal of ASIAN Behavioural Studies*, 3(6), 179-188.
- Sitek, M. (2007). *Polityka ochrony środowiska w sektorze usług turystycznych w świetle prawa Unii Europejskiej*. Olsztyn: Wydawnictwo Uniwersytetu Warmińsko-Mazurskiego.
- Sulaiman, F. C., Jaini, N., Jamaluddin, E. R., & Hashim, N. I. (2018). The Impact of Marine Tourism Towards the Local Community at Pulau Pangkor, Perak. *Asian Journal of Quality of Life*, 3(13), 168-176.
- Suwantoro, Gamal. 2004. *Dasar-dasar Pariwisata*. Yogyakarta: ANDI.
- Wirawan, I Gede (2016). *Ekowisata Cagar Budaya Gunung Kawi di Sebatu, Kabupaten Gianyar*, skripsi Universitas Udayana
- Yoeti, Oka A. (2008) *Pariwisata Budaya: Masalah dan Solusinya*. Jakarta: Pradnya Paramita