

Facilities' Arrangement of Tourism Area in Lumban Suhi-suhi Village Based on Environmental Element Approach (Sustainable Tourism)

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Abstract

Tourism development aims to improve the living standards of the host community. Lumban Suhi-suhi tourist village, located at Pangururan sub-district in Samosir Island, is famous for its handcrafted ulos. However, inadequate tourism facilities regulation has made the area less attractive. Therefore, the concept of environment-based arrangement is proposed to be applied in the village to improve its facilities. The qualitative approach was carried out through observation and interviews. Triangulation method was carried out in analysing the collected data with relevant theories. The concept is eligible to increase visitors as well as to maintain environmental sustainability.

Keywords: Tourism Village; Site Arrangement; Sustainable Tourism; Lumban Suhi-suhi

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1.0 Introduction

Tourism is a sector that in optimal conditions will significantly benefit the local community and other parties involved. Besides, tourism development aims to improve people's living standards (Ginting, Rahman, & Nasution) (Middleton & et al., 2009). Tourism is also one of the main elements to develop an area that will bring a positive impact on the availability of meeting the needs of the local community, such as selling local products and supplies for tourism needs (Ginting, Rahman, & Nasution) (Ginting & Veronica). To improve the living standard in the tourism area, it needs the development of the tourist area itself.

In developing tourism activities, spatial allocation arrangement is needed to ensure the implementation of sustainable development in achieving community welfare. According to the basic principles in spatial planning, this is important to improve the utilisation of natural and artificial resources in an efficient, effective, and effective manner, to improve the quality of human resources, to actualise the protection of spatial functions, also to prevent and overcome adverse impacts to the environment. (Parma, 2011).

Developing tourism without appropriate planning can lead to landscape degradation in the tourist areas and biodiversity loss through the conversion of natural habitats and the damage of the coastal regions, forests, coral reefs and other ecosystems (Sitek, 2007). The sectors that are very vulnerable to environmental degradation are those with high natural values, such as coastal areas, mountainous areas, freshwater ecosystems, etc. (Panasiuk, 2011).

Lumban Suhi-suhi is one of the villages in Pangururan sub-district. This village is a tourist village that is famous for its handcrafted ulos on the island of Samosir. Due to the limitations of facilities arrangement around the area of Lumban Suhi-suhi village, the village becomes less attractive for tourists. This situation leads them to switch to other tourist attractions, such as Tomok village and Tuk-tuk village. If the arrangement of the area is disappointing, it may cause tourists to turn round to other tourist attractions to enjoy what they offer. Tourists also prefer to stay near the attractions that have far-reaching facilities rather than areas which inadequate facilities. Therefore, the arrangement of the village based on the concept of sustainable tourism is one of the ideas that will be implemented in Lumban Suhi-suhi tourist village to increase the interest of foreign tourists annually.

2.0 Literature Review

2.1 Regional Arrangement

Regional arrangement is one of social steering efforts carried out together in an area to create a comprehensive system regarding to the activities that take place in a region, taking into account the quality of the living environment and is expected to present a new order that is expected to improve people's life quality (Wirawan, 2016).

There is a model of a tourist destination zone with five critical elements used to support tourism as a whole, namely circulation, gates, public facilities, links, and attractions. It is according to Gunn's theory which contains the principles of spatial planning for tourist areas.

There are three scales of the concept of tourism planning. They are site planning, destination planning, and regional planning (Gunn, 1997).

Tourism infrastructure is the entire facilities that allow a destination to live and grow while providing services for tourists who visit its attractions and fulfilling their diverse needs. Tourism products are all forms of companies that can offer services to tourists according to Lothar A. Kreck (Lothar, A. Kreck, 1996) in Yoeti (Yoeti, 2008).

Infrastructures are all facilities that make economic processes run smoothly in such a way that could ease human movements to meet their needs. Tourism infrastructure is both natural resources and human resources needed by tourists during their travels in the destinations. These infrastructures are roads, electricity, water, telecommunications, terminals, bridges, etc. (Suwanto, 2004). Lothar A. Kreck (Lothar, A. Kreck, 1996) in his book *International Tourism* divides infrastructure into two essential parts, namely economic infrastructure and social infrastructure.

Meanwhile, according to Edward Inskeep, tourism infrastructure is natural and artificial resources that are needed by tourists on their travels in the destinations. Significant supports that could serve residents also help tourism activities, such as roads, electricity and energy sources, water sources and irrigation systems, health facilities, sewage/sanitation systems, telecommunications, transportation terminals, bridges, etc. (Lothar, A. Kreck, 1996).

2.2 Sustainable Tourism

World Commission on Environment and Development (WCAD) firstly introduced the Sustainable Tourism concept in 1987. WCAD states that sustainable tourism is a tourism development that meets the needs of tourism in the present while not sacrificing the ability to meet their needs in the future. Sustainable tourism aims to improve the life quality of local communities by increasing the benefits and minimising the consequences found in a destination (Hugo, 1998) (Ost, 2009). According to Damanik and Weber (Damanik & Weber, 2006), several requirements must be met to ensure tourism sustainability. (1) Tourists must have the willingness to consume tourism services and products selectively, which means that they obtain not by excessive exploitation of local tourism resources. (2) Empowerment of green tourism products. (3) Tourism activities are directed to preserve the environment and the local culture. (4) Community participation in planning, implementing and monitoring tourism development. (5) Fair and reasonable benefits for the community from tourism activities. (6) The rise of the bargaining position of local communities in managing tourism resources.

According to Pitana (Pitana, 2009) (Pitana & Gayatri, 2005), sustainable tourism management must pay attention to the following principles: Using renewable resources; Utilization of multiple uses; Designated zonation area; Conservation and preservation of resources. Although tourism can cause extra costs in environmental care, tourism can also be a source that has positive environmental benefits. The income generated from the tourism sector can make a significant contribution to the preservation of protected areas. Besides, ecotourism can help promote eco-friendly holidays (Middleton & et al., 2009).

In terms of Environmental Aspects, according to Panasiuk (Panasiuk, 2011), four

elements influence sustainable tourism, namely Physical Integrity, Biodiversity, Effective Waste Management, and Clean Environment. The aspect of environmental quality for tourism according to Inskeep (Inskeep, 1987), includes environmental cleanliness, water supply systems and water for recreation quality, air quality, noise levels, water drainage capabilities, pedestrian paths, wide vehicle lanes, open spaces, landscaping, and roads trails.

3.0 Methodology

The research used the qualitative descriptive method by describing the environmental conditions in the area of Lumban Suhi-suhi village which is stand out for its handicraft tourism.

In selecting the research location, the authors refer to the basic principle of sustainable tourism. One of the essential things is that the development in the tourism sector in an area does not have a negative impact and can be integrated with the environment (WCAD), as well as accommodates the needs tourism activities and tourist destinations to be able to provide more significant opportunities in the future (Yoeti, 2008). Therefore, the authors chose the area of Lumban Suhi-suhi tourist village located in Pangururan sub-district, Samosir district (Figure 1) which is one of the tourist villages that have the adorable ulos handicrafts and can captivate tourists to visit and see first hand the process of traditional weaving.

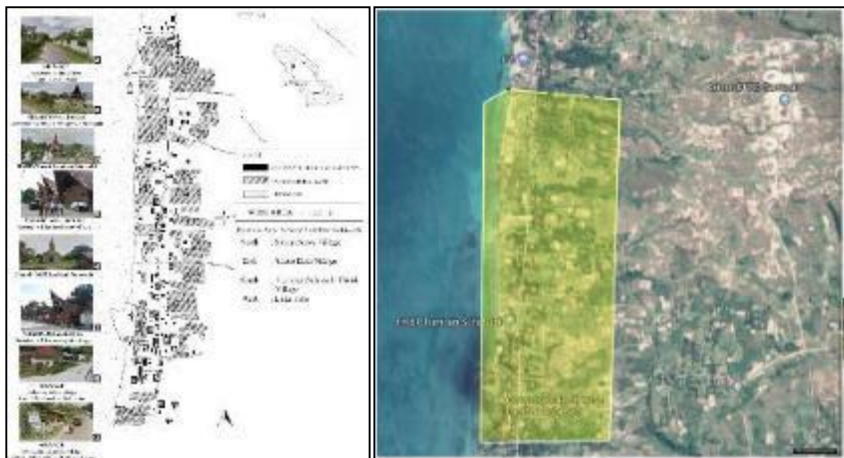


Figure 1: Lumban Suhi-suhi Village Boundary Map

Table 1 shows the scope of variables and indicators for observation and interviews in analysing the elements of Environment (Sustainable Tourism) for arranging the Lumban Suhi-suhi Tourism Village.

Table 1: Research Variables and Indicators

Indicator		Regional Arrangement	Environmental Element (Sustainable Tourism)
Environmental-based infrastructure consisting of: - Transportation - Communication - Accommodation	Eco-based tourism facilities consisting of: - Educational Facility - Health Facility - Worship Facility - Restaurant Facility - Banking System - Security - Sanitation	Public Facilities (Gunn, 1997; Suwanto, 1997; Lothar A. Kreck 1996)	Physical Integrity (Panasiuk, 2011; Niedziółka, 2014)
			Sanitary Environment (Panasiuk, 2011; Niedziółka, 2014)

The qualitative data were collected and processed to get the perceptions of the respondents which then linked to the results of the observation to obtain a conclusion from the discussion of existing issues. The results are then used to answer the problems of the tourism village arrangement which will be described directly to get the concept based on the Sustainable Tourism with environmental element approach.

4.0 Results

4.1 Environmental-based Infrastructure

4.1.1. Transportation

The only available public transport service that supports the accessibility to the tourism site is a minibus called *mikrolet*, provided by the Bureau of transportation affairs. Meanwhile, according to the interview result with the tourism agency, the government does not offer any specific transportation service for tourists.

"The transportation here such as bemo and angkot are provided by transportation agency of Pangururan. Every hour, angkot passes from Pangururan to Simanindo village." (Interviewees: Mr Valentinus, Secretary of the Village)

On the other hand, if the appropriately manages the transportation system, it could be a supporting factor for the economy and encourage tourists to do long distance travel (Lothar, A. Kreck, 1996) (Yoeti, 2008). Therefore, the utilisation of transportation is expected not to generate climate change and deteriorate air quality by reducing the production of carbon dioxide emission. (Niedziółka, 2014).

4.1.2. Communication

According to the interview result, access to communication networks, such as telephone and internet, has been installed in the village's houses. Based on field observation, there are several communication towers available for phone and internet access in Lumban Suhi-suhi,

making it more convenient for tourist to reach the internet. However, there are only a few network providers who deliver their service.

"The telecommunication system here is sufficient only for certain providers, while others still cannot reach this area. For telecommunication purposes, the network might work better the town centre, because many substations for various providers are available there." (Interviewees: Mr Valentinus, Secretary of the Village).

4.1.3. Accommodation

According to the observation, there are no public toilet facilities, parking facilities, and lighting systems that allow a more convenient trip for tourists. Moreover, the management of utilities in terms of social infrastructure is not appropriate. The signage, pedestrian, and lighting are not adequate for tourism purpose.

"Parking area in front of the villager's houses is the only available facility. There is no specific parking area for tourists. It explains the concrete road that is being constructed in front of those houses, to make it easier for tourists to access the inside part of this village." (Interviewees: Mr Valentinus, Secretary of the Village)

Moreover, the entry and exit signage in Lumban Suhi-suhi village even have not been appropriately arranged, and the quality of street lighting is also insufficient or not feasible because the available lights only come from the villager's houses.

"At night, it is rather difficult to see the street because there are no street lights for lighting, so it is hard for people to know which village it is." (Interviewees: villager)

In Lumban Suhi-suhi village, there is also no Tourist Information Center. The information source about this tourist destination is only from the local people. To access the ulos handicraft area in Lumban Suhi-suhi village, tourists do not pay for any entry ticket because there is no specific manager for the attraction; thus there is no ticket counter.

"Tourist Information Center is not available yet here, tourists can ask directly to local villagers about the destination. Furthermore, foreign tourists might be able to coordinate with the tourism agency." (Interviewees: Mr Valentinus, Secretary of the Village)

4.2 Environmental-based Tourism Facilities

4.2.1. Educational Facility

According to the interview result, Lumban Suhi-suhi village has some formal educational facilities. The local government manage these facilities. But, the limitation of range from Playgroup to Primary School (figure 2).

"There is only primary school (SD) in this village. The junior high school (SMP) to senior high school (SMA) are available in the city. For the community development in tourism, the tourism awareness program from the government has continued until now." (Interviewees: Mr Valentinus, Secretary of the Village)



Figure 2: Educational Facility in Lumban Suhi-suhi Village

The government has implemented several programs to train local people in tourism, named tourism awareness program. Educational facility is one of the social supporting factors that exist in tourism facilities (Lothar, A. Kreck, 1996) which is essential in developing tourism villages in terms of tourist destinations. There are still challenges in developing tourism potential in Lumban Suhi-suhi village because it does not have a specific educational facility for tourism.

The local villagers can be trained as tour operators and later on become tour guides. Therefore, at the same time, they can maintain environmental cleanliness because they have been prepared and educated about the sustainability of tourism (Panasiuk, 2011) (Sitek, 2007) (Damanik & Weber, 2006).

4.2.2. Health Facility

Lumban Suhi-suhi village has a health centre to treat the villagers named *Puskesmas*, while the first aid facility is not yet fully available. The health centre only serves some general diseases that often appear in the village such as fever, cough and some other minor problems. Meanwhile, for severe cases of illness, the health centre will recommend the patients to be treated in a public hospital.

4.2.3. Worship Facility

The majority of the population in Samosir Island are Protestant and Catholic Christians. The only worship facility available is the church. It is challenging to find any mosque or prayer rooms. Worship facilities in the Lumban Suhi-suhi area are still lacking. Therefore, it is suggested to build one designated zone for Muslims to worship as well as to do other activities. Based on the observation, researchers found a worship facility in the form of a mosque located in Pangururan city. Besides, from the interviews with several village officials, there are mosques located in several villages that have become tourist destinations, such as Tomok and Tuktuk.

"For residents here, the majority of the population is Christian, so the only place of worship available in this village is the church. For mosques, tourists will find them in the Tomok area and Pangururan city, because there are Muslims who live there." (Interviewees: Mr Valentinus, Secretary of the Village).

4.2.4. Restaurant Facility

According to the interview, there is no specific restaurant. Food sellers are mostly rice stalls which may be considered not halal (figure 3).

"It is quite difficult to get food that is truly halal although many tourists seek for halal food. Meanwhile, in Tomok and Pangururan city area, some special foods can be found, such as Minang or Padang dishes." (Interviewees: Mr Valentinus, Secretary of the Village).



Figure 3: Rice Stall in Lumban Suhi-suhi Village

4.2.5. Banking System

According to researcher observations and the interview result in Lumban Suhi-suhi village, the ATM (Automatic Teller Machine) and bank buildings are not yet available. To access the banking system, villagers have to visit the downtown of Pangururan to use these banking services. Meanwhile for the foreign exchange system is not yet available in Lumban Suhi-suhi village, so tourists have to exchange it first in Tuk-tuk village. Therefore, it is required to develop these facilities in the tourist destination area, to escalate the economy of the local community.

"There are no ATMs here because no one manages the bank. People must go to the city before they can manage their savings. Meanwhile, the money changer is not available here, because no foreign tourists are settling here, which makes it unavailable." (Interviewees: Mr Valentinus, Secretary of the Village)

4.2.6. Security

According to the interview result with the village secretary, tourist security, such as security officers, is not yet available individually. It also does not have the parking attendants. Because according to the village secretary, Lumban Suhi-suhi village and other villages are very safe, the villagers here will not take actions such as stealing and others.

"The security factor in this village is pretty safe. The villagers here are not possible to commit crimes. Although the livelihoods are far above the average threshold, they are aware of this and so are the tourism. Therefore, they serve tourists with all their heart." (Interviewees: Mr Valentinus, Secretary of the Village)

If the statement is related to Lothar A. Kreck's theory (Lothar, A. Kreck, 1996) and Suwantoro's theory (Suwantoro, 2004), the security facilities here are quite adequate according to the villagers, and according to the observations. There are very few crimes occurred in this area, but it is better to provide some police stations to guarantee security for

the villagers because according to the theory, a tourist destination is by nature responsible for serving the tourists.

4.2.7. Sanitation

According to the results of observation and interview in the area, the air quality is immaculate and sufficient. The cleanliness of the village is also good. There are garbage bins to facilitate tourists and villagers. The local villagers also actively participate in taking care of the environment.

"You can see the cleanliness in the area around Lumban Suhi-suhi village, how good the condition is, but people here are aware of maintaining the environment. Our village has also received assistance from the government for the availability of public facilities in the form of trash cans, so it has been easier to collect waste. For clean water, as usual, people use water from the lake for their activities. When it comes to waste, people usually don't throw it into the lake directly, but on the ground, then from the groundwater to the lake." (Interviewees: Mr Valentinus, Secretary of the Village)

The water supply in Lumban Suhi-suhi village comes from Lake Toba. Therefore, the villagers built a water system that originated from Lake Toba and distribute it to local villagers' houses. The water quality is quite clear, but not completely clear because some hotel managers do not appropriately manage the waste system, so it caused the waste directly flows into the lake.

5.0 Discussion

Based on the observation and the interview results, as well as by following the theories, some facilities in Lumban Suhi-suhi are quite adequate, such as the security and sanitation facilities. Meanwhile, some other facilities are inadequate or not yet available, by following Suwanto's theory (Suwanto, 2004) which says that tourism facilities are a complete tourist destination to serve the needs of tourists while enjoying their sightseeing trips. The Lumban Suhi-suhi area is still lacking in the worship facility, so it is advisable to drop one designated zone for Muslims to worship and develop the region besides as an area for Muslim activities, such as eating area, etc. Therefore, the construction of musholla is expected to be able to maintain sustainability in the area by paying attention to the physical integrity in the environment to improve the quality of the landscape in the region (Panasiuk, 2011). This zoning is useful and can continue under Pitana's theory (Pitana & Gayatri, Sosiologi Pariwisata, 2005) (Pitana, 2009) which analyse the principles of sustainable tourism management.

Based on Suwanto's theory (Suwanto, 2004) about the responsibility of a tourism destination to serve tourists and to fulfil the needs of the community, Lumban Suhi-suhi village is still inadequate on that matter. Therefore, it is necessary to establish a zone specifically for Muslims so that foreign tourists do not need to worry anymore if they want to visit the Lumban Suhi-suhi village area. Apart from the plan, unique dishes from the Lumban Suhi-suhi region is suggested to be standardised with the halal label, so that the cuisine can

also be developed as tourism products as well, according to which can later guarantee the sustainability of tourism itself (Damanik & Weber, 2006).

If the sanitation facility is associated with the Panasiuk theory (2011), the villagers are expected to maintain the sanitation so it will not give negative impact which can destroy the tourism area itself, and the local villagers have also participated in maintaining environmental hygiene. Therefore, it is in line with Dowling and Fenell's theory (2003) about improving people's quality of life and providing a valuable ecological experience for visitors. In figure 4 shows the concept of sanitation facility arrangement.

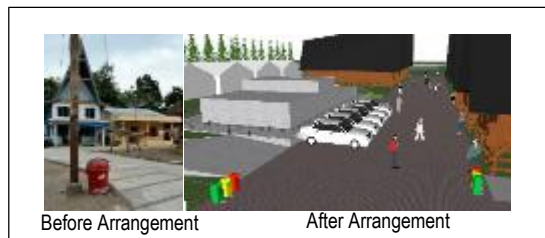


Figure 4: Local Environmental Sanitation Facilities

TIC infrastructure and some utility facilities such as street lights and pedestrian paths are needed to support the economy and social infrastructure of the village. Moreover, utility arrangement is expected to be able to maintain the quality of the surrounding environment without damaging the environment itself, following Inskeep's theory (Inskeep, 1987).

The environmental integrity of development is also expected to maintain the original form of an area (Panasiuk, 2011). Figures below are the concept of utility facilities arrangement, the parking area arrangement in figure 5, street lighting facilities arrangement (figure 6), and pedestrian arrangement (figure 7). Meanwhile, figure 8 is the concept of Lumban Suhi-suhi entry gate arrangement and signage/tourist attraction sign arrangement in figure 9. Figure 10 is the concept of Lumban Suhi-suhi exit gate arrangement and the tourist information centre in figure 11.

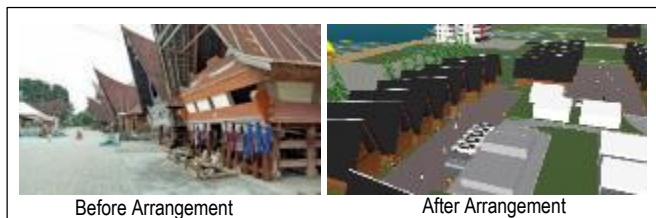


Figure 5: Arrangement of Parking Area in the Tourist Destination Area



Figure 6: Arrangement of Street Lighting Facilities



Figure 7: Arrangement of Pedestrian

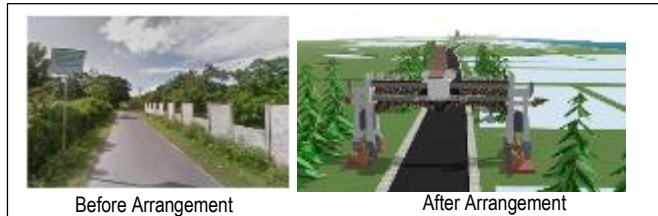


Figure 8: Arrangement of Lumban Suhi-suhi Village Entry Gate

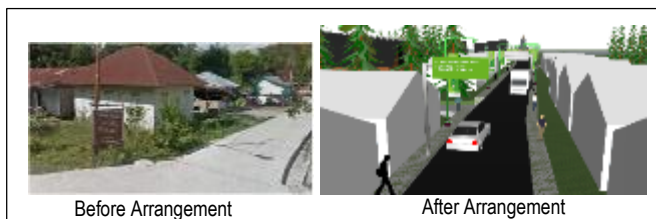


Figure 9: Signage / Tourist Attraction Sign



Figure 10: Exit Gate of Lumban Suhi-Suhi Village



Figure 11: Tourist Information Centre

6.0 Conclusion

The Lumban Suhi-suhi village was adequate in fulfilling the criteria of a tourist destination. However, due to the limitations of the facilities arrangement around the area, it became less desirable for tourist attractions. Therefore, in terms of maintaining environmental sustainability, it needs the regulation of the environmental-based infrastructure without reducing the image of the village.

In terms of tourism facilities, to support tourism needs, the village must provide some supporting facilities, because tourism itself must serve the tourist's needs. Due to local population factors, a zoning system for specific areas could counter the worship facilities that are still inadequate. Restaurant facilities are still insufficient because it is hard for tourists to find a halal restaurant, so it is recommended to do a plan for halal standardisation. In terms of educational facilities, the limited knowledge causes the lack of educational facilities for high school, especially from the tourism sector, so the recommendation for the government to do counselling to help the villagers of Lumban Suhi-suhi village to get education up to high school. The banking system which is a support for the local economy is still unavailable, so it is recommended for private or government managers to be able to provide this facility. The health facilities in Lumban Suhi-suhi village are quite adequate, except for first aid facilities. The security is relatively safe, but due to the lack of security officers and police for tourists in the area, this village is not yet in the safe category. The sanitation is quite adequate because people are fully aware of that issue and also actively participate in maintaining the environment cleanliness around the area.

In terms of tourism facilities, the transportation available in Lumban Suhi-suhi area is

angkot. There are no specific facilities for tourists. Therefore, it is recommended to provide a unique vehicle available to become the icon of the village. In terms of communication, it is sufficient because some private providers have built telecommunication towers to facilitate tourists and villagers in digital communication. In terms of accommodation, there are many shortcomings in the village, such as public toilet facilities, parking facilities, lighting facilities, pedestrian paths and gating system that make it more complicated for tourists to visit. The arrangement concept is expected to facilitate tourists while at the same time increase the number of visitors, as well as give an impact on local economy without causing adverse effects to the environment for a better future.

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