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The uniqueness of the environmental aspects of sustainable tourism on Samosir Island

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Abstract. The dominance of economic values in the tourism development has caused the decline of other important values, thus make the application of sustainability concept is crucial. As part of Indonesia's priority destinations, this concept is also needed to be applied in Samosir Island. In other hand as a tourism destination, a place must have distinctiveness to differentiate it from other places because tourism is fundamentally a recreational product based on place phenomenon. The research is a study of the value of uniqueness on the environmental elements of sustainable tourism in Samosir Island, North Sumatra, Indonesia. The research used mixed methods where questionnaires were distributed to 105 respondents, field observation was conducted, and in-depth interviews were held with six key informants. The result shows that the existence of the traditional building has a great influence towards the physical integrity of the tourist while the diverse cultural activities in the areas required appropriate strategies in enhancing and supporting the environmental elements of sustainable tourism.

1. Introduction

Rapid and significant tourism growth in Indonesia makes it one of the largest non-oil and gas foreign exchange earning sectors for the country [1][2][3]. The Government of Indonesia through its Cabinet Secretariat Letter in 2015 has determined ten Indonesia priority destinations, including the Lake Toba Region. One of the interesting things from the Lake Toba Region is an island in the middle of the lake, Samosir Island. It has been well-known as a tourism destination for both local and foreign tourists.

However, tourism development raises issues as the impact of the dominance of economic values. Therefore, the sustainable tourism movement is carried out as an effort to re-harmonize the shifting of tourism function which causing the lack of ethical, cultural, social, and environmental values. The concept of sustainable development in tourism aims to have a positive impact on the surrounding, the local economy, as well as the social and cultural aspect [3]. Sustainable tourism itself is a concept of tourism that maintains the value of sustainability and preservation of environmental ecosystems by considering



and regarding the local social and cultural conditions so it can always meet the needs of the present without reducing the ability to fulfil the needs of the future generations [4].

The focus of this research is on the environmental aspects of sustainable tourism which important because it is directly related to the natural factors. The environmental aspects include three parts, namely, environmental integrity, biodiversity, and environmental-based development [4].

In addition, tourism activities are recreational products based on a place phenomena, which creates identities that attract people to visiting the place. A place or city can be seen as a product because it consists of its physical and non-physical attributes [5]. According to MacCannell, tourists always tend to look for something authentic or unique [6]. This authenticity or uniqueness can be found in tourist objects, both in the types of natural tourism, cultural tourism or other types of tourism [7]. The uniqueness creates interest and involvement between a place and a tourist, creating an unforgettable experience which makes uniqueness as one of the crucial factors for tourists in determining their tourism destinations. Therefore, this study aims to examine the value of the uniqueness on the environmental elements of sustainable tourism in Samosir island which would benefit Samosir Island as a tourist destination.

2. Literature Review

2.1 Uniqueness

The development of place identity theory has developed into four principles, i.e., distinctiveness, continuity, self-esteem, and self-efficacy. Distinctiveness itself related to the positive perception towards the uniqueness or particular character of a place that incomparable to the other [8][9]. The aspects of distinctiveness, i.e., landmark, uniqueness or particular character, and different perception, play a major role in influencing tourists' decisions in choosing tourism destinations and tourist behavior towards the place. The uniqueness found to be the element that inherent in the concept of distinctiveness [2][12]. A place will be easily forgotten without uniqueness. The aspects that formed uniqueness are diverse cultural activities, local products, traditional building, and local vehicle (see Fig. 1)[2].

The diversity of cultural activities in a place can be in the form of tourist attraction because tourists always want to find something authentic or unique [6]. This sense of uniqueness towards a particular place also leads to the desire to maintain that diversity. The presence of diverse local products also shows the characteristics of a place that distinguishes it from other places [9][10].

On the other hand, globalization that occurs throughout the world produces an international style that eliminates the uniqueness of each place. Therefore, the existence of uniqueness in terms of architecture such as in traditional buildings or traditional-style buildings is an attraction for tourists because it creates a distinctiveness for a place. Another thing that becomes a factor that creates distinctiveness in a place is the presence of local vehicles [13]. A place's distinctiveness are the response towards the environment that reflected through the physical aspects (i.e., local product, traditional building and local vehicle) and non-physical aspect (i.e, cultural activities).

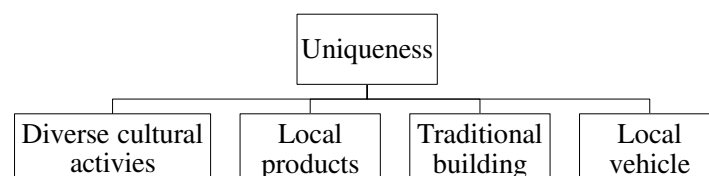


Figure 1. Uniqueness Aspects

2.2 Environmental Aspects of Sustainable Tourism

Environmental aspects are the most highlighted aspect when discussing sustainable design because they are directly related to the natural factors. The environmental aspects can be seen from physical integration, biodiversity, and environmental-based development (see Fig. 2) [14].

Physical integration is an environmental sustainability related to the system of productivity and adaptability to the environment. To maintain the physical integration, there are three things that must be considered, i.e., carrying capacity, diffuse ability, and the application of renewable resources. The biodiversity can be seen as one of the quality parameters of the environmental elements of sustainable tourism. In addition, the utilization of biodiversity can also be used as one of the tourist attractions of a place, without ignoring the needs to maintain the sustainability. Whereas environmental-based development can be carried out through environmental pollution prevention, rehabilitation and damaged ecosystems and natural resources recoveries [14][15].

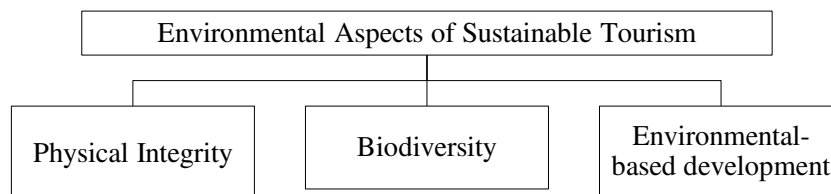


Figure 2. Environmental elements of sustainable tourism

3. Methodology

The research locations took place in three villages; Tomok Parsaoran, Tuk Tuk Siadong, and Ambarita (see Fig. 3). These three locations are considered capable of representing Samosir island as a whole in terms of sustainable tourism because each has diverse functions and potential.

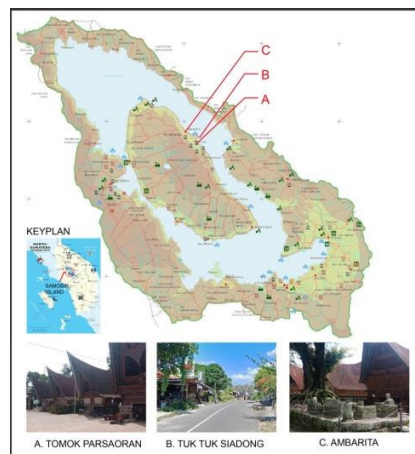


Figure 3. Research Area

In Tomok Parsaroan, the research location was conducted at the Sigale-gale show, Raja Sidabutar’s Tomb, Tomok Tourism Market, Tomok Batak Museum, and Samosir Botanical Garden. At Tuk Tuk Siadong, research was conducted at hospitality area around Tuk Tuk, Beta Tuk Tuk Hill, and Tuk Tuk Art Hall. Whereas in Ambarita, research was conducted on Huta Siallagan and the area around Ambarita.

This study uses a mixed-method that combines qualitative methods with quantitative methods to obtain respondents' perceptions of the uniqueness on the environmental elements in sustainable tourism on Samosir Island. In the qualitative approach, field observations and in-depth interviews were conducted with six key informants consisting of stakeholders and local government on Samosir Island, tourism experts, tourist attraction managers, and local communities. Interviews were made to obtain data related to the issues that were not listed in the questionnaire. The field observations were carried out by collecting physical data in the three research locations related to the conditions of the environment, activities and local culture as well as local products and other data needed for research purposes. The quantitative method is carried out by distributing questionnaires to 105 people consisting of tourists, both local and foreign, in the study sites, each consisting of 35 questionnaires. Questionnaires were distributed to obtain information about: profiles of respondents (age, gender, tourist status, employment, and education); data related to visits (frequency and duration of visits); perceptions regarding the value of uniqueness aspect on the environmental elements of sustainable tourism (the value of diverse cultural or local activities on the physical integration, biodiversity and sustainable development and the use of local products to promote and preserve the environment).

Information obtained through questionnaires was then processed and presented in statistical form to assess how much in the value of the uniqueness has on the environmental elements of sustainable tourism (with a Likert scale; 1 is rated as very low and 5 is rated as very high). The results of the acquisition of qualitative and quantitative data will be compared and related. Then, the results of this study will be analyzed quantitatively using percentages and mean values; then the qualitative data will be encoded and separated according to related variables and similar responses to reinforce the theory.

4. Result and Discussion

Each research location is represented by 35 respondents consisted of tourists, both local and foreign tourists. The total of all respondents from the three study locations were 105 people. As a whole the respondents consisted of 68.57% of local tourists and 31.43% of foreign tourists. The majority of respondents were in the age group above 45 years (28.57%) followed by respondents in the 26-35 year age class (26.67%). Respondents consisted of 59.05% women and 40.95% men. Tourists generally travel with family (50.48%) or with friends (32.38%). The majority of tourists who traveled on Samosir Island made a visit for two days or more (84.76%). In macro terms, tourists rate Samosir Island as an excellent tourism destination (4.34).

4.1 Diverse cultural activities on environmental elements of sustainable tourism

As part of the principle of distinctiveness, uniqueness is related to a positive perception of the characteristics or characteristics of a place and things that can be done at that place are different from other places [8][9]. This uniqueness refers to activities and habits that can be found in that place [2][11][12]. In this study, cultural activities must support environmental preservation where the activity shows its tendency to maintain and preserve the environment, including in the efforts to preserve local biodiversity and the use of its natural resources [14]. In addition, to convey the message, cultural activities must be interesting to attract the tourists' attention. In general, in the three research locations, respondents considered that cultural activities that support environmental preservation are interesting to follow or see (3,87) (Table 1).

Table 1. Respondents' perception of diverse cultural activities on environmental elements of sustainable tourism

Statements	Mean			Mean
	Tomok	Tuk Tuk	Ambarita	

There are unique or particular local regulations to prevent environmental pollution in this place	3,40	3,54	3,57	3,50
There is an area of conservation or environmental rehabilitation in this tourist area	3,66	3,86	3,40	3,64
Cultural activities that support environmental preservation are interesting to follow or see	4,06	3,51	4,03	3,87
The diversity of natural resources used in cultural activities is interesting or unique	3,54	3,26	3,83	3,54
There are local activities to conserve biodiversity	3,77	3,49	3,69	3,65
Total	3,69	3,53	3,70	



Figure 4. Different perception between tourist and local people about the cultural activities supporting the environment

Whereas through observation and interview, it was found that cultural activities that attract tourists' attention are not the type of cultural activity that directly impacts on environmental conservation (see Fig. 4). Cultural activities referenced by tourists are the type of cultural activity in the form of performing arts, which might contain local wisdom but do not have a direct impact on environmental sustainability. While the types of activities that were significantly influential carried out by the local communities in the form of cleaning activities (*gotong royong*) which were found in two research locations namely Tuk Tuk Siadong and Ambarita. According to the key informants, cleaning activities (in neighborhoods and around the lake) at Tuk Tuk Siadong were led by the initiative of *Karang Taruna* (local youth organization). It is also similar to the findings in Ambarita, especially for Huta Siallagan. The cleaning routine was initiated by the local community (see Fig.5).

“Cultural activities in this place (Tuk Tuk) are rather monotonous. There is only an art show that can be watched for free in the Tuk Tuk Art Hall which performed by Karang Taruna. As for the preservation of the environment itself, Karang Taruna conducts mutual cooperation activities to clean the village environment and around the lake (at least once a month or when the environment is dirty). Karang Taruna also took part in tree planting as part of the government’s reforestation program.”(Key informant: Karang Taruna)



Figure 5. Clean environment as the result of mutual cooperation in Huta Siallagan

Initiatives that emerge from the local community are the result of a sense of belonging to the place [21]. In Huta Siallagan, local people who work as merchants, staff and tour guides are those who are surnamed Siallagan and those who are married to the Siallagan clan. Similar to *Karang Taruna* in Tuk Tuk Siadong, those who are members of *Karang Taruna* are those who live and work in the area, which consists of many family businesses.

“There is a routine of mutual cooperation once a month ... All residents in Huta Siallagan take the initiative and work voluntarily ... Everything works because of the sense of belonging. All workers in Huta Siillagan are those surnamed Siallagan or are married to the Siallagan clan.”(Key Informant: The Chief of Huta Siallagan)



Figure 6. Biodiversity in Tomok Parsaoran, Tuk Tuk Siadong, and Ambarita

The activities related to biodiversity conservation were assessed by respondents (3.65). The assessment of biodiversity conservation efforts in the three locations was considered high (Tomok Parsaoran (3.77); Tuk Tuk Siadong (3.49); Ambarita (3.69)) (see Fig. 6). A conservation area called Samosir Botanical Garden in Tomok Parsaoran, which is consisted of endemic pine species, medicinal plants and ornamental plants collection. However, this nature-based tourist attraction is not popular compared to other tourist attractions in Tomok Parsaoran such as the Raja Sidabutar’s Tomb and Tomok Tourism Market. Of the 35 respondents who visited Tomok Parsaoran, only 3 chose the Samosir botanical garden as a landmark even though the tourism potential offered was actually high. This was also caused by the lack of promotion and reluctance of local people as the spearhead of tourism to promote the Samosir Botanical Garden as a tourist attraction for tourists due to the dispute over land ownership. In addition, at Tuk Tuk Siadong, it was found that the existing environment is still verdant. In Tuk Tuk Siadong, many tourists can be found enjoying the nature by cycling around or hiking. Through interviews, it is also known that Tuk Tuk Siadong is famous for its agricultural commodities, such as avocados and corn. This is also supported by the fact that more than 40% of the Tuk Tuk Siadong community work as farmers. In the research area in Ambarita itself, biodiversity is maintained through efforts carried out by the local community, many small parks consisting of types of pine trees and ornamental plants that can be found in Huta Siallagan.

“Tuk Tuk is famous for its plant commodities such as avocados and corn which were even sent to Medan. This can be seen from the large amount of agricultural land around Tuk Tuk.”(Key informant: Head of the administrative section in Tuk Tuk Siadong Village)



Figure 7. *Hariara* Tree

Forms of culture that can support biodiversity can also be found through local regulations. For example, local regulations that support biodiversity can be seen from the local custom of the *Hariara* tree (see Fig.7), which is a type of tree commonly found in Batak *Huta* (Batak Village). The name of the *Hariara* tree itself literally means the Tree of the Seventh Day (hari = day; ara = seven), where it was used to determine whether a place is suitable to be built as *Huta* (settlement) by planting *Hariara* tree seeds and waiting until the seventh day. If seedlings thrive, then the land is suitable for the new settlement.

“Hariara tree is a tree species that is famous for Huta or Batak villages. Each village has this type of tree because this tree determines whether the settlement will be built or not.”(Key informant: Local resident)

Local cultural activities have the biggest impact on physical integration (3.87), followed by their influence on local biodiversity (3.64) (Table 1). The results of the three sites show that cultural activities are considered to have a strong influence on the environment [21], especially on Ambarita (3.70) despite differences between tourists and local communities perception about the types of cultural activities that support the environment. As a suggestion, environment preservation activities can be used as a special attraction for tourists by adding cultural value in them, for example at the *Mane'e* festival in Talaud, North Sulawesi, Indonesia [18].

4.2 Local products on environmental elements of sustainable tourism

Local products show the characteristics of a place that is different from other places and a token for tourists that they have visited the place [16]. Local products offered as souvenirs or souvenirs in all three research areas are considered good and can promote biodiversity well by respondents (3,38) (Table 2). The local products can be found in many tourist stalls in the tourist markets in research locations.



Figure 8. Local Products

The types of products offered are dominated by handicraft products, such as traditional woven fabrics (*ulos*), carvings, and so on (see Fig.8). There are several types of products that are made from waste, such as *klewek* which are made into key chains and knick-knacks made from wood waste. Respondents also considered that the use of biodiversity as a local product was good (3.63). Then, there are also many products in the form of printed shirts that promote biodiversity on Samosir Island and Lake Toba. However, in its role towards environmental-based development, the product as a media for promoting environmental preservation is considered to be lacking (2.83) (Table 2).

“The local products that commonly found in this area such as Tomok, TukTuk and Ambarita markets are generally similar. The products include types of wood crafts, ulos and t-shirts. There are also knick-knacks such as key chains and bracelets with pictures or writings of Lake Toba which are made from household waste (wood waste and kluwek fruit waste)” (Key informant: Local merchant)

Table 2. Respondents’ perception of local products on environmental elements of sustainable tourism

Statements	Mean			Mean
	Tomok	Tuk Tuk	Ambarita	
In local products, there are words that indicate typical plants or animals from the place	3,60	3,14	3,40	3,38
Local products are made from typical plants or animals from the place	3,57	3,57	3,74	3,63
In local products, there is an encouragement to preserve the environment and prevent environmental pollution	2,63	2,17	3,69	2,83
Total	3,27	2,96	3,61	

The biodiversity in the research areas has been well utilized in the form of local products (3.63). In general, local products in Ambarita are considered good and have a positive impact on physical integration, biodiversity, and environmental-based development.

4.3 Traditional Building on environmental elements of sustainable tourism

The existence of traditional buildings in tourist areas influences the attitudes of tourists and local communities in their interactions around traditional buildings, indicating the role of particular characters or uniqueness to environmental integrity [2][15]. Architecture as a result of cultural products has also developed the style of the building in an area [21]. It is found that the existence of traditional buildings or traditional-style building arise more respect by tourists and local people than when interacting in other places without them. This can be seen from the situation around traditional buildings that are cleaner and

free of garbage (see Fig. 9). The tourists considered the existence of traditional buildings as one of the reasons for choosing their destination (4.38), especially for Huta Siallagan or Ambarita (4.60) (Table 3).

"People are discouraged to sbe misbehaved around here (traditional buildings and stone chairs). The reason is mainly because of the age of the traditional buildings and stone chairs are very old (approximately 400 years old). People are also afraid of being possessed (by spirit) and indeed it is happening. But if you are polite, you don't need to be afraid."(Key Informant: The Chairman of Samosir Tour Guide Association)

Table 3. Respondents' perception of traditional Building on environmental elements of sustainable tourism

Statements	Mean			Mean
	Tomok	Tuk Tuk	Ambarita	
I am interested in this tourism destination because of the traditional building	4,34	4,20	4,60	4,38



Figure 9. Traditional buildings in research area

Comparisons were also made at three locations in Tomok Parsaoran which performed Sigale-gale. Two of them are also settlements consisting of traditional houses and one is only a place of performance (see Fig.10). It was found that the two shows located in residential areas with traditional buildings were far cleaner than the locations of sigale-gale shows that did not have traditional buildings.



Figure 10. Comparison of cleanliness among places that have traditional buildings with places without traditional buildings

Tourists are also interested in traditional buildings because traditional buildings can reflect local wisdom and local culture [2][17][19]. Each architectural object is unique and original because it manifest the local wisdom [20].The uniqueness of traditional buildings is also in terms of structure proven by the findings of many earthquake resistant traditional buildings.

"The uniqueness of the Batak house lies in the application of Batak phrases to the structure of the building. For example, the Batak house column was built on the ground and not planted because it follows the philosophy of Batak which said: 'when the problem comes, we should not feel down, but

instead we should move along with it'. This principle makes the structure of the Batak house earthquake resistant.” (Key Informant: The Chairman of Samosir Tour Guide Association)

The peculiarities found in traditional buildings are the evidence of cultural blend which also reflected by the surroundings [19]. In these research areas, the role of traditional buildings is most dominant towards physical integrity. The existence of traditional buildings influences the attitude of tourists around them so that awareness arises to maintain cleanliness.

4.4 Local vehicle on environmental elements of sustainable tourism

The presence of local vehicles is one of the factors that can increase the value of the distinctiveness of a place [2]. The uniqueness of local vehicles can be an attraction for tourists as a way to explore tourist areas.

Table 4. Respondents' perception of local vehicle on environmental elements of sustainable tourism

Statements	Mean			Mean
	Tomok	Tuk Tuk	Ambarita	
There are local vehicles that are environmental-friendly	1,97	3,49	3,43	2,96



Figure 11. Bicycle Rental in Tuk Tuk

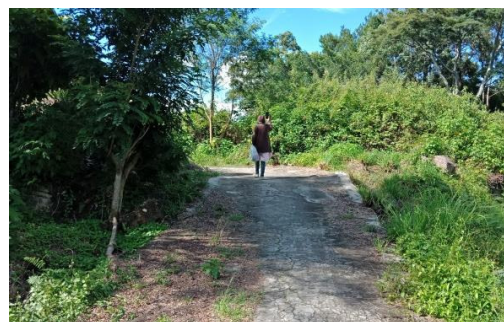


Figure 12. Hiking area in Tuk Tuk

In its role in environmental-based development, the existence of environmental-friendly local vehicles is very impactful on how travelers can access and explore tourist areas. As a whole, tourists consider that the procurement of environmental-friendly local vehicles is still inadequate (2.96), especially in Tomok Parsaoran. However, high ratings were given by respondents at Tuk Tuk Siadong (3.49) (Table 4). This is

also supported by observations where many bicycle and scooter rentals can be found to be able to explore the tourist area (see Fig.11). According to the interviews with the local government, there were local regulations that supported the physical integration in Tuk Tuk which prohibited the public transportation (*angkot*) to pass through this area. This local regulation was made to support the exploration activities through cycling and hiking by tourists (see Fig.12).

“Ten years ago there was a program to procure horse carriages (at Tuk Tuk), but the horses brought to Tuk Tuk were unable to adapt. Currently, local vehicles that can be found here are only rental bikes or scooters and pedicabs to support tourists exploring Tuk Tuk. To support this exploration, the local government makes regulations where public transport is not allowed to go through the Tuk Tuk area to keep traffic tranquil and pleasurable for tourists who want to explore it by walking or cycling.” (Key informant: Head of the administrative section in Tuk Tuk Siadong Village)

The local vehicles in Tuk Tuk are considered the best and can meet the needs of tourists in exploring the area (3,49). This is also supported by the attraction offered at Tuk Tuk, where most tourists want to enjoy the scenery in a relaxing way through cycling or hiking. The existence of environmental-friendly local vehicles, especially in Tuk Tuk and Ambarita, is considered good in supporting environmental-based development.

5. Conclusion

Uniqueness is considered influential on environmental elements in the concept of sustainable tourism on Samosir Island. The role of traditional buildings is most dominant towards physical integrity which influences the attitude of tourists around them and raises the awareness to maintain cleanliness. In addition, local cultural activities is also impactful to the physical integration. The results of the three sites show that cultural activities are considered to have a high value on the environment, especially on Ambarita despite differences between tourists and local communities with regard to the types of cultural activities that support the environment. In this case, the local community and the government play a big role in developing cultural activities as part of the preservation of the environment and biodiversity. A clear and effective strategy must be made by identifying the types of ecosystems, including flora and fauna that will be involved as part of the cultural attractions. Furthermore, local products are considered to have been able to promote biodiversity and local culture (e.g. types of knick-knacks and traditional fabrics (*ulos*)), but have not been able to steadily supporting the environmental-based development yet. Meanwhile local products should be able to embrace the environment which can be actualized by utilizing the locality.

Moreover, the environmental-friendly local vehicles, especially in Tuk Tuk and Ambarita, is considered good in supporting environmental-based development, although Tomok is still considered lacking. Improvements can be made by supplementing each tourism area with environmental-friendly vehicles, in addition to support the environment as an alternative for tourists to explore the region.

Other aspects of distinctiveness theories are also very important in optimizing the potential of a place as a destination, especially on the basis of sustainable tourism. Therefore, researchers encourage further study of other aspects on distinctiveness principle and sustainable tourism to complete the current research.

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References

- [1] Ginting, N., Siregar, N., Stephanie, Tomy & Febriandy. Pengembangan Elemen Atraksi Destinasi Wisata di Geosite Tuktuk, Ambarita dan Siallagan, Kabupaten SAmosir. *Pros. Semin. Kearifan Lokal dan Lingkung. Binaan 25-26 Januari 2017* 743–759 (2017).
- [2] Ginting, N., Nasution, A. D. & Rahman, N. V. *Identitas Tempat Pada Pariwisata Kabupaten Karo*. (Magister Teknik Arsitektur, 2016).m. *Archit. Res. Des.* 8, (2016).
- [3] Nurhasanah, I. S., Alvi, N. N. & Persada, C. Pemberdayaan Masyarakat Lokal Di Pulau. *Tata Loka* 19, 117–128 (2017).
- [4] Arida, I. N. S. *Buku Ajar Pariwisata Berkelanjutan*. (Sustain-Pre ss, 2010).
- [5] Hosany, S., Ekinci, Y. & Uysal, M. Destination Image and Destination Personality: An Application of Branding Theories to Tourism Places. *J. Bus. Res.* 59, 638–642 (2006).
- [6] MacCannell, D. Staged Authenticity: Arrangements of Social Space in Tourist Settings. *Am. J. Sociol.* 79, 589–603 (2002).
- [7] Suwena, I Ketut & Widyatmaja, I Gst Ngr .*Pengetahuan Dasar Ilmu Pariwisata*. (Udayana University Press, 2010).
- [8] Kim, J. The Antecedents Of Memorable Tourism Experiences : The Development Of A Scale To Measure The Destination Attributes Associated With Memorable Experiences. *Tour. Manag.* 44, 34–45 (2014).
- [9] Lalli, M. Urban-Related Identity: Theory, Measurement, and Empirical Findings. *J. Environ. Psychology.* 12, 285–303 (1992).
- [10] Ginting, N. & Febriandy, F. Implementation of geotourism concept in developing natural tourist attraction at parbaba village, Toba’s caldera. *IOP Conference Series: Earth and Environmental Science.* 126, (2018).
- [11] Novianti, Y., Ginting, N. & Marpaung, B. O. Y. Place attachment of the public space in Krueng Cunda. *IOP Conference Series: Earth and Environmental Science.* 126, (2018)
- [12] Ginting, N. & Wahid, J. Defining distinctiveness aspect of place identity in urban heritage tourism. *Archit. Res. Des.* 8, (2016).
- [13] Hosany, S., Ekinci, Y. & Uysal, M. Destination Image and Destination Personality: An Application of Branding Theories to Tourism Places. *J. Bus. Res.* 59, 638–642 (2006).
- [14] Arida, I. N. S. *Buku Ajar Pariwisata Berkelanjutan*. (Sustain-Press, 2010).
- [15] Proshansky, H. M., Fabian, A. K. & Kaminoff, R. Physical World Socialization Of The Self. *J. Environ. Psychol.* 3, 57–83 (1983).
- [16] Kastenzholz, E., Eusébio, C., & Carneiro, M. J. Purchase of local products within the rural tourist experience context. *Tourism Economics.* 22(4), 729-748 (2016).
- [17] Kianicka, S., Buchecker, M., Hunziker, M., & Müller-Böker, U. Locals' and Tourists' Sense of Place. *Mountain Research and Development.* 26(1), 55-63 (2006).

- [18] Satria, K. A. Analysis of institutional marine eha and mane'e as community-based (coastal) resources management. *Sustain. Tour. VII* 1, 211–222 (2016).
- [19] Pane, I. F., Loebis, M. N., Azhari, I. & Ginting, N. Power and cultural manifestation in the development of colonial architecture (case study : Great Mosque Al-Mashun Medan. *IOP Conf. Ser. Earth Environ. Sci.* 126, 0–8 (2018).
- [20] Loebis, M. N., Ginting, N., Simajuntak, H., & Jamaluddin, F. Influence of culture on ornament of the traditional architecture in Medan (Malay Deli Sultanate). *IOP Conference Series: Earth and Environmental Science.* 126, (2018).
- [21] Ujang, N. & Zakariya, K. The Notion of Place, Place Meaning and Identity in Urban Regeneration. *Procedia - Soc. Behav. Sci.* 170, 709–717 (2015).