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**2018**

**3rd International Conference on  
Science and Technology**

**PROCEEDINGS**

**Mataram, December 10, 2018**



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UNIVERSITY OF MATARAM**



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**The 3<sup>rd</sup> International Conference on Science and Technology (ICST 2018)**

**“Emerging Sciences and Technology for Human Prosperity and Health”**

**Mataram, 10<sup>th</sup> December 2018**

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**Preface of the Proceeding of  
The 3<sup>rd</sup> International Conference on Science and Technology 2018**

Bismillaahirrahmaanirrahiim  
Assalaamu'alaikumwarahmatullaahwabarakaatuh.  
Peace be upon us.

Praise always we pray to God Almighty for giving us the abundance of grace, guidance and inayah, so that we all could meet in Lombok, a beautiful island “the Island of Thousand Mosques” in West Nusa Tenggara Province. Our Lombok island known to its many natural and cultural diversity where you can enjoy cuisines, beaches, waterfalls, mountain, traditional villages and handicraft of many ethnics in this Island.

On behalf the Committee, I would like to thank you all attendee of the “3<sup>rd</sup> International Conference on Science and Technology (ICST) 2018” on December 10<sup>th</sup> 2018 and shared impressive ideas, knowledge and experiences through the article to build network for possible future collaboration, therefore the proceedings can be realized.

This proceeding published articles from presenters that came from various universities and research institutions in Indonesia and from overseas (Philippine, Australia, Thailand). Research papers already reviewed on the basis of a full length manuscript that accepted based on quality, originality and relevance.

At this moment, the organizing committee would like to express our gratitude to the all keynote speakers and presenters who have submitted for article and also to all participants to share their acknowledged works, your effort and contribution to the conference are absolutely valuable. Our special gratitude also goes to the Rector of the University of Mataram and Head of Institute for Research and Community Services) University of Mataram, West Nusa Tenggara, Lombok, Indonesia, who have been highly supporting the conference.

Last but not least, I would like to thank the organizing committee as well as all other supporters and participants, as without their effort, commitment and hard work, the publication of this proceeding will be hardly achieved. Critics and suggestions on the improvement of this proceeding will be highly appreciated. Hopefully the next ICST can be better prepared based on this recommendation.

Wassalamu'alaikum warohmatullahi wabarakatuh.

Chairman of 3<sup>rd</sup> ICST 2018

Dr.rer.nat. Lalu Rudyat Telly Savalas, M.Si.



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# DESIGN OF SEDAYU BEACH AREA AS A BEACH AND TURTLE TOURISM DESTINATION IN NORTH LOMBOK REGENCY

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**Abstract.** The aim of the Sedayu Beach design is to improve the function and quality of tourism in Sedayu Beach to be a tourist that is worth visiting by the people on the island of Lombok in particular and the Indonesian people in general, as well as protecting sea turtles from extinction and has its own tourist attraction. The method used is descriptive analysis method. The results of the Sedayu Beach design are the division of the 5 zones, namely: parking zones, managers, culinary, children's games and sports, and tourism (boats, turtle breeding and fishing). The conclusion is that by designing Sedayu beach, it will later become one of the tourist destinations with improvement of infrastructure and the accessibility of coastal and marine areas. So that it can support the economic rate of coastal and marine communities. Revitalization of the area that functions as a turtle tourism area is directed at saving the existence of turtles, biota and abiota in the waters, improving and preserving the quality of the environment while securing coastal areas from the threat of natural disasters.

**Keywords:** beach tourism, design, turtle

## 1. Introduction

The design of the Sedayu beach area as a tourist destination is an effort to improve the quality of the environment and the economy of the community. Because tourism itself is a tourism service activity involving the community, the government and related stakeholders, as stated in Republic of Indonesia Law No. 10 of 2009 [1], Tourism is a variety of tourism activities and is supported by various facilities and services provided by the community, entrepreneurs, the Government and the Regional Government. Tourism is a travel activity carried out by a person or group of people by visiting certain places for recreational purposes, personal development, or studying the uniqueness of tourist attractions visited in the interim period.

One district in West Nusa Tenggara that has potential in the tourism sector is North Lombok Regency. North Lombok Regency has the potential in the tourism sector which is large enough to be developed, with the presence of various tourism objects, both natural attractions and artificial tourism objects. It is estimated that its development will be quite rapid in the future. Tourism that has been sufficiently developed is Three Gili (Tramena) which is very global, Medana Cemetery / Medan Bay Marina, nature tourism (beach, mountain, waterfall, forest), artificial tourism (city park, golf course, bird park, hotel (the Oberoi Lombok), small yachts (yachts), restaurants, swimming pools etc.). In

addition to tourism objects that have been developed, it turns out there are still many other tourism potentials that have not been developed, and this requires a separate treatment. One of them is beach tourism which is also the only turtle tour in Tanjung- North Lombok Regency. The natural potential contained in it is turtle tourism, where turtle tourism destinations are still rarely found on Lombok Island, even West Nusa Tenggara Province. In the North Lombok Regency Tourism Master Plan, the Sedayu beach has been included in the coastal tourism development area. For this reason, it needs to be followed up with planning and design in accordance with the natural potential and carrying capacity.

Beach tourism is an activity on the beach where recreational activities are carried out. The word coastal tourism, can be broken down into the words 'tourism' and 'beach'. Tourism means to carry out recreational activities and relax to eliminate boredom during work, whether going alone or in groups. Whereas according to Mahadi [2], tourism means: picnics, traveling together (to expand knowledge, have fun, etc.), sightseeing. activities of individuals or groups to travel from one place to another that have a temporary nature, as an effort to find balance or harmony and happiness with the environment in the dimensions of social and cultural, natural and scientific. While the word 'beach' is the border area between the land and sea waters. This beach boundary can be found in the Law No. 27 of 2007 [3], what is meant by the beach boundary is land along the edge which is proportional to the shape and physical condition of the coast, at least 100 meters from the highest tide to the land. The beach consists of sloping beaches and steep beaches. The sloping beach is the coast or the edge of the sea whose land decreases little by little towards the sea.

To design a coastal tourism area must fulfill the criteria, among others: the land is quite sloping and it is possible to build buildings that do not damage the environment, have accessibility, there must be a management office, restaurants, recreation areas, prayer rooms, toilets, parking lots and vegetation that is suitable for the coastal climate.

## 2. Methodology

The method used is descriptive analysis. In this study used physical design concepts with reference to the design guidelines, which include the following:

- a) Site conditions
- b) Activity and circulation
- c) Building design consisting of: building mass, an appearance of the building, structure, and building material
- d) Sanitation system

### 2.1. Determinants of Design

The design of the Sedayu beach area is based on the need for beach tourism, land tourism (turtle tourism, etc.) which is adjusted to the standard function of the amount of space and function of accommodation.

#### 2.1. Actors of activity and circulation

The meaning of actors is all people or individuals involved directly or indirectly in activities in the coastal tourism area and turtle tourism.

- a. The activities and activities are as follows:
- b. Tourists visiting
- c. Manager of coastal tourism areas and turtle tourism
- d. Employee

This tourist activity has a flow of human and goods circulation. For human circulation seen from visitors or tourists who come to the location and area manager. While for circulation of goods is the process flow from the receipt of goods to the activity units and the space that requires the goods.

#### 2.2. Location and Site Approach

The location of the Sedayu beach area - Tanjung in North Lombok Regency has a fairly flat topography so it does not need special handling. To analyze the location based on the potential for good location for the development of coastal tourism and at the same time the existence of turtle tourism potential that is very supportive to be developed into tourism commodities.



### 3. Results and Discussion

Discussion result in this design include:

#### a. Activity Analysis

Analysis of this activity is to determine (1) groups of activity actors, which consist of visitors, managers and activity supporters (street vendors); (2) determine the characteristics of activities divided into activities for the age group and type of activities.

#### b. Analysis of Grouping Activities and Space requirements

Approach to space needs is based on activities that are accommodated and the actors of the activity. Whereas the nature and demands of space are based on the nature of the activities and character of the activity actors. Can clearly be seen in the table below:

**Tabel 1. Space Requirement and Nature of space**

NEED FOR ACTIVITIES	ACTORS	Space Requirement	Nature of space
<b>A. Water Recreation</b>			
1. Enjoying natural scenery and Fisherman Activities	Visitors	a. Quay b. Gazebo c. Viewing post	Public
2. Fishing at the Jetty	Visitors	a. Tool – rent room	Semi Public
3. Water sports activities	Visitors	a. Dress room and rinse b. Storage room for goods c. Supervisor room	Semi Public
a. Swimming	Visitors	a. Counter room b. Supervisor room	Semi Public
b. canoeing	Visitors	a. Counter b. Supervisor room c. The waiting room d. Lavatory e. Goods storage room f. Quay	Semi Public
c. Sail with a small boat	Visitors		
<b>A. Land Recreation Tourism</b>			
1. Walk around enjoying the scenery and playing	Visitors	Promenade	Public
a. Walk on the beach	Visitors	Green open space	Public
b. Play	Visitors		Public
c. Sit on the beach	Visitors		Public
d. turtle breeding	Visitors	a. Counter b. The waiting room c. Toilet d. A place to breed turtles at sea	Public
2. Restaurant	Visitors	1. Counter 2. Dining area 3. kitchen 4. Staff room 5. Toilet	Semi public
Eat and drink	Visitors	1. Prayer room 2. Male ablution place 3. Women's ablution place 4. Bathroom / toilet	Private
Religious activities	Visitors and staff	Souvenir sales area	Public
3. Souvenir Sales Place	Visitors		
4. Management	Manager and staff	1. Manager's Room 2. Public Service Room 3. Financial Room 4. Operational Room 5. Maintenance and service	Semi public
a. Handle each field			
b. Conduct meetings, discussions			
<b>PUBLIC SERVICE RECIPIENT ACTIVITIES</b>			
Serve visitors	Staff		Public
Giving information		Loket	

PUBLIC SERVICE ACTIVITIES			
Supervision	Security		Public
Rescue and help		Medical room	
Parking			
Entrance ticket counters	Parking attendant	Parking area	
Office	Locker clerk	Entry counter	
Worship	Employee	Office	
bathroom / toilet	All	Islamic Prayer Room	
	all	Toilet	

c. Location Analysis

Location analysis consists of site analysis and accessibility. For location analysis, we can see the location of Sedayu beach in Gondang village. The existence of an interesting site from its natural potential makes this area one of the coastal areas which is one of the alternative natural attractions in North Lombok Regency, especially with the turtle breeding being guarded by people living near the beach of Sedayu. Activities that can be carried out on this coast include seeing the sights, beach tourism, and enjoying seafood culinary that can be enjoyed at available coastal restaurants.



**Figure 1.** Location of Sedayu Beach

The accessibility of Sedayu beach is quite strategic considering that this beach is included in the area near the Tanjung city, so that the achievement from the city center is close. Especially with the planned opening of the North Ring through this area, it will further facilitate access to this coastal tourism area.

d. Site Analysis (Macro Spatial)

Site Design Based on Topography. The topographic conditions around the Sedayu coast are relatively flat from 0 - 3%. And most of the sites have not been utilized optimally (there are still many vacant lots). Based on observations in the field, as a place of recreation, this beach is less functionally considered and the area of land that is available to be used by visitors For existing conditions Boat mooring, the majority of residents living in coastal areas have a livelihood as fishermen. So, there are many ships anchored in the coastal area and the layout of the boats used by fishermen to search for the sea is still very irregular. Turtle breeding sites are currently very simple and there is no education on how to make turtle breeding be better and right.



**Figure 2.** Site analysis based on topography. (a) Empty land that can be used for parking lots. (b) Empty land that can be used to support coastal tourism, namely culinary (restaurant). (c) Empty land that can be used for green open space. (d) The effect of the direction of the ocean waves that can collect sand on the beach, can be directed to make Jetty for fishing. (e) Boat mooring is developed into a quay with supporting facilities.

#### e. Analysis of the Sea Area

The current conditions in the sea area are still not well organized. The shipping traffic zone is still not organized so it has not taken into account the existence of marine ecosystems within it. So, sea boundaries will be planned using flags as a sign. This core zone area will be created as an area of maintenance of existing marine ecosystems so that later it can be maintained and become a source of abundant fish.

#### d. Landscape Analysis (Micro Spatial Planning)

##### • Analysis of natural elements

##### 1) Vegetation

A collection of vegetation will affect climatic conditions, site characteristics and soil type. In addition, it affects local hydrological conditions. Vegetation also has a close connection with the local ecosystem. The character of vegetation is in accordance with the area of its habitat.

##### 2) Analysis of Landscape Furniture

Landscape furniture needed in designing recreational areas requires clarity of functions of existing furniture. The considerations used in determining the type of landscape furniture are:

- Attractive in terms of arrangement and shape
- Able to withstand climate (sun, wind and rain)
- Ease of maintenance and repair.

Landscape types can be seen as followed :

##### 1) Information Board

The information board functions as a guide and provides information about the area in the recreation area. Information boards designed in the form of alluminium on a concrete monument containing instructions / information on the location of existing tourist facilities.



**Figure 3.** Example of information board



2) Sculpture

Sculpture can be made from natural forms such as marine flora and fauna, boats / boats. In planning, the shape of the fish will be chosen

3) Seating Area (Rest and Recreation)

The sitting and resting area is in the form of a seat for pedestrians who want to rest after being tired of walking at a certain distance and placed on the edge of the pedestrian. According to the requirements the accessibility of rest areas is available every 9 meters for people with disabilities. Besides that there is also a large sitting group area (5-10 people) which is placed separately from the circulation path clearly.



**Figure 4.** Example of Seating Area

4) Lighting

Lighting is needed because the recreation area is planned to be opened also for the afternoon / evening. For this reason, lighting is needed in the form of street lights (vehicle lanes), pedestrian, garden, sculpture and lighting in buildings. The design is prioritized on the lights in the open area

5) Pedestrian

Pedestrian is the main area of movement in the area so it needs to be considered in terms of:

- Psychological aspects

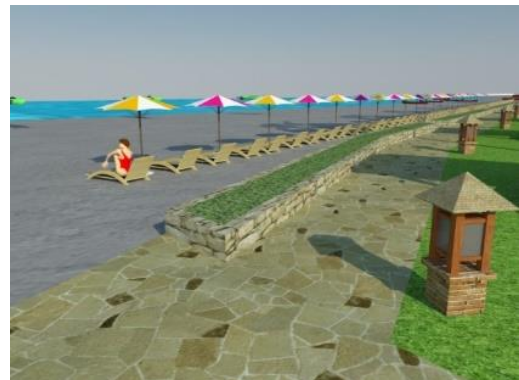
Willingness and desire to do activities in the recreation area without feeling bored, afraid, bored or tired.

- Climatological conditions

Climate conditions that affect visitors' interest in walking through pedestrian.

- Accessibility aspects

A recreational facility is not only a building but must meet accessibility facilities for difable people who provide ease of achievement.



**Figure 5.** Example of pedestrian

6) Jogging Track Area



**Figure 6.** Example of jogging track area



e. Facade analysis of buildings

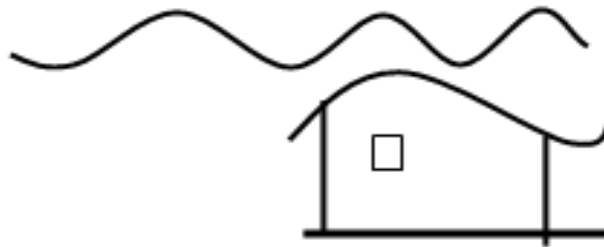
- The form of an informative building is able to communicate activities that are accommodated by activities around it. The character of the appearance and shape of the planned building is inspirational, innovative and communicative, which is a form that is able to provide creative power in accordance with the activities that are accommodated, not boring and gives an interesting impression to be seen.

- Facade of the building

The basic form of building fasade is based on creative forms that are informative with coastal and free sea settings as a basic form of reference. The ideas of design are based on:

1) Sea wave

Corrugated canopy forms like waves



**Figure 7.** Corrugated canopy forms like waves

2) Fish

The shape of fish can be used as an alternative display of monumental buildings



**Figure 8.** Fish species

- 3) Speed boats, fishing boats and marine vessels have a form that is identical to the coastal area of Sedayu so it is suitable to be used as an alternative display of recreational building masses.

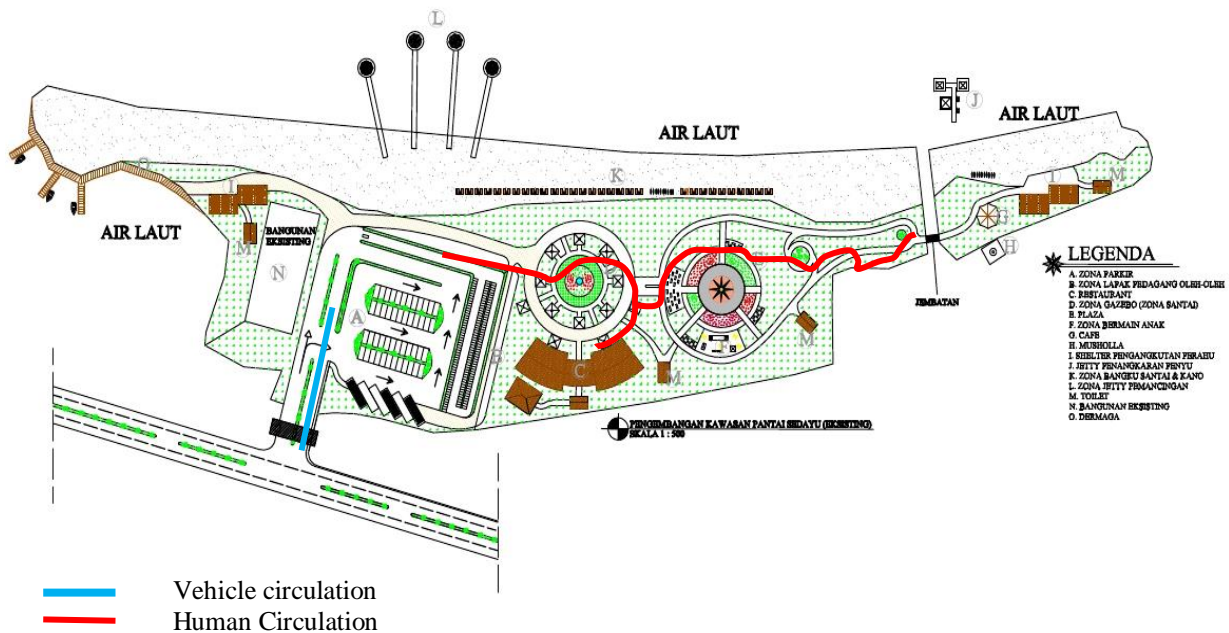


**Figure 9.** Speed boat an marine vessel

f. Analysis of patterns of achievement and circulation

Access from the northern ring road is the main access to tourist sites, while access from the Tanjung - Bayan highway is an alternative access. Each access can be connected with circulation designed in the area (micro circulation). Circulation in the

area is divided into 2, namely pedestrian circulation and circulation of vehicles such as cars, motorbikes, tourist buses, and goods trucks



**Figure10.** Circulation of vehicle and human

### g. Analysis of Building Structure and Materials

The climate in the coastal area is humid but the temperature is hot. Buildings can be durable by using materials that are suitable for the climate in the coastal area. Alternative materials that can be used such as: bamboo has shock-resistant properties, is resistant to bad weather such as rain, is flammable, wood has a flexible nature, is easily porous when eaten by termites. Concrete has a durable, expensive and polycarbonate roof, transparent and can protect from sunburn suitable for recreational areas.

#### h. Analysis of Building and area utilities

According to Inskeep [4], the general impact of tourism is: positive impact, tourism if it has good planning and management, can maintain and improve environmental conditions in various ways. The positive impacts of tourism are conservation of protected areas, conservation of archeological sites, improvement of environmental quality, improvement of the environment. And the negative impact, tourism development that have bad planning, development and management will have a negative impact on the environment.

From the statement above, it is clear that the management of regional utilities must be well planned. One of them is sanitation, which according to Fanjari [5] environmental sanitation is an effort to create a healthy environment that is free from disease. In the complete biology dictionary [6] environmental sanitation is a way of healthy human environment, especially the physical environment, namely land, water, and air. This can mean that environmental sanitation is an effort to make the environment stay healthy and not cause disease. As for waste management, it is planned that there will be a place for garbage collection which will be routinely taken by the Public Works Agency in the field of cleaning and waste to be taken to the final shelter. Perspective of Sedayu Beach Tourism design could be seen in Figure 11.





**Figure 11.** Perspective of Sedayu Beach Tourism design. (a) Gate of Sedayu Beach, (b) Area Pier area, (c) Bamboo restaurant and berugaq as a place to eat and relax, (d) Plasa in a green open space



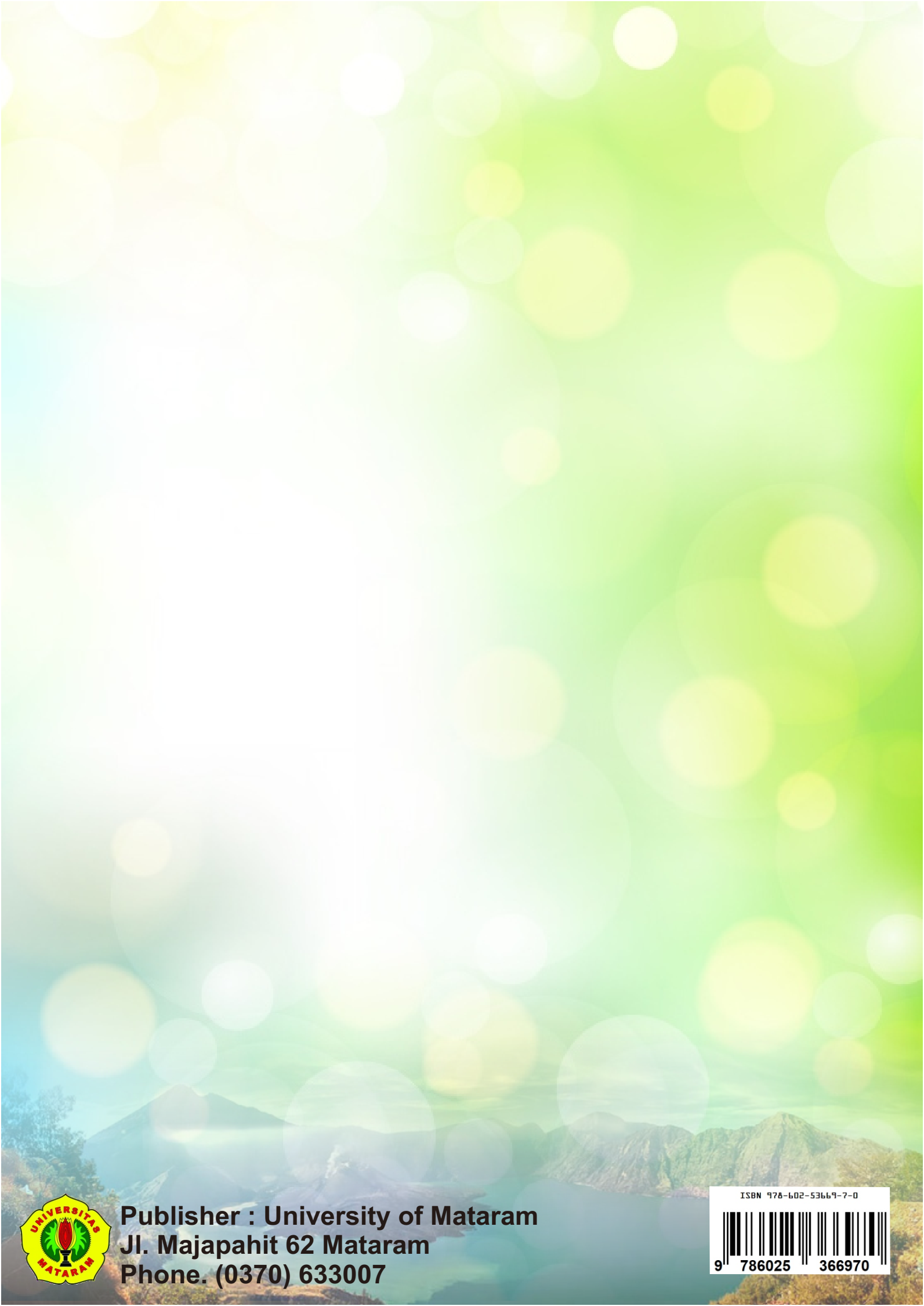
#### **4. Conclusion**

The conclusion is that by designing of Sedayu beach it will later become one of the tourist destinations with improvement of infrastructure and the accessibility of coastal and marine areas so that it can support the economic rate of coastal and marine communities. Revitalization of the area that functions as a turtle tourism area is directed at saving the existence of turtles, biota and abiota in the waters, improving and preserving the quality of the environment while securing coastal areas from the threat of natural disasters.

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