

Beach Tourism Development Strategy through Ecological Architecture Approach in Pacitan, East Java – Indonesia

Dr. Ir. Wiwik Setyaningsh, MT.
Architecture Department
Universitas Sebelas Maret
Surakarta, Indonesia
wiwikhermono@gmail.com

Sri Yuliani, ST. MAppSc.
Architecture Department
Universitas Sebelas Maret
Surakarta, Indonesia
sriyuliani71@staff.uns.ac.id

Dr. Yosafat, ST. MT.
Architecture Department
Universitas Sebelas Maret
Surakarta, Indonesia
hwinarto@gmail.com

Abstract

Beach tourism is tourism that widely associated with activities on the water, such as lakes, beaches, bays, or sea, which managed in an integrated and planned manner, so that they are ready to receive tourist visits. So far, the existence of beach tourism areas, which have a unique nature, have not been handled and managed optimally. This tendency is seen in some coastal regions, which have lost their original character and have even lost and changed their functions because they have not noticed. So one of the initial treatments is to identify the potential of beach tourism areas, to be developed through an ecological architectural approach, taking into account the surrounding natural environment, as well as the functions of the region. The purpose of this study is to formulate a beach tourism development strategy in the coastal area of the Pacitan Regency, through an ecological architecture approach. The formulation is base on descriptive exploratory methods, and physical spatial mapping of regional characteristics, as well as social-economic-cultural mapping. The final result of this formulation is as a Regional Regulation proposal, to be recommended and socialized by networking, to be followed up jointly by relevant stakeholders.

Keywords: development, beach tourism, ecological architecture

I. Introduction

A. Background

The development of the tourism industry is currently showing an increase from year to year in various parts of the world. The tourism sector is a large source of foreign exchange income because it involves multi-sector, with a positive impact as a driving force for people's economic activities (Setyaningsih, W., 2015). The tourism sector can be a potential industry, as a means of developing regional potential, by increasing the role of several supporting parties in government and private sectors such as; travel agency, craft/ souvenir industry, tourist objects and attractions, hotels, restaurants, and also human resources.

Indonesia is an archipelagic country where two-thirds consist of the oceans. This caused Indonesia to be famous for its maritime tourism. But there are still many tourisms at the beach that have not been optimally developed, including some marine tourism found in the Pacitan Regency.

Pacitan Regency is a coastal area in East Java that borders with the South Sea of Indonesia, with natural conditions of hills and coastal that tend to be original, as well as the uniqueness of the local arts and culture. Some of the coastal and natural cave tourism potentials in Pacitan have been managed as prominent embryos, including; Teleng Ria beach, Watu Karung beach, and warm water baths in Arjosari District. There are also tours in the land namely Gong cave and Tabuhan cave.

With the embryo of tourism activities and facilities in Pacitan, it is a great opportunity to develop through the ecological architecture approach. This is in accordance with the mission and in line with the Pacitan district government program, including; implementing a competitive regional economy, based on the advantages of local potential, as well as implementing harmony and environmental preservation, in social units and public order and tranquility, which encourages community empowerment and participation (Riparda Pacitan, 2016-2025).

The design of ecological architecture will adjust existing conditions and help in determining the form of solving environmental problems that will be done wisely (Yeang, K. 1995; Frick, H., et al, 2006). Based on the explanation above, the ecological approach is the right design strategy. The approach of ecological architecture on the coast of the Pacitan Regency aims to preserve the environmental potential in a sustainable and eco-friendly manner and can improve regional development and the welfare of local communities.

A. The Problems

1. The Pacitan area is mostly karst, which is very dry during the dry season.
2. Local community initiatives have emerged to take economic opportunities/benefits that do not consider environmental sustainability. Sustainable development resolves the paradoxical problems.

- The capitalist economic system does not encourage real sustainable development. The interest of capitalism will only expand its capital accumulation and business (Eckersley, 2004).

B. Research Aim

This research aims to assess appropriate planning strategies to be used in the development of the tourist areas and architectural concepts in the Pacitan area.

C. Basic Theory

- Ecological architecture produces harmony between humans and their natural environment holistically, such as solar architecture, biological architecture, bionic architecture and sustainable development (Yeang, K. 1995; Frick, H., et al, 2006; Shu-Yang et al., 2004).
- The principle of eco-design to harmonize the conventional perspective between design management and the environment, with combining ecological balance on spatial and partial scales related to time, people, places, environment and nature (Shu-yang, et all, 2004; Damati, 2013) .
- Sustainable development in Indonesia faces many obstacles with fundamental problems in the quality of human life (Abdoellah, 2016)
- Failure to create stability in the environmental field will lead to greater disasters in the future (Stiglitz, 2006, in Winarno, 2013).
- Sustainable development is being able to meet our needs today without losing the ability of future generations to meet their needs (WCED, 1987, in Winarno, 2013).
- The present generation has a moral responsibility for future generations and to nature (Pawlowski, 2006) or referred to as "the principle of intergenerational justice "(Hull, 2008, in Winarno, 2013).

Tree Pillars os Sustainable Development
The Scheme of sustainable development: the confluence of three preoccupations.

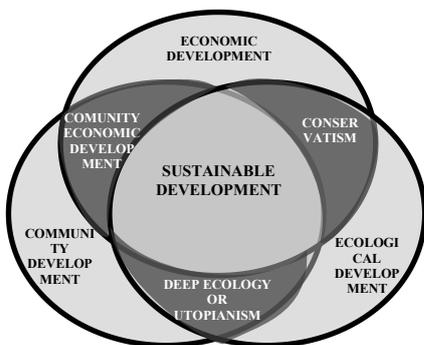


Figure 1. Tree Pillars of Sustainable Development
Source: Winarno, 2013

II. Research Methods

This research was conducted in an integrated manner, aiming to formulate a strategy for developing beach tourism in the coastal area of the Pacitan Regency through an ecological architecture approach. The formulation is base on a descriptive method of explorative and spatial mapping of the physical character of the area, as well as a social-economic-cultural mapping

The research location is on the coast of the Pacitan Regency which has the potential characteristics of high natural local wisdom. The final result in the form of this formula is expected to be a proposed Regional Regulation to be recommended and socialized networking, to be followed up jointly by relevant stakeholders

- This research was conducted with the descriptive qualitative method, with data collection through observation physical spatial mapping, as well as socio-economic-cultural mapping, and in-depth interview with community leaders.
- Data analysis uses SWOT to see the problems from four sides at once: Strengths, Weaknesses, Opportunities, and Threats.
- The SWOT analysis can be a powerful and sharp instrument for analyzing problem-solving strategies (Fatimah, 2016).

The Methods Case Study by SWOT Analysis

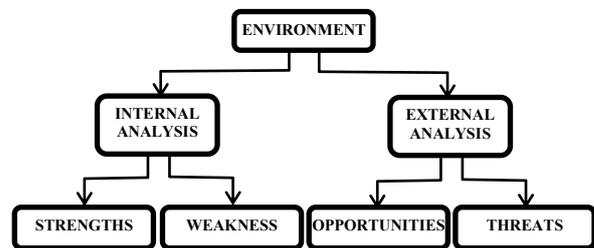


Figure 2. The Methods Case Study by SWOT Analysis

III. Results and Discussions

A. Pacitan Regency in general

Currently, coastal areas are a phenomenon associated with natural tourism destinations. Coastal areas have various kinds of potential, including as food sources, especially animal protein derived from fish, shrimp and the like, the wealth of petroleum, gas and other minerals that have the potential in mining, tourism potential, settlement, and industrial development. The potential possessed by coastal areas can be read as an opportunity to do development in various aspects of life for the welfare of the community, one of which is through the development of coastal areas into objects of tourism destinations.

The Pacitan Regency is one of the areas that have a lot of potential coastal areas. This Regency in the southwestern tip of the East Java Province is noted to have many coastal areas that are managed to be objects of beach tourism. These

beaches can be an important asset of tourism development in the Pacitan District which provides high benefits and is a mean of empowering people. Development of coastal areas as objects of beach tourism is one of the strategic issues of Pacitan Regency mainly due to the lack of optimal management of natural resources.

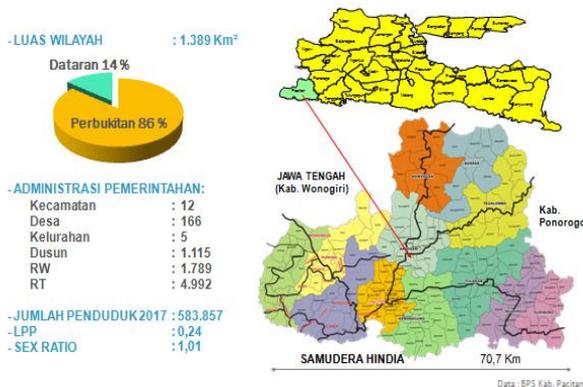


Figure 3. Map of Pacitan Regency Statistical Conditions

Currently, some beaches have been developed and managed by the government along with the community. The development of the coastal area as a tourism object has not been evenly distributed throughout the potential of beach tourism in the Pacitan Regency. Lack of facilities and infrastructure, for example, are the access roads to some beaches that are still not good, with narrow road conditions, damaged asphalt roads, houses of worship and adequate accommodation, and poorly maintained beach conditions. The more important thing is regarding the development of coastal areas by the Government and cooperating with the community so that the potential of locality can be monitored properly.

B. Tourism Potential of the Pacitan Regency as a Tourism Destination

The tourism sector in the Pacitan Regency has enough prospective opportunities to be developed into a Tourism Industry that able to compete with Tourism in other regions and even abroad because the existing tourism objects are quite diverse and have special local characteristics that are different from other regions. The development of tourism is not only able to increase the region's original income alone, but more importantly is that the tourism in Pacitan can empower the people themselves so that they feel they own, carry out, preserve, and ultimately can increase people's income through providing employment and business opportunities.

Tourism potential in the Pacitan Regency includes Beach Tourism, Cave Tourism, Cultural/Religious Tourism, Recreation Tourism, and Industrial Tourism. Potential tourism objects developed through the Tourism Development Program include activities to improve and rehabilitate existing tourism objects, increase facilities and infrastructure to the location of tourism objects, management of tourism objects in the form of cooperating with travel and hospitality bureaus, the arrangement of

hospitality and restaurant management, and promotional activities. The increasing tourists number in the Pacitan Regency at 2017 reached 1 779.234 domestic tourists, plus 1.595 foreign tourists.

C. Tourist objects in the Pacitan Regency can be classified into several categories including:

1. Coastal Nature Attractions (Maritime)

a. The Teleng Ria Beach

The Teleng Ria beach is one of the famous and international standard beach attractions, which is 3 km from the center of Pacitan city. This tourism object can be reached easily with various types of public transportation on the Solo-Pacitan route. Various supporting facilities include swimming pool and children playground, viewing post, lodging, campground area, and fishing arena. Also, this beach is also used for Fish Landing Place (TPI) so visitors can buy fresh fish directly here. Teleng Ria Beach has un-spoiled natural conditions, with its coastal basins and a stretch of white sand approximately 3 km.

b. The Srau Beach

The Srau Beach tourism object is in the Srau Hamlet, Candi Village, Pringkuku District, Pacitan Regency, ± 25 km to the west from the center of Pacitan city. It is the most western coast, which is adjacent to the Watu Karung Beach, from the southern coastline which belongs to the Pacitan Regency. Residents of the Srau Beach tourism objects rely on trade, farming, as well as being fishermen as a livelihood. The Srau Beach tourist attraction has its attractions such as the waves, the typical panorama of the village along the way to the attractions, the expanse of white sand and coral mountains that are on edge and in the middle of the ocean. In addition to the beautiful and untouched panorama, Srau Beach has the potential for tourists to do ocean fishing activities between the cracks of the reefs, for fish like; Cucut, Panjo, Lobster, and others.

c. Klayar Beach

Klayar Beach is located in the Donorojo District, approximately 35 km to the west of Pacitan city. This white sand beach has features that other beaches do not have, namely the existence of a sea flute that occasionally whistles between rock cracks and bursts of waves. There is also a natural fountain that is very beautiful, this fountain occurs because of the pressure of other waves that hit the hollow coral cliffs. The fountain which can reach a height of 10 meters produces drizzle and dew of sea water which is believed to be efficacious as a youthful medicine.

In addition to those beaches, there are several potentially similar beaches such as, Bawur Beach, Sidomulyo Beach (in the Ngadirojo District), Jetak Beach, Wawaran Beach, Bakung Beach (in the Tulakan District), and Watu Karung Beach (in the Pringkuku District) which has not been published to the general public.

2. Caves Tourism

a. Gong Cave

Guam Gong tourism object is part of the Seribu Mountains which passes through the Pacitan Regency. This tourism object is located ± 30 km to the west of Pacitan city, precisely in the Bomo Village, Punung District, which can be reached by motorized vehicles, both two-wheeled and

four-wheeled vehicles. This cave has very charming stalactites and stalagmites, so it was nominated as the most beautiful cave in Southeast Asia. This cave with a depth of \pm 256 m, in addition to the beauty of its Stalactites and stalagmites, also has five springs, namely; the Jampi Rogo spring, the Panguripan spring, the Relung Jiwo spring, the Kamulyan spring, and the Relung Nisto spring, which is said to have magical values to cure diseases. The beauty of its Stalactites and Stalagmites are so stunning that they are enshrined by the names; Selo Cengger Bumi, Selo Giri Gate, Selo Citro Cipto Agung, Selo Pakuan Bomo, Selo Adi Citro Buwono, Selo Bantaran Angin, and Selo Susuh Angin. The available facilities are; souvenirs, restaurants, parking lots, lavatories, and prayer room.

b. Tabuhan Cave

The Tabuhan cave attraction is located in Wareng Village, Punung District, Pacitan Regency, which is approximately 40 km to the west from the center of Pacitan City. It is named the Tabuhan cave because its Stalactite and Stalagmite can be beaten and sounded like Gamelan. With this uniqueness, this cave has been widely known, until now there are still many tourists and artists interested in performing arts there. The facilities available there are souvenirs (various precious stone/ agate products) and prayer room.

In addition to the caves that have been built and provide income contributions to the community and local government as above, there are still caves that are potentially similar, such as the Putri cave, the Kendil cave, the Pentung cave, the Somopuro cave, the Papringan cave, the Kambil cave and the Giritundo cave.

3. Spiritual Tourism (Pilgrim)

This type of tour can be done by visiting places such as; the grave of Kanjeng Jimat, the Ki Ageng Buwono Keling trail, the Ki Ageng Petung trail, the Sentono Gentong trail, and the hermitage of Mount Limo, which are scattered in Pacitan Regency which also has the potential to be developed like other tourist objects.

4. Health Tourism Warm Water Baths

This hot spring is located in the Arjosari district or approximately 15 km to the east from the Pacitan City Center. This warm water bath holds a variety of benefits, and its main benefit is for health and fitness because it contains sulfur and is believed to cure various diseases. This warm water bath is named "Tirto Hosodo" which currently has; two bathing places, two swimming pools, and lodging places. Accessibility to tourism objects is relatively easy, can be achieved with two-wheeled or four-wheeled vehicles with good road conditions.

5. Historical Tourism

- a. Monument of the Great Commander General Sudirman in Pakisbaru Village, Nawangan District
- b. Palagan Tumpak Rinjing Monument in Candi Village, Pringkuku District
- c. Prehistoric Relics in Mantren Village, Punung District

6. Cultural Tourism

a. Ceprotan Traditional Ceremony

The Ceprotan Traditional Ceremony is an activity of customary traditions in the Sekar Village, Donorojo District, which is located approximately 35 km to the west from the center of Pacitan City. This Ceprotan Traditional Ceremony has become an event that enters the East Java Tourism calendar, which is always held every year in Lonkang on a Kliwon Monday on the Javanese calendar. This traditional ceremony is intended to commemorate the folk legends of Sekar Village namely Dewi Sekartaji and Panji Asmorobangun, through village cleaning activities.

b. Lekoh dance

The Lekoh dance from the Pacitan regency tells the story of senik or kebo as a vital multi-purpose in gardening, going to the market, and so on.

c. Rung Sarung dance

This dance tells of female village farmers using sarongs as body warmers, as a means of carrying to the market, as well as worship clothing. The dances are usually performed when there are certain events, with prior training in art studios scattered in regions of the Pacitan regency, such as in the; Pacitan district, Ngadirojo district, Sudimoro district, Pringkuku district, and Punung Subdistrict.

7. Adventurous tourism

The Luweng Jaran Cave is located in the Pringkuku District, approximately 15 km from the center of Pacitan city. This cave is perfect for adventure tourism, so to enter this cave requires extra equipment, expertise, and stamina due to the terrain.

While the Luweng Ombo cave is located in the village of Kalak, Donorojo district, approximately 35 km west of downtown Pacitan (Tourism Office of Pacitan District 2018).

8. Tourism Destination Development Strategy in the Pacitan Regency with an ecological approach to architecture

An alternative strategy carried out in the tourism development in Pacitan is to optimize physical and non-physical priority strategies. Non-physical strategy is prioritized on marketing by heavily promoting through various media, namely through the internet, leaflets, booklets, VCD with the icon "Pacitan is Paradise of Java" given to state guests and functions as souvenirs, as well as participating in tourism fairs, both at the regional and national levels, to better introduce the beauty of tourism in the Pacitan Regency to the general public. The physical strategy is done by mapping the existing natural wealth and beauty potential. The choice of strategy taken by the government in developing the object of beach tourism is to make a priority list of the results of mapping the existing natural potential wealth and beauty, to be developed as beach tourism with environmental insight.

The selection of priority list of coastal development strategy as a tourism object in Pacitan Regency begins with determining the priority of developing 9 (nine) beaches, namely: 1) Klayar Beach; 2) Watukarung Beach; 3) Srau beach; 4) Buyutan beach; 5) Taman Beach; 6) Pancer Door Beach; 7) Gong cave; 8) Tabuhandan cave; and 9) Tirto Husodo Warm Water Bath. This is in accordance with the 2016-2025 Pacitan Regency Master Plan for Tourism Development (Riparkab, 2016), through the involvement of

active community roles, both capacity improvements, to strengthening tourism awareness in tourism development, as well as in investment and marketing development. Beach Tourism in Pacitan, based on data obtained from Pokdarwis (Tourism Awareness Group), has tourism potential in the form of; Beach tourism, cave tours, sea food tours, and educational tours. The tourist area in Pacitan has an area of approximately 1,389.8716 km² or 138,987.16 Ha (pacitankab.go.id).

S	STRENGTHS - External
	1. Tourism objects are well known 2. Tourism increase year by year 3. Local community interest in developing local tourism
	WEAKNESSES - Internal
W	1. Poverty in the villages around Pacitan area 2. The ability of human resources is quit low 3. Local community lack confidence to develop local resources
	OPPORTUNITIES - external
	1. Natural potencies 2. Potential of local culture 3. Potential crafts of the community 4. Friendliness and hospitality of the local people
T	THREATS - Internal
	1. Early planning failures that trigger many problems 2. Damage to natural resources

Figure 4. Analysis SWOT

	OPPORTUNITIES (External) (Positive)	THREATS (Internal) (Negative)
STRENGTHS (External) (Positive)	1. Development of local tourism potential → the nature and culture 2. Development of local community resource capacity to increase tourist attraction	1. Integrated planning on developing tourist destinations in Pacitan 2. Providing insight into local people's awareness the importance of nature conservation.
WEAKNESSES (Internal) (Negative)	1. Pacitan's extensive tourism development can create broad employment opportunities for local communities 2. Improve the ability of local people in the local tourism sector	The concept of Sustainable Development to reduce /eliminate all the main problems/ conflicts in tourist areas in Pacitan

Figure 5. Analysis QUADRANT

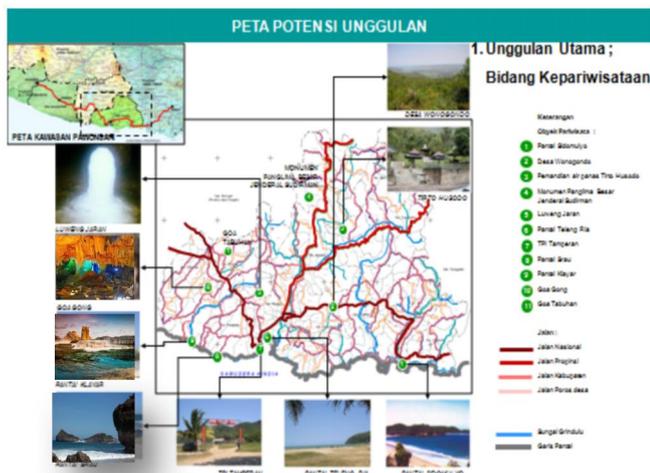


Figure 6. Map of Top Potential in the Pacitan Regency Tourism Area
Source: Ministry of Public Works, updated by Setyaningsih, W, 2018

Based on existing visitor data, there was an increase in tourists from 420585 in 2013 to 1780829 in 2017 (Visit Statistics from 2013 to 2017, Tourism Office 2017). Vegetation that is located almost along Pacitan Beach is among others, pine cones that line horizontally along the shore. This vegetation is the result of collaborative cultivation between the government, educational institutions, and local communities. This vegetation development aims to be a wind breaker and a deterrent to the abrasion that occurs at the beach (Stewart, J. M., 2005).

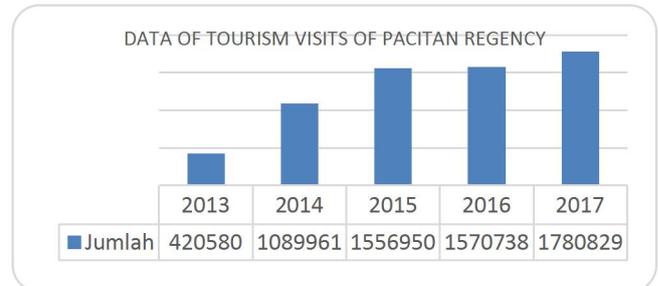


Figure 7. Visit statistics from 2013 to 2017
Source: Tourism Agency, 2017

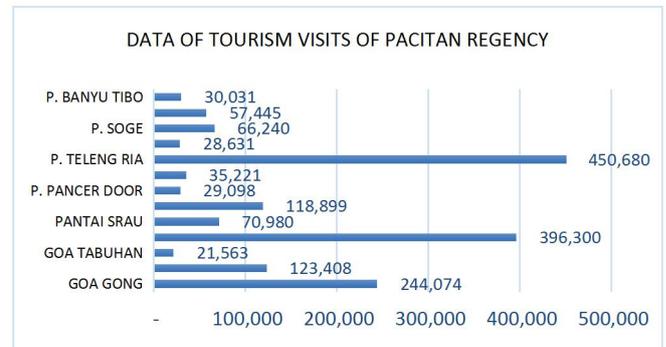


Figure 8. Statistics of Tourist Visits in the Pacitan Regency in several locations in 2017
Source: Tourism Agency, 2017

Based on the table above, a number of beaches have been developed and managed by the Pacitan Regency government with the community, but not yet optimal and not evenly distributed to all the potential beach tourism in the Pacitan Regency. Likewise, sustainable and environmentally sound development has not been applied to the beaches in the Pacitan Regency. The lack of facilities, and the ease of access of roads to several beaches are still not good, with narrow road conditions, damaged asphalt roads. As well as the lack of supporting infrastructure such as places of worship, lodging and other inadequate supporting facilities, as well as poorly maintained beach conditions, as a benchmark for visits to tourist destinations. The selection of strategies taken by the government in developing beach tourism objects is by making a priority list of beach tourism development.

Ecology in architecture is defined by Ecological design namely bioclimatic design, design with the climate of locality, and low energy design (Yeang, K. 1995; Frick, H., et al, 2006; Shu-Yang et al., 200). Thus there is an integration between local ecological conditions, micro and macro climates, site conditions, building or regional programs, concepts, and systems that are climate-responsive, and low energy use.

Integration can be done on three levels:

- a. Physical integration and physical character of the local ecology (soil, topography, groundwater, vegetation, climate, etc.).
- b. Integration of systems with the natural processes (ways of using water, processing and disposal of liquid waste, disposal systems from buildings, release of heat from buildings, etc.).
- c. Integration of resource use that includes sustainable use of natural resources.

Another ecological approach in architecture, according to Frick (1998) and Yeang, K (1995) , is that eco-architecture includes harmony between humans and nature. Eco-architecture contains also the dimensions of time, nature, socio-cultural, space and building techniques. Eco-architecture is complex, contains parts of biological architecture (humanity and health), and developmental biology. Therefore eco-architecture is holistic and contains all fields.

In addition, that the principles of ecological design basically help humans to carry out their activities by paying attention to the health of the ecosystem. The concepts and applications of eco-design in architecture reveal some of the basics that designers need to understand to design buildings wiser (Shu-Yang et al., 2004). So that there is a mutually beneficial relationship for balanced survival and maintaining environmental stability.

Table 1. Concept and Application of Eco-Design in Architecture (Shu -Yang, 2004; Damati, 2013)

Concept of Eco-Design (Shu-Yang)	Application of Eco-Design in Architecture
Meet human needs. Natural resources as an energy source. The key to sustainability is ensuring that resources do not run out and minimize damage (reduce resource consumption and avoid ecological damage)	Optimizing land-use by designing semi-vertical buildings by allocating internal space efficiently for various needs
On a sustainable basis, in the long run use wise renewable resources. Paying attention to quality and overcoming ecological damage through efficient reuse (recycling).	Energy use can be reduced by using passive and (or) active solar heating technology in the rainy season
Maintain ecological integrity: supporting biodiversity and natural communities. Maintaining ecosystem integrity as a key element of sustainable ecology.	Protect and reflect surfaces in the summer, insulation, windows, lights and efficient equipment
The natural value of the designer requires a detailed understanding of the local ecosystem and environment, including climate, topography, soil, water, energy flows, and materials, with identified ecological boundaries.	Externally, vegetation can be positioned to provide shade in the summer and as a shield from the wind during the rainy season.
Using natural ecosystems: Natural ecosystems are characterized by complex patterns and dynamics of biodiversity, material, and energy, occurring at various spatial and temporal scales. These patterns reflect the long-term and short-term effects of biological evolution.	Building materials and furniture can be chosen so that they are produced efficiently from renewable resources (durable, easily recycled, and do not emit pollutants).

In accordance with the top strategy, several beach tourism areas in Pacitan were developed by exploring natural potential through an ecological architecture approach, as well as towards a sustainable tourism development program. This includes activities to improve and rehabilitate existing

tourism objects, as well as increase facilities and infrastructure to the location of tourist attractions. The success of tourism development is largely determined by the quality of the natural and cultural environment as the main capital (Hall, Michael, C., 2000). In order for sustainability to be achieved, tourism development must always pay attention to the achievement of harmony between the needs of tourists, tourist destinations, and the local community as the host (Setyaningsih, W., 2015).

The Klayar beach tourism area has been managed by community leaders and institutions, or the Kelompok Sadar Wisata (Pokdarwis), which has active participation from local communities. This is in accordance with the implementation of Community-based Tourism, which positions the community as one of the stakeholders in tourism development activities in an interrelated system (Nuryanti, W. 2009; Setyaningsih, W., 2015).

Thus, an appropriate method in developing Klayar beach tourism area will be harmonized with the environment in a sustainable manner, namely by applying the principles of Ecology (Heinz Frick, 2007; Yeang, K, 1995) that is adapted to the problems in the field, by applying concepts as follows: (a) Maximizing natural energy from the sun in buildings and the environment; (b) Maximizing the use of local and environmentally friendly building materials as well as R3 (reduce, reuse, recycle) and actualize the balance and harmony in the interaction of humans and the surrounding environment.

Table 2. Application of Ecological principles (Heinz Frick, 2007; Yeang, K.1995)

Conditions / problems that exist	The principle of development in ecological architecture
White sand beach area and wave rolls	Site processing is adjusted to the surrounding environment to maintain harmony and environmental sustainability
The waves are quite large, including the beach where the seabed is uneven, disrupting visitor activity	The application of green barrier is in the form of green wall, as a tourist attraction located on the beach, it is necessary to arrange an open ecological oes Sustainablearea
Buildings on tourist attractions tend to be single-story buildings with natural ventilation.	<ul style="list-style-type: none"> • The building is made with enough ventilation that is natural ventilation, as well as natural lighting, taking into account the distance between buildings for smooth air circulation. • The orientation of the direction of the building is adjusted to the wind direction, with cross ventilation and the presence of open space as air barrier, excessive noise and sunlight.
The pattern of destination development refers to spatial management patterns	Influenced by geography or certain landscapes, the basis of potential attractions that exist, the movement of tourists and linkage corridors are available.
Tourism development is associated with efforts to manage the ecosystems and the environment	Tourists protect natural resources, realize and try to minimize pollution, energy consumption, water use, chemicals, and lighting at night

D. Conclusion

In the strategy of developing beach tourism through an ecological architecture approach in Pacitan, it has the potential to be developed as a sustainable tourism

destination. This is done through an ecological architecture approach. The Architectural Ecology Approach has several advantages and interrelations in the pattern of handling problems related to ecosystems that are environmentally sound related to the addition of infrastructure facilities. Thus, the concept of developing beach tourism areas must pay more attention to and maintain the condition of the natural local characteristics in an integrated and sustainable manner.

Bibliography

- [1] Abdoellah, Oekan. S. 2017. *Ekologi Manusia dan Pembangunan Berkelanjutan*, Jakarta : PT Gramedia
- [2] Anonim. Potential Pacitan, 2017, Pemkab. Pacitan
- [3] Anonim. Riparda Pacitan, 2016-2025, Pemkab. Pacitan
- [4] Damati, S. H. N. 2013. Principles In Green Architecture: An Inquiry Into The Evaluation Criteria Of Green Awards. Australia: NSW Australia
- [5] Eckersley, R, 2004. The Green State Rethinking Democracy and Sovereignty, The MIT Press London
- [6] Fatimah, F, 2016. Teknik Analisis SWOT, QUADRANT, Yogyakarta
- [7] Frick, H., dan Suskiyatno, F. B., 2007. *Dasar-Dasar Arsitektur Ekologi Seri 1*. Kanisius, Yogyakarta.
- [8] Frick, H., & Mulyani, T. H., 2006. *Arsitektur Ekologis*. Kanisius, Yogyakarta.
- [9] Gunn, Clare A., 1994. *Tourism Planning: Basic, Concepts Cases/ Third Edition*, Taylor and Francis, Washington, DC., USA.
- [10] Hall, Michael, C., 2000. *Tourism Planning: Policies, Processes and Relationship*, Pearson Education, Ltd., UK.
- [11] Hull, Z, 2008. *Sustainable Development: Premises, Understanding and Prospects, Sustainable Development. Vol. 16*
- [12] James Stewart Monroe., 2005. *Physical Geology: Exploring the Earth*. Thomson Brooks/ Cole.
- [13] Stewart, J. M., 2005. *Physical Geology: Exploring the Earth*. Thomson Brooks/ Cole
- [14] Keraf, A S, 2002. *Etika Lingkungan. Buku Kompas Jakarta*
- [15] Nuryanti, W. 2009. Heritage Tourism and Community Development. In The Role of Heritage Tourism in Community Planning and Development. Ed. Gadjah Mada Univ, Press. Yogyakarta.
- [16] Pawlowski, A. 2008. How Many Dimensions Does Sustainable Development Development Vol. 16 Have?. Sustainable
- [17] Setyaningsih, W. 2014. *Community-Based Tourism*, UNS Press. Surakarta
- [18] Setyaningsih, W. dkk. 2015. *Low-Impact-Development as an Implementation of the Eco-Green- Tourism Concept to Develop Kampung towards Sustainable City*. Procedia - Social and Behavioral Sciences ELSEVIER-Science Direct, 179 (2015) 109 –117. <http://www.sciencedirect.com/science/journal/18770428/179>
- [19] Setyaningsih, W. dkk. 2016. Urban Heritage towards Creative-Based Tourism in the Urban Settlement of Kauman – Surakarta, Procedia - Social and Behavioral Sciences, ELSEVIER-Science Direct, 227 14 Juli 2016- 642 – 649 <http://www.sciencedirect.com/science/journal/18770428/227>
- [20] Shu-Yang, F., Freedman, B., & Cote, R. (2004). Principles and practice of ecological design. *NRC Research Press*
- [21] Winarno, Budi, 2013. *Etika Pembangunan*, CAPS, Yogyakarta
- [22] *World Tourism Organization*. 2011. *Tourism Satellite Account - Why do we have it and what does it do?* Manila, Philippines: *Capacity Building Program*, Asia Workshop II. Dipetik Mei 21, 2017, dari http://statistics.unwto.org/sites/all/files/pdf/unwto_tsa_1.pdf
- [23] Yeang, K. 1995. *Designing With Nature: The Ecological Basis for Architectural Design*. Dalam S. Hart, & D. Littlefield (Penyunt.), *EcoArchitecture; the work of Ken Yeang*. Chichester, West Sussex, United Kingdom: John Wiley & Sons, Ltd, Publication.