

International Conference on Engineering and Technology Development



3rd ICETD 2014

28, 29 October 2014, Bandar Lampung, Indonesia

Hosted By :
Faculty of Engineering and Faculty of Computer Science
Bandar Lampung University, Indonesia



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3rd ICETD 2014

THE THIRD INTERNATIONAL CONFERENCE
ON ENGINEERING AND TECHNOLOGY DEVELOPMENT

28 -29 October 2014
Bandar Lampung University (UBL)
Lampung, Indonesia

PROCEEDINGS

Organized by:



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PREFACE

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development (3rd ICETD 2014) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participants. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, IEEE – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – Lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – Lampung, University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – Lampung,

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also grateful to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 22 October 2014

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DESIGN OF LAMPUNG BAY WATERFRONT USING POETIC ARCHITECTURE APPROACH

Shofia Islamia Ishar, S.T.,M.T.
Muhammad Syahroni, S.T.

Abstract— Lampung Bay is one of the precious natural elements in Bandar Lampung. The character, the wealth of seafood, and the beauty of the landscape are a good potency that can be synergies to the city life. Preservation and beauty of Lampung Bay may improve the environmental quality of the city so that the need to maintain its existence becomes very urgent.

Unfortunately the existence of Lampung Bay has not been appreciated as a valuable natural asset. It conditions is neglected and overflowing trash. The perception that the water area as a “behind” area or effluent area is prevail so it needs deliberate action to change this perception by doing a waterfront oriented design in Lampung Bay.

Waterfront oriented design in Lampung Bay also requires an appropriate approach in order to create sustainability to preserve the nature. Poetic Architecture is selected as the most appropriate approach because it can cause a sense of love to the nature by displaying the grandeur of the nature through architecture and activities that can grant appreciation to the nature..

Keywords— Lampung Bay, design of the Waterfront, Poetic Architecture

CHAPTER I

PREFACE

I. 1. BACKGROUND

The construction of high-rise buildings, shops, housing and mall grown rapidly massive in Bandar Lampung recently. Imbalances between the construction of buildings and green open spaces make the quality of the environment in the city of Bandar Lampung continuously decline. Meanwhile, the development and preservation of natural potentials of Bandar Lampung such as beaches, rivers and hills are not significant. While developing and preserving these potentials, will increase the quality of the urban environment. In addition, the historical value and the development of the city views will be maintained.

One of the most potential natural assets of the city is Lampung Bay. Located in the heart of the city, Lampung Bay has a very magnificent view. The Scenery of the coast, beach and the sea of The Lampung Bay are decorating the City as a living screen. It can be enjoyed on several main roads in the city and

in some commercial buildings that exploit it as the best view to be enjoyed by visitors..

Unfortunately, the beauty and goods of The Lampung Bay is not seriously used as a measure to improving the quality of the environment as well as controlling the development of the city’s visual image. It condition is neglected by tons of household waste and trash from irresponsible visitors. Lampung Bay is still treated like a “behind” area, where it seen as an effluent area. Although Improvement of the environmental quality programs have been quite popular among big cities around the world, but it does not mean quite popular among the people of Bandar Lampung. It needs deliberate actions in planning and design it into something interesting. So that Lampung Bay may becomes a valuable place and have a meaningful image for the people of Bandar Lampung. And by doing so, there will be a sense of love and belonging that become community power to continually protect and preserve the beauty of Lampung Bay.

Designing a place that can arise a valuable image, a sense of love and belonging needs a proper approach. To create such an image, it needs a method that can elicit an awe feeling to the beauty of Lampung Bay, then form a sense of dependence on nature by offering basic needs of today's urban society which is oriented to the waterfront area. Thus the desire to preserve Lampung Bay will continually sustainable.

Poetic Architecture is an approach that teaches how to glorify the nature poetically. Lampung Bay which has a sensitive physical character (very natural) requires careful treatment and romantic to be able to arise its beauty and not ruining its uniqueness. Poetic Architecture is an approach that gives synergy between human and nature through architecture and always emphasizes the preservation of the nature’s beauty. So this approach was perceived as the most appropriate approach to be selected in this study.

In this study, Poetic Architecture applied to the design of Lampung Bay waterfront area, particularly in the design of public facilities. Poetic Architecture is also used as a method to generate design which itself can be a new way to increase public interest in preserving the nature. Natural elements will be a major part in the design so that visitors would feel the presence of the nature as something poetic.

I. 2. PROBLEM STATEMENT

According to the background above, arising problems in the study site are:

1. Lampung Bay conditions today are very neglected. It can be seen from the tons of trash that overflowing the area and there has not been an effort to preserve it..
2. Lack of public awareness and the role from the people of Bandar Lampung in preserving nature, especially in Lampung Bay.

I. 3. RESEARCH QUESTION

Of the problems described above, the formulation of the problems to be solved in this study are as follows:

1. How to design Lampung Bay area from an abandoned place into a precious interesting public area.
2. What is the most appropriate method to be applied in the design of Lampung Bay area so that values of its beauty can be delivered.
3. What kind of facilities that suit to support the activities of the urban community to interact directly with the natural beauty of Lampung Bay then will create a sense of belonging and a desire to preserve.

I. 4. RESEARCH OBJECTIVES

1. Designing Lampung Bay's waterfront into an attractive and valuable public area for the society of Bandar Lampung and travelers.
2. To deliver values of nature's beauty through architecture in poetic ways.
3. To create facilities that support society's activities to directly interact with the beauty of Lampung Bay, then will emerge the sense of belonging and needs to preserve it.

I. 5. SCOOP AND LIMITATION

This study focuses on the design of Lampung Bay's waterfront includes activities that will be created and facilities that will be provided in the area with Poetic Architecture approach. Facilities that will be provided are limited to public facilities then facilities that offer private needs will not be discussed in this study.

CHAPTER II

THEORETICAL FRAMEWORKS

II. 1. URBAN WATERFRONT CONCEPT

According to Ying (2012), Urban waterfront is a multi artificial ecosystem, a self-organized and self-regulated ecological system. They are important parts in city planning such as the soil, water, plants, animals and the other ecological elements in the waterfront, as well as the promotion of ecological balance. However, domestic designers and the governments have a indistinct conception of ecology in waterfront design, which is reflected in regarding the landscape design, waterfront steps and green planting equal to ecological design.

Waterfront is the assembly point of urban features. Its function is mainly to form exchange of city and nature. People can feel the city's natural environment, cultural environment and civil environment through the waterfront landscape. Therefore, urban waterfront planning and design should program within the whole water system areas, including resuming bank ecosystem, waterfront landscape naturalism designing, exploiting and protecting local characters, and etc.

The core consists in harmonizing the relation of ecology, human and water and achieving human and nature coexisting, flourishing and sustainable development to make the waterfront areas environmentally special and comfortable in the city. Build city features and increase city landscape impressions, and thereby guarantee the sustainable development of society, economy and environment in urban waterfront.

II. 2. WATERFRONT DESIGN GENERAL PRINCIPLES

According to Infrastructure Development Department Karnataka on pre-feasibility study for waterfront development in Karnataka (2009), There are different types of waterfronts like Riverfront, Lakefront and Seafront based on the source of water in the city. The creation of waterfront is considered as a better commercial idea for transforming an otherwise underutilized area into a booming centre of tourism, culture, leisure and business.

The facilities offered in a waterfront area by type is as follows:

1. Riverfront Development

The development of riverfronts typically includes the following activities:

- a. Boat trips
- b. Shopping
- c. Petty shops
- d. Restaurants
- e. Theme parks

- f. Parks
- g. Parking lots
- h. Walk ways
- i. Sitouts

2. Seafront Development

The development of seafronts typically includes the following activities:

- a. Water sports
- b. Deep sea touring
- c. Commercial complexes
- d. Hotels
- e. Restaurants
- f. Bars
- g. Cinemas
- h. Shops
- i. Ocean aquarium
- j. Scuba diving
- k. Museums
- l. Offices
- m. Residential buildings
- n. Rented houses

3. Lakefront Development

The development of lakefronts typically includes the following activities:

- a. Boating
- b. Various rides
- c. Restaurants
- d. Walkways

According to Infrastructure Development Department Karnataka on pre-feasibility study for waterfront development in Karnataka (2009), Waterfront development planning is often guided by four priorities; balanced land use; respect for limited resources; improved public access; and safeguards for environmental quality. The general principles for waterfront development are set out below:

1. Interconnected, linear waterfront development with broad public access,
 - Encouraging the use of the riverfront greenway as a daily commuter path and recreational amenity.
 - Demonstrating the connection between access, greenway development and market demand.
 - Creating a coherent, visually pleasing order to the water's edge
2. Protection and enhancement of the natural riverfront environment
 - Documenting the ecological state of the waterfronts in order to preserve this
 - environmentally diverse natural habitat.
 - Preventing and, where possible, eliminating inappropriate uses and practices
 - from the rivers' edge.
 - Protecting existing natural areas from development.
3. Reclaim the city's identity as one of the best water cities

- Raising public expectations of what the city's waterfront offers.
- Attracting people, investment and the best aspects of urban living to the
- waterfront.

11.3. POETIC ARCHITECTURE'S THEORY IN NATURE

According to Antoniadis (1992), nature has become the center of all the metaphors in architecture. Nature is an inspiration that will never run out in an idea's searching process. Nature is like a poetry, natural elements like the verses in poetry, and architects like poets who compose verse after verse of the poem into a harmonious work. In the context of design in the landscape, the attitude that architect should have is the sensitivity in nature with a romantic treat by way of responding and "listening" nature needs.

According to Antoniadis (1992), the initial thought to be poetic in nature is begin in Romantic movements where the most need manner to design is particularly looking at the most special side of nature by a long term contemplation in the nature to be able to recognize the distinctive character of nature. Then architects can see the nature in different points of view. To treat the nature poetically in the design of the architecture, there are two steps that can be taken in a way that is intangible and tangible.

Intangible can be applied into architecture in the following way:

- Through metaphoric
- Through mental association
- Through ascetic reliance, personal adoration, and even personal "sacrifice"

They have reacted to it tangibly

- Through buildings integrated with the lines of the terrain, in plan as well as in section
- Through "enhancement" of the lines of the terrain by opposing lines to those of the predominant configuration of the site, or by creating tension to neutral and uninspiring natural conditions.
- Through direct man-made opposition to the terrain, in plan or in plan and section.
- Through total subordination to nature, leaving the terrain profile intact, while "berming" or "submerging" the building
- Through unification of the interior with the exterior, either through view and fenestration strategies, or through incorporation of elements of the exterior in the interior.
- Through reliance on materials
- Through imitative reaction, as follows: literal interpretation of nature, or substantial/existential interpretation of qualities and laws of nature

- Through an “inclusivist” reaction, where all of the above merge into one interrelated system of reciprocal relationships, incorporating both intangible as well as tangible considerations. (Antoniades, 1992:241-242).

nature so that the sense of dependency and belonging to nature would be created

2. Facility needs analysis

Facility needs is analyzed based on the site conditions; potential and limitations, the relevance of urban lifestyles, opportunities to enhance the sense of love, belonging, protecting and preserving nature along with investment opportunities and waterfront development guidelines.

CHAPTER III METHODOLOGY

III.1. Research Metodology

The type of research conducted by the authors is Applied Research. It is type of research that aims to applied, examine and evaluate the ability of a theory that is applied in solving practical problems. So it is a pure or basic research which related to the discovery and development of science. Once science is used to solve the problem, then the study will become an Applied Research. (Sugiyono, 2012).

III.2. Data Collecting Method

Data will be devided into two types, namely: primary data and secondary data

1. Primary

Primary data obtained through site surveys, intensive field study to observe and learn the distinctive character of the site, to earn special spots of the site and to find various activity that will be offered in the concept of waterfront development.

2. Secondary

Secondary data obtained through literature studies from books, journals and some websites related to waterfront development theories and case study.

III.3. Data Analysis Method

In the process of data analysis, analysis is devided into two phases:

1. Site analysis

Site analysis is conducted in order to determine the special spots of the site and to show visitors the beauty of the Lampung Bay. The analysis is done by finding potentials indicate that the distinctive character of the site is not owned elsewhere. Determination of these special spots also done to synergize the relationship between man and nature so as to create a sense of awe and dependence on nature.

This analysis is also conducted by finding site potentials that will show the distinctive character of the site that is not owned elsewhere. Determination of these special spots also aims to synergize the relationship between man and

III.4. Design Method

The design of facilities of Lampung Bay waterfront will integrate the waterfront design guidelines basic principles and Poetic Architecture approach. The principles that will be integrated include:

1. Connectivity

In context to the waterfront design principles, the connectivity in the form of greenways should be able to direct visitors to a comfortable walk. This concept is realized by providing a wide track that has easy access to reach the waterfront area. While poetically is realized by providing a different experience to enjoy nature. Visitors will be given some visual experiences in the form of sequences of natural scenery which will give a relaxing effect, thus distances when walking would not be too pronounced.

2. Preservation

Preservation is the main purpose of this study and also one of the design goals of the waterfront design principles. To realize this goal, at first, Poetic Architecture approach is conducted to invite visitors to participate in protecting nature by increasing their sense of belonging to nature. Poetic Architecture are realized into the design of facilities where visitors will be given a view and aura of the natural splendor. Presentation of the grandeur of nature through design is expected to foster a sense of love and dependence on nature, hence the need for clean nature will always appear.

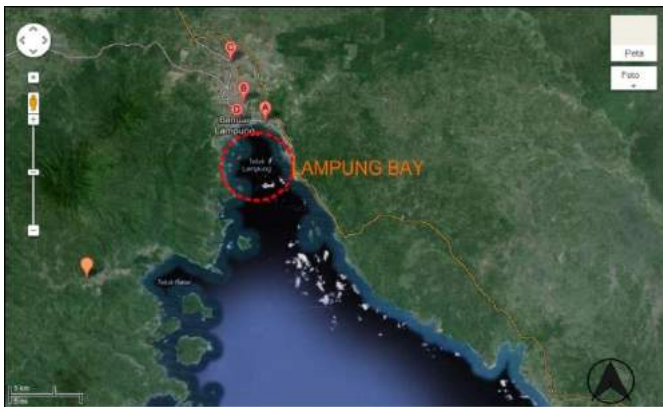
3. Identity

To increase expectations and public interest to the existence of waterfront needs a strong image which could create a new identity of a waterfront that was originally considered as a dirt area. In this study, Lampung Bay Waterfront will be presented as the "lungs" of the city where interpreted as an area to breath (to relax) and give a clean air by it's green surroundings. In addition to the "lungs" of the city, the waterfront will also be presented as a “magnet” of urban lifestyle in order to create the ongoing needs between people and waterfront area.

CHAPTER IV
ANALYTICAL FRAMEWORK

IV.1. Site Condition

Lampung Bay waterfront area is precisely located in the North District of Teluk Betung. It can be accessed from Ikan Sepat and Jl. Ikan Bawal. The waterfront area of Lampung Bay is a small beach framed by rocks and white sands. The green grass and mangrove become such a welcoming views that will direct visitors to the edge of the bay.



Picture 1. Lampung Bay position to the city of Bandar Lampung



Picture 2. Left : site edge, Kanan: waterfront area

The area of the site as a whole is approximately ± 9.74 ha and the area of the waterfront around $\pm 1:57$ ha. The site is an empty lot overgrown with weeds and typical vegetation of mangrove forests. Waterfront area is an area of shoreline with a width about ± 10 m. The site is a flat site which has no significant elevation difference.

Main access road to the site can be reached through Jl. Ikan Sepat which is a residential street. While the road to the waterfront area should be pursued through a muddy road without any pavement. Condition of access to the beach area still looks very natural with a view of the pasture. Extensive vacant land freed people from the view of a typical urban building density.



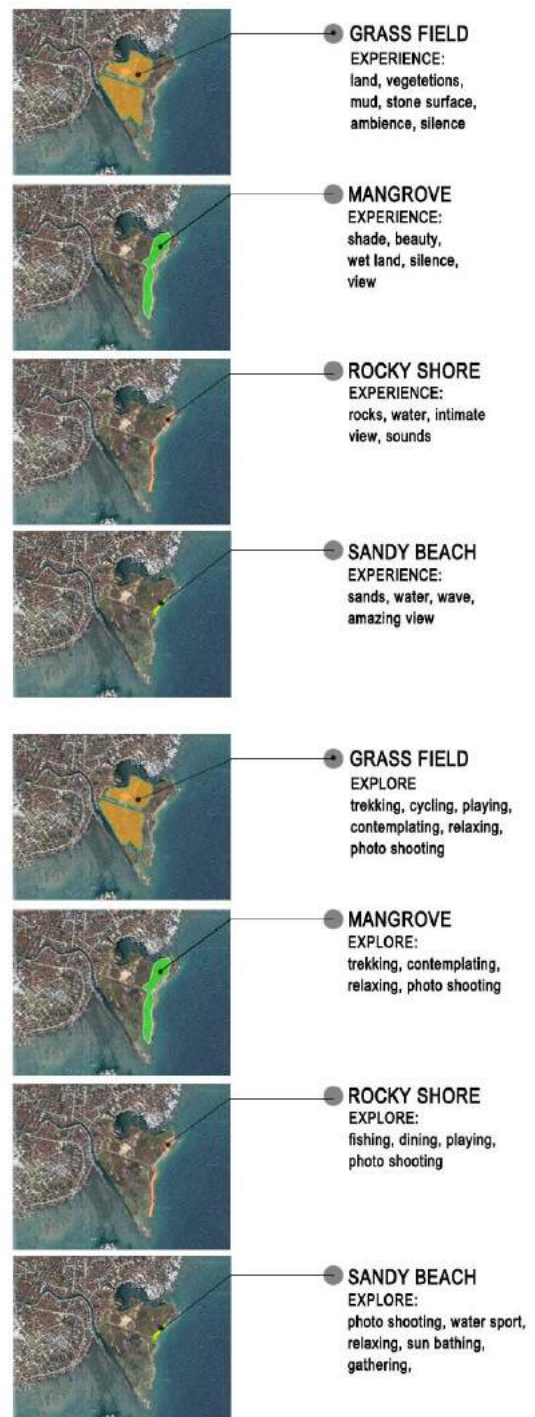
Picture 3. The image of existing atmosphere of the site

IV.2.Site Analysis

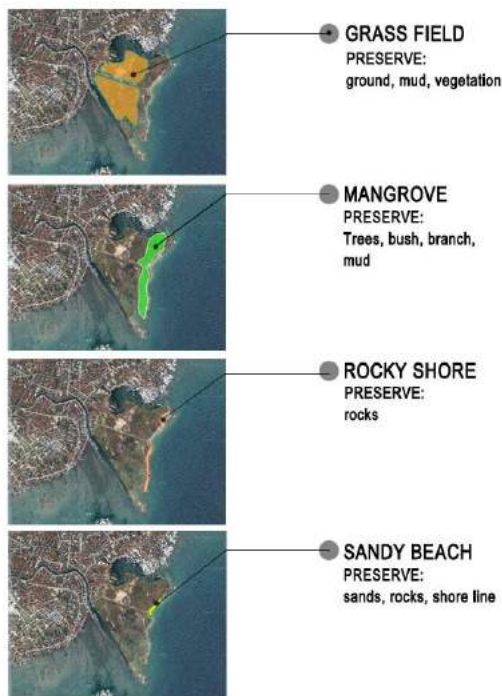
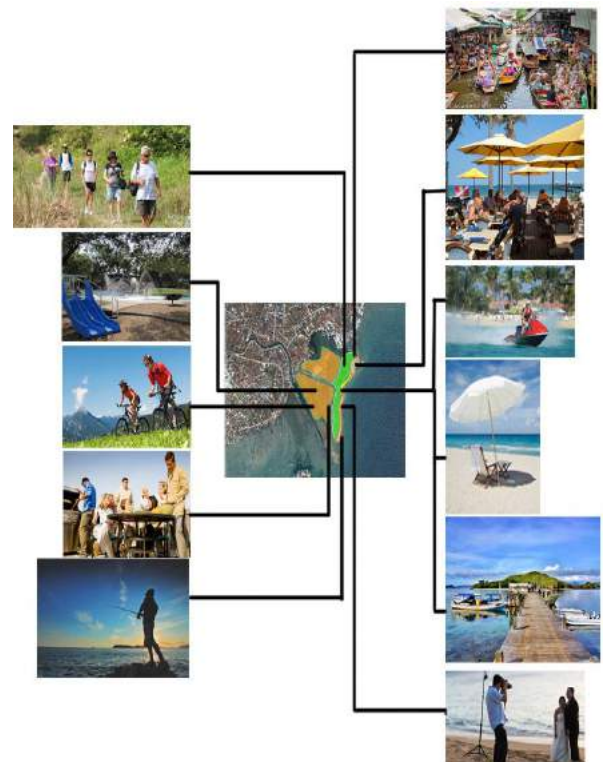
At this stage, the site is analyzed based on the values of its merits. This stage is the stage of determining spots on the site that has the three advantages which are; have good opportunities to give experience (experience), interpretation (explore) and preservation (preservation). There are four special points which have those three elements:

1. *Grass field*
2. *Mangrove*
3. *Rocky shore*
4. *Sandy beach*

The picture below describes special values of Experiencing Spot, activities that can be offered on Exploring Spot and natural elements that should be preserved on Preserving Spot.



Picture 4. Left: *Experience spot*. Right: *Exploring spot*

Picture 5. *Preserving spot*

Picture 6. Activities to offer on special spots of the site

IV.3. Facility Needs Analysis

From the determination of special spots on the site, the activities that will be offered are as follows:

- a. Jogging
- b. Playing (for children)
- c. Grilling / barbeque
- d. Relaxing
- e. Dining
- f. Float dining
- g. Photoshooting

thus, the facilities to be provided are as follows:

- a. Parking area
- b. Jogging track
- c. Mangrove track
- d. Children playground
- e. Grilled service
- f. Fishing area
- g. Deck
- h. Floating market
- i. Café
- j. Connection to fish market

CHAPTER V

CONCLUSION AND RECOMMENDATION

V.1 Design Concept

In the design of Lampung Bay Waterfront Area, the basic waterfront design principles and Poetic Architecture approach will be combined. The goal is to prioritize connectivity, The value of preservation and to make a new identity for the city of Bandar Lampung. Connectivity, preservation and the new identity will be implemented in the concept of Experiencing, Exploring and Preserving that have been adjusted to special spots were found at the site.

The Lampung Bay Waterfront design concept offers three main elements, namely: Experiencing, exploring and preserving. The third element is embodied in the activities and facilities that provided in the design of waterfront and the whole site area. The design of these facility and activity are also become an implementation of the use of Poetic Architecture approach.

Poetic Architecture approach is implemented by giving visitors a serial of visual scenery in the journey toward the center of waterfront area. Visitors are directed to walk down grass field, cycling, and by the time they meet the waterfront, they can do various activity such as doing water sports activity, dining on the beach or just relaxing and sunbathing. Visitors can also finish their Grass Field adventure by fishing, do barbecue and shopping at floating market.

Implementation of Poetic Architecture approach also can be seen in the design of track area, dining area, and other facilities that prioritize the authenticity value of the site. The use of local materials in buildings, tracks and docks design are aim to enhance the natural atmosphere. Overall, Poetic Architecture prioritizes visitors sensory stimulation to be able to appreciate nature kindly and creative.

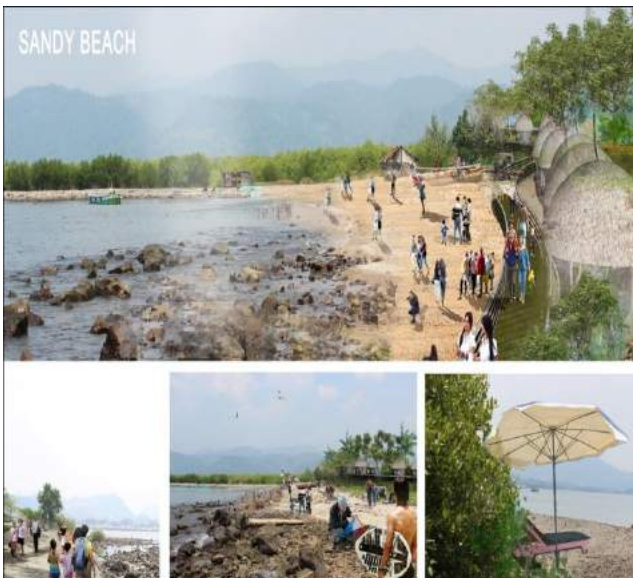
V.2 The Design of Lampung Bay Waterfront Area

Outcomes of this study including Site Plan and scenery sketches on special spots. The design focus on the creation of a natural and modern atmosphere. Grass field track design (bicycle and pedestrian) are deliberately not using any pavement to create a natural and challenging impression. In mangrove areas, natural atmosphere combined with social relationship intimacy. While in the waterfront area, visitors will be spoiled by an offer of varied activities and facilities such as fishing area, recreation area (on sandy beach), sitouts and umbrellas for relaxation or sunbathing, floating markets and cafes.



- LEGENDA**
- 1 - Entrance
 - 2 - Parking
 - 3 - Jogging track
 - 4 - Track mangrove
 - 5 - Children playground
 - 6 - Grilled service area
 - 7 - Fishing area
 - 8 - Dermaga
 - 9 - Track and cafe
 - 10 - Floating market
 - 11 - Beach

Gambar 7. Site Plan



Picture 8. The scenery design of Grass Field Area, Mangrove Park and Sandy Beach



Picture 9. Scenery design of fishing area on Rocky Shore and Floating Market

V.3 Conclusion

Designing waterfront area in Lampung Bay is like a hope to improve the quality of environment and interaction between man and nature. This study aims to arise a sense of love and belonging to nature so that The existence of nature will always be preserved. Designing Lampung Bay waterfront area is also an optimism to enhance the concept of sustainability by changing the perception on how to treat waterfront area; from abandoned place into the most valuable place.

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