

ORGANIC ARCHITECTURE APPROACH IN SURABAYA ZOO PLANNING

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Abstract- Surabaya zoo roomates are wildlife conservation that has been overshadowed by retaining a long time. At this time it is the declining environmental quality of the region. This decline Affects the animal's death. It takes a proper design to restore the environmental conditions of the Surabaya Zoo. Through the organic architectural approach can be seen Several principles related to environmental regulation. Ie by way of responding to the climatic conditions of the object design environment. The goal is to create a space that is comfortable and healthy, especially for animals. Animals are placed far from their natural habitat in the zoo. This condition requires setting cage space roommates do away with its natural condition. for the needs of animals into a settlement measuring point problem. Determination of organic architecture can approach Become a place to organize all the facilities and infrastructure needs Surabaya zoo Becomes more comfortable and healthy. Showed a concept that synergizes adaptable animals and plants, water distribution, HVAC related to wind and solar circulating. Overall closely related to the optimization of natural resources.

Keywords— *Organic Architecture, Surabaya Zoo, Nature, Climate, Adaptable*

I. INTRODUCTION

Surabaya zoo is an ex-situ conservation area that has a large collection of animals. Various animals held an attraction for tourists to visit see the diversity of species. However, in the past few years, there has been a decline in the environmental quality of the region due to the resulting decline in the number of animal deaths. This resulted in poor image Surabaya zoo had an uncomfortable environment as a place of conservation.

Further countermeasures need to be able to fix the environmental conditions of the area. The top priority that needs to be done is a make improvement to the design of infrastructure, especially for animals. In order for the survival of the animals can run well back. So as to create Surabaya zoo healthy and comfortable environment for animals, managers, and visitors.

Animals require more attention, in the area of the zoo. Considering the given environment is an artificial environment that is unlike Reviews their natural habitat. Then the animals will increase of stress level. This situation can lead to the vulnerability of animals dying. Then regional positions associated Surabaya Zoo central city of Surabaya. Have the hustle and density of settlements can roommates increase of stress levels of animals as well. It needs good handling to create comfortable conditions for the animals.

Creating comfort and health through the organic architectural approach is done by designing the enclosure and the surrounding environment enclosure that resembles the state of the natural habitat of wildlife. Microclimate responds to an area to optimize the potential of the region into a good environment for the cage. Mencipakan road-based natural habitat how the natural feel. Natural is contained in the letter of al-Baqarah verse 164 the which describes the relationship between the elements of nature. Namely, water, wind, sun, plants, and animals of water, wind, sun, plants, and animals. Combining all the elements that later became the basis for the establishment of comfortable and healthy cages.

Organic Architecture theme Refers to the natural elements of character clean, comfortable, and quiet are presented on the building and the outside environment within a site (Mandiangan, 2013). Organic continuity with the theme of the natural environment which is owned area of the zoo. Organic architecture is the architectural design of the building Harmonize with nature, as well as the interior, landscape environment, and building locations are interconnected. This theme is in harmony with the object Surabaya zoo who carries the Reviews largest green open space area in Surabaya.

II. METHODS

The design of the zoo is based on the issue of environmental degradation that resulted in the death of animals. To deepen the roots of the problem and get a good design solution. It takes data collection methods.

1. *The issue*, Clear the data about the site conditions. Relation to the disadvantages and advantages of the zoo area. The result is personal documentation in the form of photographs by a description of the Data Obtained.

The zoo has a deficiency in accessibility visitors, drainage, enclosure size, distribution of water, polluted water smells of animals with regard to cleaning the cage, as well as supporting facilities and Infrastructures for conservation areas.

2. *Literature review and organic architecture object*. The deepening insights into the zoo object from the Primary Data Obtained are obtained by the observation method. The method used in the comparative study is observation, data collection and documentation. Befungsi comparative studies to Obtain valid data. So we get a comparison to the design. added The study of literature is secondary methods of data collection. The collection of the data using scientific sources. The literature study was used to

compare the theory with the object's original state in comparative studies, resulting in a design object of varied and Appropriate. In a zoo, the design required data on the animals included in the design. Among them:

- Grouping of animals.
- Characteristics of the cage each species.
- Accessibility visitors.
- Facilities and infrastructure managers.
- The material is chosen for the design of the zoo.

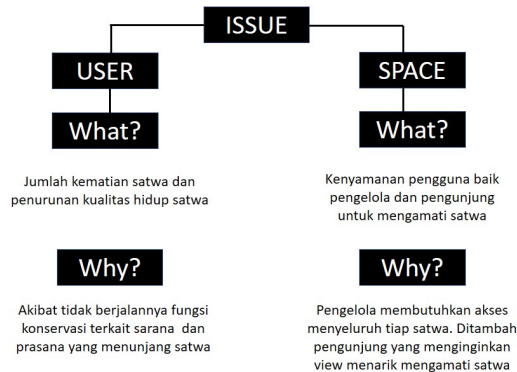


Figure 1. Issue

The organic architectural approach deepened to know well each application in principle owned by the approach. Organic architecture has basic principles that organize the building and the surrounding buildings. the principles are implemented a shape of the building that has the impression of responding to the environment. The organic architectural approach combines multiple disciplines that combine the context of ecological, social, infrastructure, and technology. Everything combined to form the face of architecture with impressive natural space arrangement. Organic architecture connects human life with nature through the design approach. According to Gaguly (2008); "Organic architecture is the outcome of the feelings of life, like integrity, freedom, fraternity, harmony, beauty, joy and love. It is a philosophy of architecture the roommates promotes harmony between human habitation and the natural world through design approaches. It is well integrated with its site and has a unified, interrelated composition consisting of buildings and its surroundings. " 'Ecology + Individual = Organic' [1].

Principles of organic architecture pioneered by architect Frank Lloyd Wright's known as a "student of nature". This theme is the Obtainment of a desire to learn about nature. The basic principles of organic architecture theme of the which are (rukayah, 2003):

- *Be inspired by nature, and be sustainable, healthy, diverse early.*
- *Unfold, like an organism, from the seed within.*
- *Exist in the "continuously present.*
- *Follow the flows and be flexible and adaptable.*

- *Satisfy social, physical, and spiritual needs.*
- *Grow out from the site "and be unique.*
- *Celebrate the spirit of youth, play, and surprise.*
- *Express the rhythm of music and the power of dance.*

Organic architectural principles applied to the design of the zoo Surabaya. Obtained results of the application of the organic architecture theme can be applied to a few points. Among them:

- Zoo area has given social space, physical, and spiritual oriented spacious enclosure, providing a natural setting.
- Flexible design by forwarding between interior and exterior. Berkesanbangunan tied to its environment and integrated with the natural site.
- Integrating the latest with material natural materials. A natural material that is able to provide a dynamic form because it is elastic. Iron as finishing facade Gives a different atmosphere from the rigid nature of the iron is converted into the dynamic of laser cutting.

3. *Design requirements*, Stages of analysis into one of the important points in designing. The analysis serves to solve the problem with a variety of considerations. Effect of space in the building, the area outside environment tread footprint to be factored in the analysis so that the design can be Tirrenus. Some analyzes need to be fulfilled are:

- Analysis function, Determine the object function designed to provide primary rating to priority support. Primary functions include the conservation activities Caring, breeding and nurturing. The function of education by making observations on each type of animal and activities Examined by looking at each of the biological information is displayed around the area of the zoo. Tertiary recreational needs a growing niche to give the impression break, play, or restore physical fitness.
- User Analysis, the data provide information about how many users and classification space. In the analysis of recorded specifically for each area of work subjects related to the number of users and vulnerable time work.
- Analysis of activity, results of the analysis of the activity are connected to every available space According to user activity. How is each subject user activity within a day, wherever space is used. Can Be Formulated so that the user activity stream. In the analysis of the activities undertaken zoo is divided into two subjects, ie visitors and managers. For visitors related to recreation and education that many observations. As for the manager is taking care of animals.

- Analysis of the amount of space, space is Analyzed based on the capacity of users and activity will generate the amount of space. In designing a space, the precision needed to understand the patterns of behavior and activities of its users.
- Analysis of the relationship between space, links between space that has a closeness function and design facilitates user generates activity. Visitors will get an interesting experience with the relationship between the right room. Relationship building layout with a cage that will form an interesting circulation path. The result is a bubble diagram that is passed into the block plan. However, this order does not yet have a vocabulary of aesthetic forms.

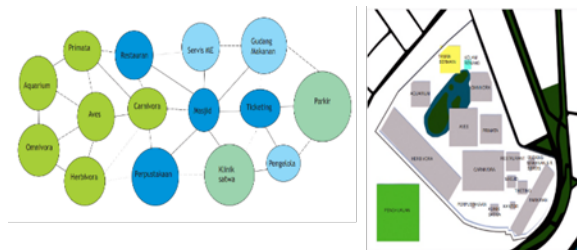


Figure 2. The bubble diagrams and block plan

- Analysis forms, architecture is not solely to provide an aesthetic impression. But as a function or purpose to fulfill Facilitate the needs of users. In this analysis, the form Obtained from the approach of the theme. The theme of organic architecture has a characteristic in shape that is inspired by nature, form capable of responding to the surrounding environment. Principles of organic architecture used for the analysis of the forms taken Reviews These three principles adapted to the needs of the design objects Surabaya zoo. Among them:
 - Satisfy social, physical, and spiritual
 - Flexible and adaptable to the environment
 - Exist in the continuous present and future
- Footprint analysis, adjusting the shape analysis into the shape of the tread. Analyze each problem within the site, then taken over problem existing solutions in the design formation. Next to be detailed solutions in the form of the draft. The method used in this analysis in a linear manner. In a footprint analysis, there are a lot of points relating to the site. Namely; accessibility, circulation, sun, wind, rain, temperature, humidity, view, smell, noise, and utilities. Each point is a continuation of the previous analysis. Linearly final results are in the last analysis of the utility. A result is a rough form of the arrangement of the space within the footprint.

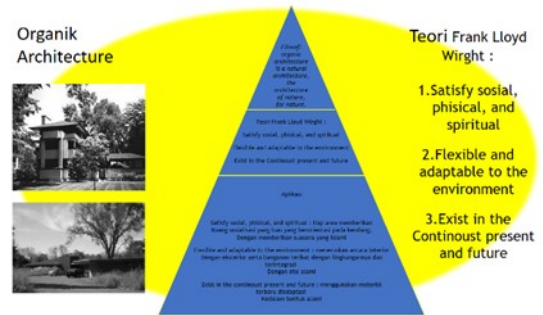


Figure 3. The principle of organic architecture in the design of Surabaya zoo

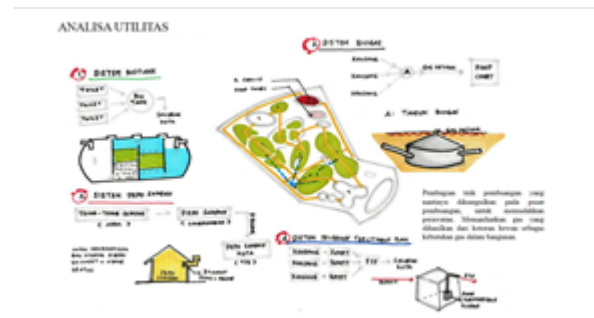
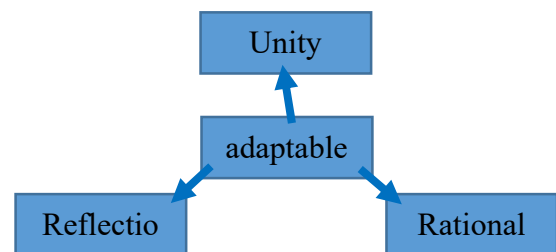


Figure 4. Analysis of the tread

4. *The guideline*, The results of the overall analysis of the concept. The concept later is detailed by reference in the formation of the draft design. Formulating basic concepts derived from the principles of architecture approach. In the design of the Surabaya zoo formulate the concept of "adaptable". Design capable of forming harmony with the natural conditions of the site. Reinforce harmony with nature and natural feel. Adapting to the site based on the union of elements of the climate footprint with the needs of the zoo. Then in decision-making in the design solutions, we should logically not repel the site conditions and design requirements zoo. To confirm that to map out zoo area, then design solutions are expected to lead to a natural feel for animals.



Concept Adaptable:

Answering the needs of the design of the zoo with natural optimization conditions footprint. So as to create the design that blends with the design layout of the stand.

- Unity :

Linking the needs of wildlife managers, visitors, and animals produce a good organization.

- Rational:
In the selection of a logical solution to the natural conditions of the site.
- Reflection:
Expressing feel of the environment in accordance with the needs of wildlife

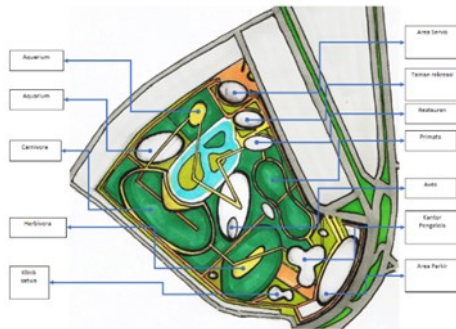


Figure 5. The concept of footprint

III. RESULTS

Designing the Surabaya zoo aims to be able to demonstrate a healthy animal. Animals that can run well and show her nature. The aim is to Strengthen the function of conservation zoo. Through the application of the concept adaptable to forming a zoo that Provides a guaranteed facility for the survival of wildlife.

Animals are a major priority in a container zoo. Reviews These containers need to walk properly in each function. Reviews These functions include recreation, education, and conservation. One of the missing in the Surabaya Zoo is conservation. Concept *adaptable* appointed by reinforcing the overall basic functions. The concept is taken from a derivative of organic architecture that emphasizes the theme of natural pengaruh in the draft. So that each element of the design of a good impact on the buildings with the environment. The building is the concept of adaptable Able to provide a space that blends with the environment and establish a productive activity in it (unity). Each building design was based on the need to provide benefit activities (rational). The building formed directed to synergize with natural elements so that the building can give the impression of adapting to nature (reflection).

Animals are an important part of this draft. Therefore laying the basis for designing a regional wildlife zoo. Through the integration of Islam that Explains the relationship between animals and the natural environment. Laying Affect wildlife site conditions. Namely than room temperature the which is affected by moisture, the heat of the sun, until the traffic outside the region. So that the laying of a basic diagram optimizes Obtained thermal comfort for the animals.



Figure 7. Facilities and infrastructure Surabaya zoo.

The layout of the space within the area of the zoo is based on the analysis of the climate and the selection of the basic shape of buildings and landscapes. Taking the formation of an elliptical character who has a horizontal line and a curved line, which was adapted from the shape of the tread that has straight and curved lines. Building arrangement focused on the outer limits of the tread. The goal is to protect the central area that is used for area wildlife. In order to Drown out the noise and odors from the environment around the site. Climate analysis Obtained results drawn design that adapts to the shape of the arrangement of the footprint, animal arrangement centered in the middle, as well as a reflection of the natural environment varied formations.

The zoo is presenting the concept of the open space area. Most of the regulatory landscape design. The natural ambiance is the basic concepts used in this design. As a form of natural reflection of the natural habitat for native wildlife. Each element of the hardscape using natural materials or natural color selection. Surabaya zoo can be developed interesting is the landscape. Because visitors interested in nature and wildlife atmosphere requires an atmosphere that does not make them stress.



Figure 8. The site plan.



Figure 9. Area cage.

Conservation is the main function in this frame design. But basically, the zoo has three functions. Namely conservation, education, and recreation. The recreation function here is not too strengthened. But in this design emphasis on recreation for visitors only to see the animals. Animals' observation process through which visitors will feel comfortable and healthy as an organic Architektur approach that has been attached is used to create a natural atmosphere.

IV. CONCLUSION

In the end, this design creates a comfortable space not only for humans but also for animals. Visitors Attend who can view the animals healthy. Healthy animals Obtained from management good conservation functions. Surabaya zoo so that the design has become a natural place for shelter animals. Creating natural shades space in the city center full of Pollutants.

Making animals and managers as the main priority. So that accessibility for both subjects needs to be prioritized. Thus Spake forming trails circling the site boundary for the circulation manager. Followed by the laying of animal cages. The aim is that needs mobilization of animals can be accommodated well. Furthermore, visitors are placed in the middle area. The advantages of this arrangement, visitors can get a feel of a comprehensive nature. The results of the analysis of site conditions Obtained a noisy area in the area of the eastern boundary of the site. To avoid the stress levels of the animals Increased. Then designed a mass laying of visitor

facilities and infrastructure are in the east. The goal is to muffle the noise from the outside to the inside.

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