

Chapter 4

PROBLEM FINDING

4.1. Problem Analysis

a. Building function problems to user aspects

- User potential analysis
 - The building could help the government fundings for future project.
 - As a research facility, the building can educate people about sharks and their marine counterparts.
 - Supporting facilities such as restaurants can provide food and shelter in Wayag Island.
 - The building can provide entertainment for visitors of the building.
- User obstacle analysis
 - The enormous pelagic tank with can cause a great exhaustion for users to travel around the tank.
 - Any laboratories or rooms that provide the facility for dissection can produce poor odors for autopsies procedure.
 - Large numbers of Raja Ampat's residence doesn't have enough education for building managements. This can be seen from the primary school education they're only have and many are still illiterate which cause unequal business competition between migrants and local people resulting in poverty.
 - Local employees lack discipline and ethic effecting in weak surveillance.
 - The existence of scalloped hammerhead in the facility will possess a great danger for divers and staff.
 - The need for shark tanks that exceed 10m could potentially harmful for divers.

b. Building function problems to special requirements

- Requirements obstacle analysis

- The husbandry for sharks in the facility can also facilitate rays species in the building.
- Requirements obstacle analysis
 - Using Klay formula, the shark tanks require a large volume and also large number of LSS components which will take too much space.
 - At night, the predation of sharks will rise, causing stress and danger to smaller sharks in the facility.
 - Light intensity, light quality, and photoperiod could cause stress to sharks in the facility.
 - The excessed electrical utilities and equipment in the building will create electromagnetic fields that could stress the sharks and create head and lateral line erosion and poor health.
 - LSS components and husbandry activities' vibration and noise could distress the sharks in the facility.
- c. Building function problems to site
 - Site potential analysis
 - Shark transport could be executed quickly directly from the ocean without the need of trucks and trailers.
 - Since the site was located on the ocean with one of the ideal tourist location in Raja Ampat Regency, the building should be easily located and known for people, allowing for easy access.
 - Wayag Island has been known as a tourist location for years, therefore many tourist will be found in the area.
 - The site was located near a group of diving sites in the area which would make research and diving a lot easier.
 - The location has been known for its beautiful underwater life that could make a beautiful scene for the building.
 - Since the location is in Papua, Papua has many cultures to explore and can be a tourist attraction element.
 - Site obstacle analysis

- To travel to the site, the users can only use a sea transportation such as speedboat that takes too long and expensive and an air transportation like helicopters that are exclusive for researchers.
 - The travel duration using sea transportation are approximately six to eight hours from the capital which is time consuming and making harder accessibility.
 - The site doesn't provide enough utilities as mentioned in of its location.
- d. Building function problems to environment outside the site
- Outside potential analysis
 - The building can recover deceased sharks in the area.
 - The building provides breeding facility for sharks.
 - The floating building can provide shelter for marine live.
 - Outside obstacle analysis
 - Building could potentially damage the surrounding coral reefs.
- e. Building function problems to the theme
- Theme potential analysis
 - The site gives a clear visual on the building as a simplicity approach.
 - The theme can act as a poetic message to the people.
 - Theme obstacle analysis
 - The site asks for a wavy form, derived from the ocean or the surrounding animals.
 - Different human perception towards comfort in terms of thermal, visual, and acoustic.
 - The prohibited use of individual ornament in the building could hinder the use of moveable furniture in the building.

4.2. Problem Identification

Based on the problem analysis above, the problem of the building is listed below:

- Theme

As been explained in chapter 2, the building's theme is organic architecture. Organic architecture itself must have a several characteristics for building to be called organic architecture.

- Core issue

- Structure

The site is a crucial part of the marine ecosystem. It's filled with corals, serving as a habitat for fish underwater. In the past, ships that travelled in Raja Ampat Regency that damage the corals will be punished. Therefore, the building must not damage the surrounding corals of the site. Since the corals are located on the seabed, structures of the building should not damage the coral reefs. Usually the building needs a tall structure embedded in the ground. In this case, the building needs a structure in the seabed. This can be harmful for coral reefs in the site. Structures could hit the coral reefs in site, damaging them, causing fish habitats to fade. Therefore, the building should need a unique type of structures to carry the whole building without damaging the coral reefs.

- Technology

The site doesn't provide much utilities for the building, no clean water, no electricity, no waste management, etc. Without the needed utilities, the building cannot run its daily activities. To create or provide energies for the building without the utilities of the site, the building should create its own energies like producing electricity and clean water itself. Therefore, the building can be powered through the electricity that have just been harnessed. People can drink clean water from the building-produced clean water. Therefore, the building should use many kinds of technologies to provide these energies for the building to run.

4.3. Problem Statement

- How organic architecture can be suitably implemented in the building?
- How can building structure avoid the coral reef's damage in the site?

- How can building technology make use of the site potential to counter the lack of utilities in the area?

