



A MANAGEMENT AESTHETIC SOLUTION FLOATING HOUSE AT BAGAN DELI BELAWAN DISTRICT.

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ABSTRACT

The surface around Belawan is nearly below the water level. So that at high tide Belawan is automatically inundated. This is a phenomenon that has become a tradition at high tide. A tidal flood is a flood whose water comes from seawater. This tidal flood is a flood caused by the tide of sea water until the tidal water inundates the land. This tidal flood is also known as a puddle flood. This tidal flood will often hit or often occur in areas whose surface is lower than sea level. Because it is caused by the overflow of seawater that reaches the mainland, the water that is inundated due to this tidal flood has a color that tends to be clearer than the water in usual floods. The tidal flood itself has several special characteristics or special characteristics it has. Some of the characteristics or characteristics of tidal flooding, among others, occur when the sea water is at high tide, the color of the water is not too cloudy, and it does not only occur when the rainy season arrives but usually occurs in areas that have a lower plains area than the ocean area. Impacts that arise due to tidal flooding, therefore many or small tidal floods must hurt the people who experience it, causing material losses, damaging buildings, causing the environment to become dirty and muddy, and spreading germs. The floating house is a solution to tackling flooding due to high tides. By using a layout pattern with architectural design principles by considering drainage, comfort, and a clean and well-organized environment.

Keywords: Belawan, Tidal Water, Rob Flood, Floating House

INTRODUCTION.

Global warming that occurs in the Belawan area is a natural event that causes an increase in the world's average temperature. The increase in air temperature on earth will of course result in ice at the two poles of the earth. Due to the cause of global warming, the two ice caps at the Earth's poles have melted in large quantities. The melting of the ice at the two poles of the earth, either a little or a lot will affect the increase in the amount or volume of sea water. As a result, the sea water will increase and the sea level will rise (this phenomenon is called the sea level rise phenomenon). This rising sea level will certainly raise public concerns and increase the risk of the tidal flood phenomenon in an area, especially in coastal areas. Deforestation of forest types



such as mangrove forests or mangrove forests. This mangrove forest or mangrove forest has a function to hold water when tidal waves arrive. If this mangrove forest is cleared, what will happen is that the waves crashing cannot be stopped. This unprotected wave will be a threat to the occurrence of this tidal flood.

Like this tidal flood. We can see that a flood is said to be a tidal flood from the characteristics or characteristics, including:

- a) Occurs at high tide
- b) The color of the water is not too cloudy
- c) It doesn't always happen when the rainy season arrives
- d) Usually occurs in areas that have lower plains than ocean areas.

So when there is an area that is flooded and has the characteristics as mentioned above, it is possible that the flood is a type of tidal flood. Then, what causes this tidal flood to occur? However, a flood came because it was triggered by several things. Likewise with this tidal flood. Even though we already knew beforehand that this tidal flood was caused by high tides, behind the tides there must be something behind the flooding. Rob floods occur due to human activities, among others; excessive use of ground water. Excessive use of ground water. What is the real connection between this excessive use of groundwater and the occurrence of tidal flooding? This is because the excessive use of ground water will cause a decrease in the surface layer of the soil and the clearing of mangrove forests or mangrove forests. Deforestation of forest types such as mangrove forests or mangrove forests. This mangrove forest or mangrove forest has a function to hold water when tidal waves arrive.

2.2. Factors Causing Rob Flood

There are several reasons that cause tidal flooding. Although it is not a direct cause, it can also be said that these factors are said to be factors that support the occurrence of tidal flooding. Several factors that cause or support the occurrence of tidal flooding include:

1. Global warming

Global warming is a natural event that causes the world's average temperature to increase. The increase in air temperature on earth will of course result in ice at the two poles of the earth. Due to the cause of global warming, the two ice caps at the Earth's poles have melted in large quantities. The melting of the ice at the two poles of the earth, either a little or a lot will affect the increase in the amount or volume of sea water. As a result, the sea water will increase and the sea level will rise (this phenomenon is called the sea level rise phenomenon). This rising sea



level will certainly raise public concerns and increase the risk of the tidal flood phenomenon in an area, especially in coastal areas.

2. Excessive use of ground water

Excessive use of ground water. What is the real connection between this excessive use of groundwater and the occurrence of tidal flooding? This is because the excessive use of ground water will cause a decrease in the surface layer of the soil. Especially in coastal areas that really need a large amount of clean water. This of course will make residents around the coast look for sources of clean water in extra quantities, as a result this will lower the land surface in coastal areas. The lowering of the ground water level will cause tidal flooding very easily.

3. Clearing of mangrove forests or mangrove forests

Deforestation of forest types such as mangrove forests or mangrove forests. This mangrove forest or mangrove forest has a function to hold water when tidal waves arrive. If this mangrove forest is cleared, what will happen is that the waves crashing cannot be stopped. This unprotected wave will be a threat to the occurrence of this tidal flood.

4. The topography of an area

The topography is also one of the factors that cause this tidal flood. The topography in question is the state of a natural area that is clearly displayed in an area. The topographical conditions that cause tidal flooding are topography where the type of land surface is below or below sea level. Such topographical conditions will cause sea water to easily flow over the land surface or land surface, so that it will cause tidal flooding. Unlike the case with mountainous areas which have an area that is higher than sea level, so that sea water will not be able to flow through the ground water surface.

5. The phenomenon of land subsidence

It has been explained previously that the lower ground level or lower than sea level will trigger tidal flooding in a certain area. This indicates that land subsidence is also automatically a factor that supports the occurrence of this tidal flood.

6. Changes in the use of swamp land, lakes, rice fields, and so on

Land that is functioned as swamp or lake or rice fields and so on if it is converted into residential land, or other lands that can prevent water infiltration into the ground. In the long term (or even not too long), things like this will cause flooding to occur very easily. One of the floods that often occurs because of things like this is the tidal flood.



7. Narrowing of riverbanks

The narrowing of riverbanks is also one of the things or factors that cause tidal flooding. This is because the existing river has a reduced volume of its water load, which will cause the water to overflow onto the land, causing the tidal flood to occur.

8. Throwing garbage in the river

Disposing of garbage in the river will indirectly cause tidal flooding. Garbage that is thrown into the river in a not too long period of time will be buried at the bottom of the river and cause the river to experience siltation. This silting river will cause a decrease in the water discharge in the river. As a result, when high tides and water from the sea fill the surrounding rivers and the river is not sufficient to accommodate it, this will cause the water to overflow and will flow through the area around the river.

9. Poorly maintained drainage system

The drainage system is also an important milestone for the defense of the land from flooding. Drainage is the ability of the soil to absorb water. When the absorption system is disturbed, the effort to absorb water to enter the soil is also disrupted. This will make it easy for flooding to attack an area. This does not only apply to floods caused by rain, but also to this tidal flood.

2.3. Environmental and Settlement Conditions

One thing that always appears when a flood arrives is the scarcity of clean water. However, flood water not only inundated people's homes but also a source of clean water for the community. As a result, clean water that should be used for daily consumption can mix with flood water. Not to mention the residents' septic tanks that are also submerged in flood waters can potentially make feces come out and mix with residents' water. This is causing a clean water crisis.

A settlement is a place where humans live to show a certain purpose. When studied in terms of meaning, the settlement comes from the translation of the word settlements which implies a process of living. Slums are settlements that are not suitable for habitation, among others because they are located on land that is not by the designation or spatial planning, have very high building density in a very limited area, are prone to social and environmental diseases, and low general quality of buildings, not served by environmental infrastructure. adequate, and can endanger the survival of its inhabitants.

2.4. Study of Floating Houses as a Solution in Anticipating Rob Floods

Anti-Flood House with a floating house concept can be used as inspiration for those of us who like tranquillity. Now the concept of a house on the water has become the target of certain people. This house with a simple but unique concept is one of our solutions to get an Anti-Flood House. The way this house works is like a ship or boat whereas in this Anti-Flood House there is a structure that can float on water.

To avoid flooding, of course, must be equipped with fasteners so that the floating house is not easily drowned or washed away when a big flood comes. To design this Anti-Flood House, it is advisable to think carefully about the concept and structure of the building and ask the architect to build the house. In addition, Anti-Flood Houses, which are commonly known as amphibious houses, can also be applied to avoid flooding. The concept of an amphibious house is almost the same, namely, the house can float when the flood comes with floating concrete.

Before building an Anti-Flood House, of course, we must pay attention to important things such as cleaning water gutters, installing water valves to prevent flood water from entering waterways, making infiltration wells or biopori, and raising the surface of the house so that the house is safe from flooding so that it can create its own Anti-Flood House.



Figure 1. Samples of anti-flood houses



METHOD OF RESEARCH.

This research material uses a qualitative approach. This method is to make a study and analysis of buildings against earthquake vibration reactions. The results of the experiment will be described and explained in detail according to the problems and research objects that have been determined.

According to Solso & MacLin (2002), research is a study in which at least one variable is found to be manipulated to study cause-and-effect relationships. Therefore, research is closely related to testing a hypothesis to find the effect, relationship, or difference in changes in the group that is subjected to treatment. According to Sukardi, (2003) in general, research is carried out by taking the following steps:

- a) Conduct an inductive study that is closely related to the problem to be solved.
- b) Identify and define the problem.
- c) Conduct a study of the literature and several relevant sources, formulate research hypotheses, determine variables, and formulate operational definitions and definitions of terms.
- d) Identify data collection procedures. and determine the hypothesis.
- e) Organizing and describing data according to predetermined variables.
- f) Interpreting the results, formulating conclusions, discussing, and making reports.

where the place of research is in Bagan Deli Village, Belawan District, and the research time is carried out for 6 (six) months calendar days for the 2021 academic year

The type of research carried out is to observe the forms of connection structures and constructions on the elements of buildings or houses in water areas. After that, it is poured into shape engineering which considers the flour house by incorporating local materials and connection systems in the structure.

RESULT.

4.1.Tidal Water Enters Settlement Area of Bagan Deli

Sea level rise is a phenomenon that occurs due to climate change. Rising sea levels can cause the sinking of coastal areas and islands, coastal erosion, and damage to important ecosystems such as wetlands and mangroves. Sea level rise has a considerable influence on the waters of the western part of the island of Sumatra which has hundreds of small islands and is located at the confluence of the Indian Ocean and the Andaman Sea.



Sea level rise causes other problems such as causing higher wave heights due to higher sea levels, the depth of the canal must also be deepened or dredging must be carried out periodically so that the water level does not reach the pier. At the new terminal, there are several dry bulk warehouses, the condition of the warehouses must be protected from flooding or flooding because if a flood occurs it will result in loss of logistics goods and is not suitable to be a dry bulk warehouse. Sea level rise also affects the navigation system at the new terminal, the organization of the ship must be carried out more carefully because the draft of the ship is getting higher and tends to hit the dock in front of it.

4.2 Amount of Garbage in Settlements

Garbage is the main problem that creates slums in an area. The accumulation of garbage further exacerbates the destruction of the physical environment of the settlement, both in terms of the health of its inhabitants and in terms of environmental cleanliness. In general, the community in Bagan Deli Village has poor waste management because people throw garbage into the sea without thinking about the impact on the environment and settlements. Because people throw garbage into the sea, seawater is polluted and there is a lot of garbage scattered around.

4.3 Slums

Slums are settlements that are not suitable for habitation, among others because they are located on land that is not designated or spatial planning, have very high building density in a very limited area, are prone to social and environmental diseases, and have a low general quality of buildings, not served by environmental infrastructure. adequate, and can endanger the survival of its inhabitants.

The characteristics of slum settlements are often described and identified as irregular, slum, unhealthy, unaesthetic housing areas whose conditions are no longer by the development of urban planning, and are closely related to the middle to lower economic conditions (poverty). The factors that cause slum settlements can be classified as follows:

1. Physical Factor

a. Home Condition

The floors of residents' houses in the Bagan Deli Village area are made of wood in an outdated condition, the condition of the walls of the residents' houses are mostly made of boards, namely 66%, the foundation is still made of wood about 22%, the roof of the house is made of zinc but without a ceiling. so hot during the day.



b. House Type

Most of the building conditions are non-permanent with a minimal and unorganized area and do not meet health requirements. Building materials use improvised and inadequate materials.

c. Building Density

The density of high-rise buildings with an average of each alley is inhabited by 10-25 heads of household with a total of 199 heads of household located in Lorong Mesjid. The increase in population has resulted in an increasing need for housing, resulting in building density. Seeing the limited land conditions resulted in no distance between residential buildings by the specified standards so this area became a slum due to the density of houses being built.

d. Number of Occupants in one house

The number of occupants in one house also contributes to shaping the slums of an area. The ideal number in one house is 5 people, but in fact, in the Lorong Mesjid neighborhood there are an average of 6-7 people occupying 1 house. If the number of occupants increases, the homeowners add or expand their buildings regardless of the applicable regulations.

e. Air circulation and lighting in the house

By looking at the condition of the density of the building consisting of 10-25 heads of household in each aisle, of course, the lighting condition of the house becomes less because it is covered by other house buildings. The situation of air circulation is also no different, due to the density of population buildings, air circulation is not optimal because air ventilation does not help much air enter and leave the house.

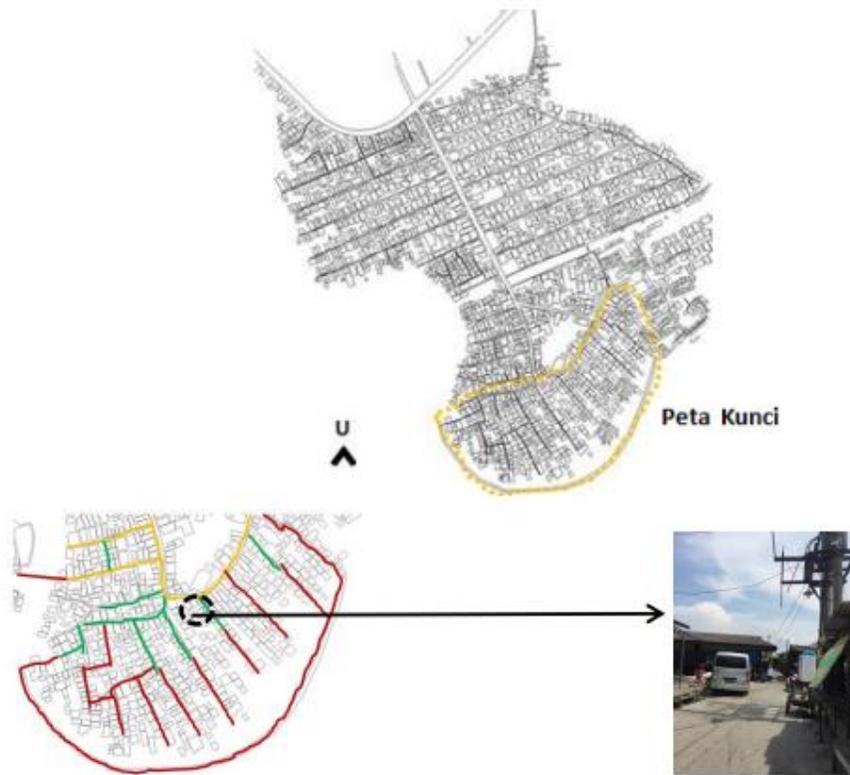


Figure 2. Existing state of outdoor space on the road in the Bagan Deli permukiman settlement



CONCLUSION.

Conclusion Of This Research:

1. The application of The Floating House concept is an attempt to provide a solution that desired by the community in overcoming the impact of rob that is more efficient and survive in the long term.
2. In this house concept, the author tries to reuse the waste that was previously used worthless to something very valuable.

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