

Reshaping Dwellings In The Degrading Area At Genuk District Of Semarang City, Indonesia

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ABSTRACT: - Research area is located in Genuk District, the North part of Semarang city, this area was degraded due to inadequate environmental support capacity. It is polluted, regularly flooded, and become worse due to land subsidence. However, people are still willing and interested to settle here. They perform varieties of adaptation to sustain their existence. This location does have a very good economical value. This paper revealed the adjustment they have made in addressing the environmental conditions. This research, approach emphasizing that living is a cultural process, a home is a place to socialize. The strategy used in this study is carried out through a survey or observation methods, conducted with the direct observation.

Result obtained that main function of the house is a place for dwellers to socialize. Next priority is that the house should be able to meet the security and comfort needs, marked by changes in the personal spaces such as bedrooms and bathrooms.

Keywords: *reshaping dwellings, housing alteration; degrading location; settlement*

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I. BACKGROUND

Semarang is a city that consists of lowlands in north and hilly area in south, 350 meters above sea level. On that time, the Dutch colonial era, they built flood control system: West Flood Canal (BKB) in 1892 and the East Flood Canal (BKT) in 1900. Besides the water flows from upper part of Semarang every rainy season, northern part also suffered from tidal flood twice in every months.

There are multiple processes underlying seawater overflow in informal settlements. For example, various meteorological and geological conditions such as storms and land subsidence can be considerable factors (Chaussard et al., 2013). Among highly significant permanent factors are gravitational forces exerted by the Moon.

Rising oceanic tide is the elevation of ocean or sea water level as a result of gravitational pull of position the Moon. According to Day (2006), the highest tide occurs when the Sun, the Moon and the Earth are situated in a straight.

The distance between the Earth and the Moon, as with the distance between the Earth and the Sun, periodically changes during a year. Therefore, ocean surface may rise relatively higher at certain time of the year and lower at other times. The highest rise of oceanic tide takes place during a full moon, where the Earth is situated exactly between the Sun and the Moon, and also at the end/beginning of the month (crescent moon). It is during those times Semarang is inundated. This oceanic tide has a significant impact for settlements near coastal areas. Semarang has a lot of settlement in the seashore that was affected by the sea water tide. Besides the high tide, the northern of Semarang City also experiences land subsidence, this causes the flood to feel higher.

Semarang has areas suffering from land subsidence with an overall average annual subsidence rate of up to 8-10 cm. These lands are located in coastal areas, making them highly susceptible towards the harm imposed by relative rising tide, this place is a substantial portion of the industrial activity of the city takes place. One of the locations suffering from environmental degradation caused by sea-water overflow is located in the northeast part of the city, a subdistrict called Genuk. Genuk is an important area of the city in that it houses a large portion of Semarang's industrial estates and considerable amount of land for housing areas. The district's land elevation angle is rather low (only an average of 5 degrees). It is also the location of an important Trans-Java main road connecting Semarang to Surabaya. It is easy to see that Genuk is regularly inundated with sea water overflow during high tides. Despite the apparent deterioration of the environment, the district does not seem to lose its appeal to new occupants. Genuk particularly has a high rate of population growth with three new arrivals for every one departure. It would seem that the environment deterioration by constant land

subsidence and regular twice-a-month sea water overflow do not discourage new occupants from settling into Genuk.

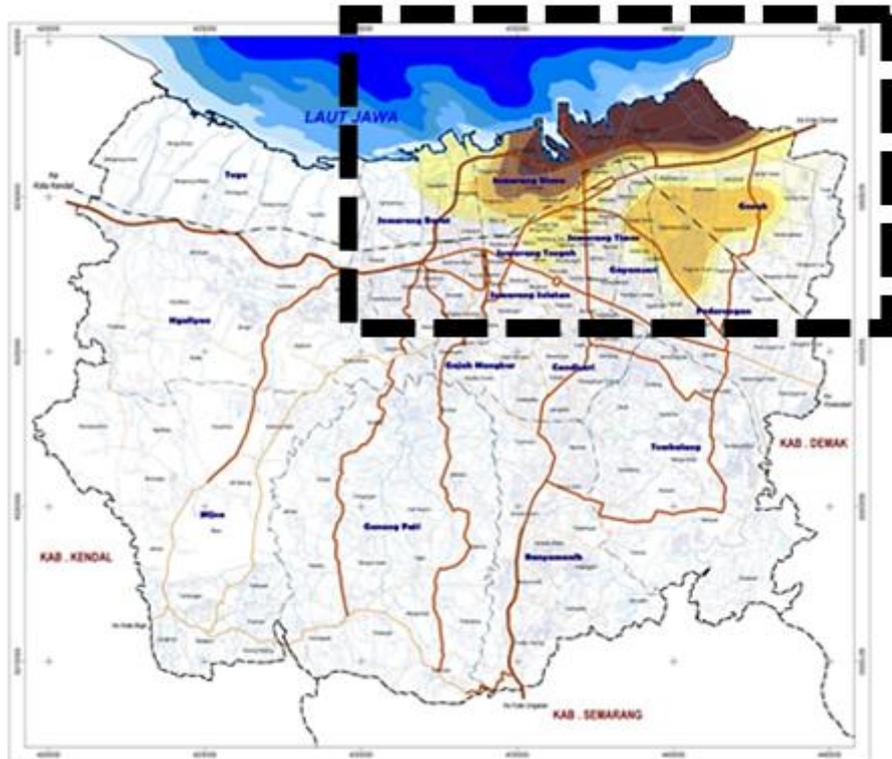


Figure 1: Semarang INDONESIA Land Subsidence (Bappeda Jateng, 2010)

What seems to draw newcomers to Genuk? It is clear that the area's environment is deteriorating, i.e. tidal flooding, land subsidence, environmental pollutions, and there is no clean ground water that can be extracted from wells, yet this fact does not stop people from coming to and settling into the area. The answer to the question above lies in the location of Genuk. Genuk is situated in one of the busiest industrial hubs in Semarang. As such, it is highly accessible from and to other parts of the city. One of the public transport terminals in Semarang is also located in Genuk. These features give Genuk a high economic appeal as a settlement area (Syrett, 2008). Apparently, to the population both planning to settle into and already living in the area, the economic value of the area outweighs the discomfort from environmental deterioration. Human being is gifted with an incredibly high adaptability towards various living conditions (Sarwono, 1992).

Douglas and James (2006) mentioned that the choice to stay and adapt towards a living space is largely influenced by three factors. These factors are (1) the economic motive of the population, (2) the physical condition of the environment and (3) the value (function) of the environment. Douglas and James believe that the three items have similar weight and are interrelated between each other. People are more likely to stay in places which are economically related, either directly or indirectly, to their lives.

In its relation with what Douglas and James stated, condition (1) and (3) are supposed to apply to Genuk but not condition (2). Genuk seems to have an entirely different demographic case. Its area value is clearly declining and yet more people are actually coming in. Despite Genuk's highly accessible location, it has reached its peak capacity to house settlements. Yet, it does not seem to be an obstacle, as people keep settling in. Therefore, it is important to investigate how people could stay in such vulnerable areas, whether easier economic access is generally preferred over minimal comfort.

II. AIMS OF RESEARCH

This research is conducted to show physical changes in the houses occupied by people in the degrading areas which is regularly inundated and at the same time suffering from land subsidence, specifically connected to details reshaping of their dwellings.

III. METHODS

3.1. Research Methods

Alteration of the housing as a response of external conditions is the focus of this research. Human behavior as well as other natural phenomena is the object. In regards to understand the object, distanced observer needed.

Human behavior can be understood objectively so that forecasting and generalizations can be made on human behavior. Sarwono (1992) looked at the social science as a social physics. Natural phenomena are objective, regular and predictable. Human behavior is strongly influenced by the stimulus. Each object always changes caused by a stimulus it receives. Positivism considers that a social phenomenon in the form of human behavior is that as a natural phenomenon, are objective, measurable, and can be predicted, as a social phenomenon is also bound the laws of nature (Samsunuwiyati, 2006).

This approach is emphasizing more on the development of existed literature. In principle, this study proves the principles of houses and settlements are formulated by Turner (1976), Budihardjo (1996), and Khadiyanto (2005), of which they said that living is a cultural process, the home is a place, not inanimate objects that are only meaning as space alone. In fact, according to Khadiyanto (2005), home is a place to socialize, that must be located in a habitable location.

The strategy used in this research is carried out through a survey or observation methods. The collection of data and information conducted with the direct object of study, then analyzed using factor analysis to determine the most dominant factor in house alteration.

3.2. Research Object

The data were collected from 100 respondents by random sample of all households. This study examines the process of adaptation by looking at the change of the house shape and the dwelling area by means of visual inspection, questionnaire administration and semi-structured interviews. For reference, additional data were obtained from Statistic Bureau Semarang (SBS) (2018). Three administrative villages in Genuk subdistrict were selected: Terboyo Wetan, Genuksari, and Trimulyo.

These three subdistricts are located in Genuk industrial area Genuk who always suffers from tidal flooding. Soil conditions are categorized as high decrease of land subsidence, 8-10 cm per year. Populated with 4,573 inhabitants of 1,034 families indicated approximately 4 people per household. This neighborhood should be categorized in normal crowdness. With the average area of the house is not more than 40 square meters, meaning that each inhabitant has a space of at least 10 square meters. But for an average land area of building is about 70 square meters.

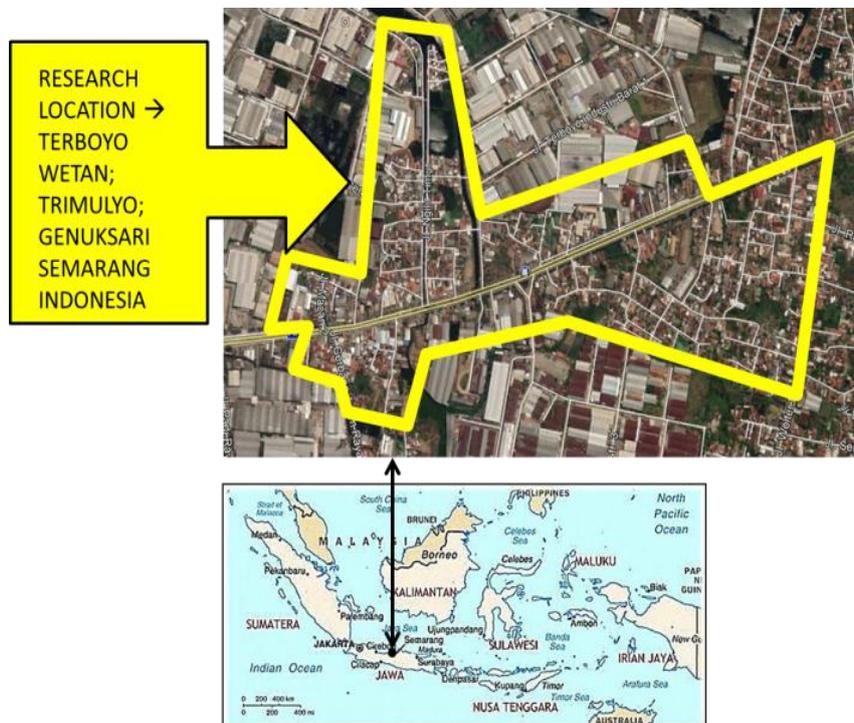


Figure 2: Research location: Terboyo Wetan, Trimulyo and Genuksari Sub-Districts, at Genuk District, Semarang - INDONESIA.

IV. RESULT AND DISCUSSIONS

4.1. Space and Housing Alteration

House is a building that serves as a residence or dwelling and the centre of family growth (UU No. 4/1992 on Housing and Settlement). Catanese (1986), stated that traditionally, house is a place to protect human being. However, in the modern world, house functions are not limited only for shelter and protection, it also serves human needs, providing space for daily activities, such as; cook, eat, work, recreation, and sleep.

Housing has two meanings, namely as a noun (product/ commodity) and as a verb (process/ activity) (Turner, 1972). Thus, house could be seen not only as a physical entity but also as an evolving process related to the dwellers vision. Turner also stated that the house is not the physical results at once, but rather an evolving process and related to socio-economic mobility of its occupants in the certain period. House has many functions and all of these depend on the place and time. The most important thing for the house is the impact on the lives of the inhabitants and not from its physical standards. Therefore there are two standards to determine a house. For the sense of house as a product or commodity, physical standards of measurement can be used as criteria. Meanwhile, in the sense of home as a process or activity, the most precise measurement criterion is the extent to which the house can satisfy the needs of its inhabitants.

Budihardjo (1998), gives the sense that the house is more than just a building. The house also has a social relationship of family - life, a place where humans love being in it together with the people closest to them (could be family members, could be other occupants).

Relationship between the houses with the value of its inhabitants is important, since humans are social beings, economic, political, and culture beings. As social beings, humans see house as fulfillment tools of social and cultural life. As economic beings, house has economic functions as long term investment (Kuswanto, 2005).

At first house is a place to seek for refuge from external threats, then the house as a place to stay and rest for the family and build social relationships. The highest point is that the house became the identity of its inhabitants.

Basic needs according to Maslow (Budihardjo, 1998), connected to the hierarchy function of a house, can be seen as follows:

1. Physiological needs, to provide protection against external disturbances and animals, as a private place for family, and shelter.
2. Sense of security needs, as a place to perform personal ritual, storage, and to ensure personal rights.
3. Social needs, to provide opportunities for healthy interaction and communication with the surrounding environment. Humans require recognition, and this means also that human need to socialize. Residential area that are similar, can be seen as single entity, also identified by the presence of environmental activities, house layout, house shape, spatial patterns, as well as other environmental entities.
4. Self recognition needs, house is one of the standard how successful the occupants are.
5. Self actualization needs, house is considered as the place for individuals to develop, it roles as social status and symbol of its dwellers.

Human behaviour study stated that one of the essences of house function is to create sense of privacy and security. Therefore house quality and compatibility of the house with its dwellers are essential. Functionally house is the basis for the development of human personality, where humans as social beings can interact with its environment.

In this study found that changing the shape of their house due to survive from flood and land subsidence is the most common response from dwellers. The changes steps are varied based on the characteristics of each individual, is influenced by an individuals ability to perceive hazards that are considered threatened. There are six variations in the housing alterations, namely (1) elevate the yard; (2) elevate the living room; (3) elevate the bathroom and toilet; (4) elevate all floors; (5) elevate kitchen; (6) build two storeys of the building. Some did it in partially; some did it in a mix process, meaning a combination of activities in changing the shape of the house.

Through cluster analysis (grouping of activities), grouping patterns can be seen as follows:

Patterns of adaptation	Elevate the yard	Elevate the living room	Elevate the bathroom and toilet	Elevate all floor	Elevate the kitchen	Build two storeys
Sixth patterns						12%
Fifth patterns						26%
Fourth patterns						17%
Third patterns						29%
Second patterns						11%
First pattern						5%

Figure 3: Activity groups on housing alteration, using cluster analysis.

This picture explanation shows that the people who do to elevate the yard only, are about 5% of samples; and who do to elevate the yard and living room are about 11%; also who do to elevate the yard, plus the living room, and bathroom/toilet are 29%, and so on, and so on.

Thus, the results of research which shows that the house alteration in order to survive against tidal flooding and land subsidence is a manifestation of occupants' perception to their house function.

Elevate the yard, is an early response of tidal inundation that hit their dwellings. This activity is a simplest form of behavioral response. The function to elevate the yard is to create barrier so that the water does not come in and flooded their houses. The group of people in lower economic class mostly do only this act. This is a reflection of the fulfillment of house as physiological needs that it should be a place to stay, despite the lower position of the house compare to the yard/ ground level.

Elevate the living room show that dwellers consider a living room is their most important place of the occupants. They put socialization between themselves and also neighboring people to their priority. Living room is semi-public space, a place where communication mostly happens, importantly between dwellers and guests. This space is usually quite extensive, so that the valuable properties can be saved if the flood is happening. This is a reflection of the fulfillment of the need for security, and the house functions as a means of creating social relations.

Act of elevate bathroom and toilet, may depict that the dwellers want a house as a space that could maintain personal activities, privacy, and must be able to support health and safety of the family.

Elevate all floors, which are done by changing floor height at a certain level so that the water does not get into the house. The reason to do this is to rescue their properties and still be able to socialize with neighbors as well. This could be indicative of the need for security as well as the self-actualization. For a family, it is absolutely more enjoyable and comfortable to eat together and enjoy home cooking together at home, not to mention that it is also more economical. This is in line with the study (Budihardjo, 1998) that stated house serves as a means to create a full of love family relationship.

About the act of building the house into two storeys, expressed to create sense of security also to show the identity of the occupants. By building into two storeys, they avoid the concern to always change the shape of the house every five years, because in addition to flooding, this location also has problem in significant land subsidence.

In line to the results above, according to Maslow, house should be able to meet the physiological needs which provide protection, as a private place for family, and serves as a resting place/ shelter. As a place to create sense of security, to perform personal ritual activity, storage dwellers valuable properties, and ensure personal rights are also house important functions. House should also be able to function as means to complete the needs of social relations, to provide opportunities for interaction and communication also fulfill the needs of its occupants recognition needs.

V. CONCLUSIONS

The result of study are in order to cope with flooding and land subsidence, they raise the floor, from the yard to the kitchen and bathroom. For the rich people do built the house became two storey.

The people are worried that they are actually life in the location that has land subsidence, they not worried of the flood, they do not have the technology to overcome the land subsidence, but for the flood they can making dike to protect them.

House can be changed due to natural cause. Maslow stated that the need of a house can be seen from five steps of human needs, physiology, security, social needs, self recognition and self actualization needs. What happening in Genuk district, house is more expressed towards the means to fulfill security and social needs.

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