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Defensible space in urban housing in Indonesia

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Abstract. Security in the housing is considered as one of the most important things in the fulfillment of occupant's needs. However, there are still many cases of criminality that still occur in urban housing. Defensible space is a concept of residential environment design that is able to prevent crime. Through literature study methods, field observations, and interviews, this paper discusses how defensible space is created in urban housing in Indonesia as well as its effect on the quality of security created between two different types of organic dwellings in Bogor City. The explanation starts from the identification of physical characteristics that create territoriality, natural surveillance, image, and milieu. Then, the social and physical condition are associated with their effects on people's behaviors. The result of our discovery is that physical and social conditions create the whole defensible space condition. In the middle-class urban housing, the environment condition still opens the opportunity for the criminals to commit the crime because the defensible space is not created as a whole. Contrarily, this is created in the lower-class urban housing as a whole. Therefore, the environment condition is free from any crime.

1. Introduction

Housing is considered important to fulfill the human needs to live. According to [1], housing is not just a group of houses, but a system of space where people live, so its presence is very influential on the quality of life of the inhabitants who occupy it. However, there are still many urban dwellings that actually cannot be considered ideal because they have not fully met the needs of the quality of life of their inhabitants. This can be seen from the criminality cases that still occur in urban housing. In fact, good security becomes one of the factors that counts a housing the ideal one. The inhabitants who live there would feel comfortable and their life quality is fulfilled. In addition, in [2], security is one of the important things that should be provided to everyone.

Maslow (1943) in [3] created a diagram of the human hierarchy of needs. Based on the diagram, security becomes a secondary need that is also considered as important in human life as it occupies the second level of human needs. The neighborhood environment as the outer space, which is the extension of the private space of each inhabitant of each house, should become a space that has privacy for a group of occupants in the same neighborhood [4]. However, such conditions sometimes cannot be realized thoroughly due to the lack of residential design and the role of the occupants [4]. According to [5], crime is one form of violation of social norms. This violation is determined within the limits of values upheld in a society. Crime is more likely to occur in locations where there are weak guards, there are many easy targets and is close to where the perpetrators live [6]. Jane Jacobs (1969) in [7] discussed the links

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between architecture and crime and raised important points about the "eyes of the street". "Eyes of the street" is defined as the supervision made by the person who occupies an area [7].

Defensible space is a concept that allows the prevention of criminal acts [8]. Newman states its definition as *'a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself'* [4]. Environmental design can be used as an approach for crime prevention and gives proven benefits [9]. However, defensible space can only work well if the social conditions of society are in an optimal state because even if an environment has been architecturally designed, it is still unsafe if the social climate is unwell [10]. Therefore, it can be concluded that the behavior formed from defensible space is influenced by physical and social conditions.

Newman reveals some factors that affect crime in a housing, such as a territoriality, natural surveillance, as well as image and milieu. Territoriality can be defined as a claim of space belonging to a person or group of people in which control and defense have resulted from the occurrence of boundary offenses [4]. It is a social interaction that is actualized in an environment and their efforts to maintain its safety of others interferences [11]. An act may be regarded as an offense if one interferes with the territoriality of another. Meanwhile, natural surveillance can be interpreted as the ability to observe the public space in a residential environment so that everyone who occupies it has the feeling of being under the state of supervision [4]. By creating natural surveillance, the crime rate can be reduced even if the occupant is in or away from home and does not require the use of security devices or the role of security apparatus [4]. Lastly, image and milieu are impressions generated from the physical appearance of the building or the residential environment [4]. A crime can be initiated if the stigma invites destruction [4].

Due to the times and different conditions within the society and territory, this theory cannot be implemented in all conditions of occupancy. Not that defensible space can only be well created in a residential environment for the middle-class, as the lower-class also has the same goals and desires to create a safe and comfortable living environment [4]. This statement from Newman was similar to Lee Rainwater's opinion in the discussion of the Pruitt-Igoe case. According to Rainwater (1973), *'...although lower class people may not adhere in action too many middle-class values about neatness, cleanliness, order, and proper decorum, it is apparent that they are often aware of their deviance, wishing that their world could be a nicer place, physically and socially...'* [4].

The defensible space concept can be unconsciously applied in both types of residential environments in their own way. Ultimately, a particular environmental design will create the behavior of the people who occupy it, and in turn, it will affect the quality of security in the environment. Newman (1972) also thinks that the concept of defensible space becomes not only a middle-class society thinking but also an important thing for lower-class society [4]. This theory was issued in 1972 with the object of observation in the form of residential located in the US which is partly flats and is designed by planners. Meanwhile, current physical and social environment in Indonesia is mostly organic or unplanned, so that there can be some differences in the defensible space formed.

This writing aims to examine and aware of the importance of defensible space concept in the neighborhood, the defensible space formed in the urban housing in Indonesia, the physical character formed, and its effect on human behavior who occupy it.

2. Methods

The case study was conducted in Bogor City, taking samples of two types of housing with different economic levels of society (figure 1a). The first case study was Babakan Residence with an upper to middle-income occupants, while the housing for the second case study was Kampung Pulo Geulis populated with lower-income occupants. Dependent variables include both residential types within the same city, the coverage area of physical analysis is not much different (about 16,000 m²), and does not have a specific gate to enter residential areas (common people are free to pass). Time variable (morning, noon, and night) is not considered as one of the main variables as the analysis is limited to the general physical characters that apply at all times. The type of criminals that become security parameters

includes taking the property of another person without the owner's permission (theft, robbery, pickpocketing) and destruction of property without the owner's consent (vandalism).

The strategy is to use a qualitative approach in the form of interview and field observation. The Heads of hamlets (Rukun Warga) were interviewed and one resident of each housing was taken as a sample, with an aim to obtain information on occupant backgrounds, social activities among residents, crime occurrences, as well as perceptions about crime. The sampled residents were chosen by considering how well they know their residential surroundings. Field observation is aimed to see the condition and physical situation of the settlement directly to understand the factors of defensible space that formed in both types of occupancy. The observations of both types of settlements were conducted during weekends and weekdays. The analysis method is referred to Newman's defensible space forming factors, namely territoriality, natural surveillance, image, and milieu.

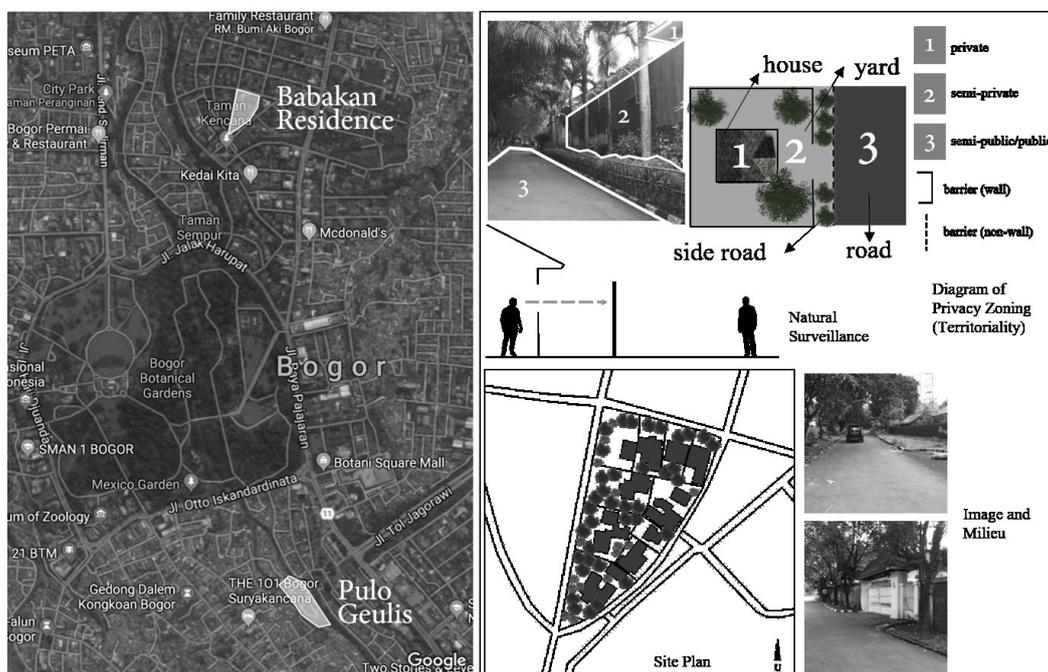


Figure 1. (a) Bogor Map and the location of the areas, (b) Defensible space in Babakan Residence

Source: Google Maps, Muhyi, April 2018

3. Results

The observed Babakan RW 03 Residence has a total area of 280,000 m². The physical environmental observation is limited to a block in RT 01 with an area surface of 16,000 m² and consists of 10 houses. With the spatial density of the area, the vast majority of vacant land is planted with trees, creating a deserted and quiet space. Inside this residence, there are several public function buildings. The residents of the analyzed housing comprised of 249 families with a total of 675 residents. The residents of RW 03 consist of various professions and ethnic backgrounds. They perform communal activities, namely cleaning the residential area together, Qur'an recitation, and hold a helmet (Rukun Warga) meeting once every 3 months. Some of the crimes that have happened the previous year include mugging, theft, and property destruction (broken glass windows and precious items theft). However, criminality is not entirely gone even though they provide security guards by the next year.

Meanwhile, Kampung Pulo Geulis Baranangsiang RW 04 has a total area of about 33,800 m² and is shaped like an island because it is surrounded by the Ciliwung River. The physical observation of the environment is limited to a half of the southern area of 16,000 m² and comprises about 176 houses. With the density of the area, most of the land has been built and a few green open areas create a dense and crowded space. Pulo Geulis is inhabited by 681 families with a total of 2,640 residents. RW 04 residents

consisted of various professions background but mostly are of Sundanese (Bogor) ethnicity who have long lived there. Communal activities of the residents are held three times a week. Based on the exposure of helmet head, during the last 15 years, there has never been any more crime in Kampung Pulo Geulis. Almost all citizens have been socialized and educated to be alert of crime at all time.

3.1. Defensible Space Principles Analysis in Both Housings

There are some similarities and differences of defensible space aspects found in both housing (figure 1b and figure 2).

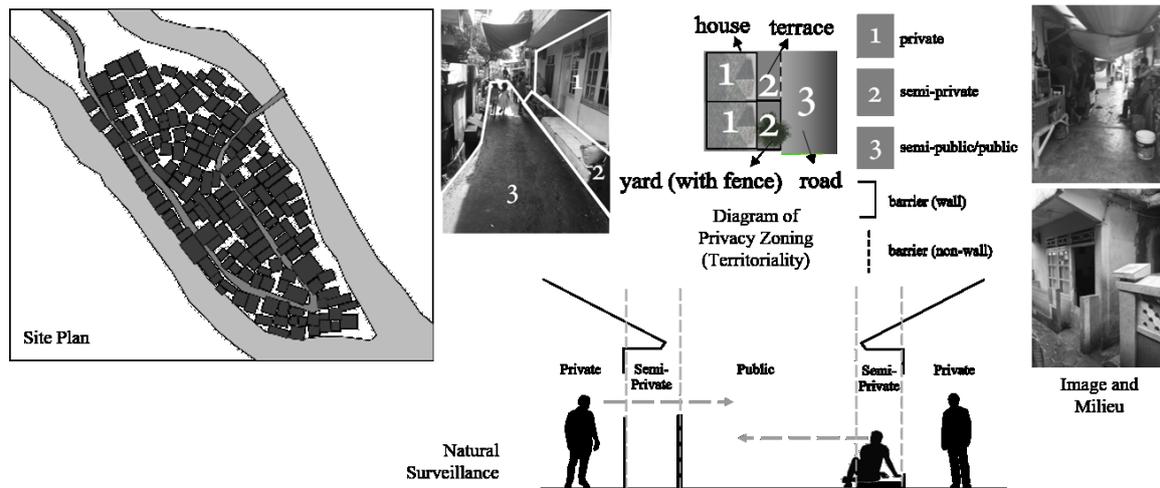


Figure 2. Defensible space in Kampung Pulo Geulis
Source: Muhyi, April 2018

3.1.1. Territoriality. The similarity between both housings is their organic approach, which makes use of the space in accordance with the needs and desires of its inhabitants instead of compositional approach, which gives priority to aesthetical design [4]. Meanwhile, the division of zones between private, semi-private, and public in each occupancy has little difference although both are sufficiently divided. At Kampung Pulo Geulis, the zoning does not limit visual access from the public to private. This is influenced by the social conditions of the *kampung* community who mostly have small houses with preference to outdoor activities and socialize with neighbors. As a result, the streets become communal space between the extension of the activity space of the inhabitants of the house as well as public access roads. Based on Newman statement (1972) in [4], the privacy zoning in site design must be divided clearly to make people know the prohibited zone which should not be entered.

Furthermore, the design of the streets in the residence does not have much interruption than in the *kampung*. Babakan Residence has no road width or material changes. The streets are just closed by portals that are partially left open and passable to anyone. While in Pulo Geulis, there are considerable changes in the design of the road. The main factor influencing the design of the roads in *kampung* is the geographical condition in the middle of the river, so it is only accessible by small bridges. This is not the case for Babakan Residence that is located in the middle of the city and slightly mixed with the city's public facilities. According to the theory, the interrupted circulation or entrance makes the residential area safer by making the criminal hesitates when entering an area that is different from the outside [4]. The accessibility of the housing also is correlated with the security of its environment [12]. Therefore, fewer people are entering Pulo Geulis compared to Babakan Residence.

For the boundaries aspect, there is a significant difference. At Babakan Residence, the boundaries created is clearly only limited the area of private homes. With high and closed fences and CCTV in some houses, it shows that the houses are very restricted from outsiders. However, the overall boundaries of this residential area itself are not so clearly created as there is no boundary separating the area within

the residence with the outer area surrounding the residence. In contrast, boundaries in Kampung Pulo Geulis restrict the area of the *kampung* to the outside area with the presence of the river as a very clear delineation, while the boundaries on each house are not so clear. Clear boundaries are more able to exclude strangers [4] hence Babakan Residence fails to keep strangers outside, while Pulo Geulis makes strangers think twice before entering it.

3.1.2. Natural surveillance. Natural Surveillance is formed differently because it is influenced by physical factors related to territoriality and the social condition of the occupants to make the residential area is monitored by the people in it [4]. At Kampung Pulo Geulis, natural surveillance is created through open doors and windows and directly facing the road ahead, semi-private and public fusion zones, and unlimited visual access. In addition, the social condition of the *kampung* community tends to enjoy outside activities and intensely interacts with their neighbors. As a result, it creates supervision from residents who are inside or outside the houses.

Meanwhile, natural surveillance in Babakan Residence is inadequate. High and closed fences cause blockage to house's windows so that residents cannot monitor outside space from inside their houses. In addition, the social conditions of middle-class society tend to barely have activities outside their fences and rarely interact with their neighbors. This resulted in relying monitoring only on CCTV and security guards. Occupants play a passive role in supervising the residence area directly.

3.1.3. Image and Milieu. The image and milieu formed in both dwellings are different. Babakan Residence has an image and milieu that is unsupervised. Although the area is security guarded, the atmosphere of a quiet and poorly supervised space somehow offers the opportunity for the perpetrator to commit a crime in the street area. Meanwhile, the image and milieu of Kampung Pulo Geulis are supervised. Physical and social conditions in this *kampung* give the outsiders a feeling of being watched by the occupants. Therefore, the image and milieu created in both housings affect the possibility of a criminal activity, as Newman (1972) stated in [4].

4. Discussion

4.1. The Reconstruction of Defensible Space Principles

Several things are conflicted with the theory of defensible space. For instance, the theory mentioned that the provision of social facilities becomes one of the efforts to provide communal space for residents and increase the sense of community [4]. The fact is that the inhabitants of Kampung Pulo Geulis eventually perform these activities in the front area of their houses so that almost the entire streets become communal space where social activities are conducted. On the other hand, in Babakan Residence, the inhabitants do not need much activity outside as most of the residents have spacious, comfortable houses, and there are adequate facilities (e.g. children's playroom, relaxation room, etc.). Therefore, it can be concluded that social facilities are not required to be owned by any housing because social activities can be done in the public spaces created by the inhabitants themselves within their house.

Secondly, in the theory, the less number of occupants occupying a residential area the better [4]. Conversely, the increasing number of people who occupy a residential area makes it difficult for residents to separate their neighbors from the strangers that they should be aware of. This is in contrast to what actually happens, that Babakan Residence inhabited by fewer people is more vulnerable to crime than the *kampung* occupied by more people. This is because, in a *kampung*, the occupants interact more intensely with their neighbors compared to Babakan Residence where its inhabitants rarely know each other. Thirdly, Newman (1972) stated in [4] that natural surveillance is better formed in an environment that has a clear and orderly space layout rather than irregular and random space layout. In fact, Babakan Residence with orderly spatial arrangements (grid-shaped streets, well-built houses) is poorly supervised because the windows are blocked by fences that limit the visual access of occupants to oversee external circumstances and the occupants' tendency to stay inside their home. Meanwhile, *kampung* has irregularly 'branched' streets and the houses built randomly so there are many sharp turns and hidden

corners. However, the whole area is still well supervised due to the intense outdoor activities and open doors and windows.

4.2. *Defensible Space Formed in Both Housing*

Natural surveillance may cause a contradiction between territoriality physical condition and the goal in the theory of defensible space. This is because natural surveillance is not only resulted from territoriality design but also influenced by the social condition of society itself. Contrarily, some physical properties of housing that should make the environment safe has failed due to social conditions of residents who rarely supervise the outside space. This suggests that physical characteristics do not have to be entirely in line with the characteristics that made up the principle of defensible space theory since defensible space can be formed as a whole.

In the lower-class housing, defensible space is formed as a whole. This causes highly-reduced crime rate in this housing and the area is well supervised. Contrarily, the defensible space in middle-class housing is not formed as a whole. Physical conditions and social conditions cause insufficient natural surveillance and therefore unsupervised.

5. Conclusions

Defensible space is the physical condition of a sheltered environment. In a housing, security becomes one of the important requirement for occupants, so it needs an environmental condition that gives a sense of security for its inhabitants. Based on case studies, some physical characteristics of defensible space in two housing in Bogor City is in line with the principle, and yet there are some which are not supporting the theory of defensible space. This is influenced by the social conditions of the occupants who occupy the housing itself. In Kampung Pulo Geulis, while some of the territoriality aspects are not intact, the natural surveillance remains well-formed as it is influenced by social conditions, that in turn sufficiently supervises the image and milieu. In contrast, although some of its physical characteristics are in accordance with good territorial principles in Babakan Residence, natural surveillance is still poorly established due to social factors of its inhabitants. This resulted in unsupervised image and milieu.

Defensible space is formed from the unity of physical characteristics in a certain environment which then forms the human behavior of its inhabitants. On one hand, the behavior formed in Babakan Residence causes difficulty to the occupant to monitor the circumstances around and still open the chance for the perpetrator to commit the crime as the defensible space is not created as a whole. On the other hand, the behavior formed in Kampung Pulo Geulis drives the inhabitants to supervise the circumstances around at all time and anyone who enters the neighborhood is visible to the inhabitants, so the crime is barely committed in this *kampung* area.

6. References

- [1] Payne, Geoffrey K 1977 *Urban Housing in the Third World* (London: Leonard Hill) 46
- [2] *UU-01-2011 Perumahan dan Kawasan Pemukiman*
- [3] Maslow, A. H 1943 *A Theory of Human Motivation* 377. Retrieved from: <https://psychclassics.yorku.ca/Maslow/motivation.htm#r13>
- [4] Newman, Oscar 1972 *Defensible Space* (New York: Macmillan) 3-108
- [5] Sudjono 1974 *Kriminologi: Ruang Lingkup dan Cara Penelitian* (Bandung: TARSITO)
- [6] Betchel, R. and Arza Churchman 2002 *Handbook of Environmental Psychology* (New York: John Wiley and Sons) 420-421
- [7] Jacobs, Jane 1961 *The Death and Life of Great American Cities* (New York: Random House) 85
- [8] Newman, Oscar 1996 *Creating Defensible Space* (Washington, DC: U.S. Department of Housing and Urban Development Office of Policy Development and Research) 9
- [9] Irving, Charlotte 2015 *Crime Prevention Through Environmental Design: Application to Christchurch* (Lincoln: Lincoln Planning Review) 7 46 Retrieved from: <https://journals.lincoln.ac.nz/index.php/LPR/issue/view/78>

- [10] Elffers, H. & Danielle Reynald 2009 *The Future of Newman's Defensible Theory* (London: European Society of Criminology and SAGE Publications) 31 Retrieved from: https://www.researchgate.net/publication/249752224_The_Future_of_Newman%27s_Defensible_Space_Theory
- [11] Faqih, M. Santosa, H. R. & Zubaidi, Fuad 2013 *Territoriality in the Traditional Context, Psychology and Behavioural Sciences* (New York: Science Publishing Group) 2 89 Retrieved from: <http://www.sciencepublishinggroup.com/j/pbs>
- [12] Hidayati, Z. & Noviana, Mafazah 2013 *Korelasi Akses Perumahan Dan Kriminalitas di Perumahan Kota Samarinda* 1 55 (Samarinda: Jurnal Kreatif Desain Produk Industri dan Arsitektur) Retrieved from: <http://e-journal.polnes.ac.id/index.php/kreatif/article/view/71>