

Psycho-Social Influences on Physical Spatial Transformation in Bintaro Jaya Housing, South Tangerang

Ratna Safitri, and Rahma Purisari

Abstract – The increasing growth of urban housing gives people varieties residential options which can accommodate the physical needs and social life of its inhabitants. The house contains not only a physical object, but also a process that continues to evolve and is related to social life.

Housing developments lead to significant physical changes. As Bintaro Jaya urban housing has developed for more than three decades, its physical spatial transformations occur in various types of housing based on the inhabitants' segment.

This study identifies factors that cause physical spatial transformations in two types of houses. We analyze the changes in the physical formation, such as basic elements' building and building functions. We compare various types of small, medium and large house. Later, we also consider the human spatial condition theory to find the interaction of inhabitants' biological processes, such as lifestyle, behavior, and needs of occupants that will define the typology of housing transformation.

Keywords--Housing, building typology, physical spatial transformation, psycho-social

I. BACKGROUND

HOUSE properties have been developed in Indonesia since developers were begun in 1970's by targeting high – class society. Meanwhile, it gradually expanded its market to middle and low – class societies in 1990's. Bintaro Jaya, the oldest developer in Indonesia, was founded in 1979 and focused in Bintaro, South Tangerang. It has been a house property developer for three decades; hence many physical alterations happened to house layout and area. Thereof, this research would like to identify key factors of spatial and physical transformation that influences social life by analyzing physical transformation, like basic element and building function in the range of 1995 – 2015.

II. METHODOLOGY

This study used qualitative research methods to explain the psycho-social aspects of interaction and the process during physical developments of housing. The research data were collected through the literature study and interviews with PT. Jaya Real Property [3], [4] to obtain the primary data, both physical transformations by drawings and development concept by developer deliberations. Enriching our data, we

have done field observation [5] to discover physical and inhabitants behavioral changing.

III. THEORETICAL DISCUSSION

This study uses two theories, such as typology by Quatremere de Quincy [8] and human spatial behavior [2]. The theory of typology by Quatremere de Quincy [8] used to analyze housing typology in Bintaro Jaya that focused within two periods while the theory of human spatial behavior used to find the psycho social aspects of interactions and biological processes, motivation, lifestyle, behavior and the needs of inhabitants. According to Quincy, typology interpreted slightly different from the model. If generally the model represents an object that can multiply exactly the same as the original object, the type presents less the image of the object before, even more than the type used to find the basic ideas that serve as a rule for a housing model in this study case.

The presence of type is the result of a previously existing tradition and allow for any changes in the formal variation when the development of the design. Therefore the type of design can be modified and developed further, and the type can be said to be "more or less vague".

The emergence of a housing typology must not be separated from the based line of previous design, which is certainly the housing design has undergone some changes either increases or decreases from the initial idea of the housing layout and the housing space requirement. Of course, many factors will underlie the changes that occur in the housing typology. This may be caused by many things such as economic factors, social and cultural in the particular. From the three factors which are specifying variable to physical changes in the housing design, we can analyze the building typologies of existing housing in Bintaro Jaya. We also discuss further using the human spatial behavior theory.

Human spatial behavior [2] is the relationship between physical environments and the humans who use and act in them. The preliminary research on human spatial behavior concentrate on biological, cultural, and environmental factors. The biological perspective sought evidence of psychological stress or aggression as automatic responses to very close individual distance, territorial invasions, or overcrowded conditions. Under certain conditions, people will avoid the use of spatial zones that are occupied by ungoing groups. The cultural perspective indicates that spatial behavior is no more a cultural trait than it is biological instinct, since individuals adjust their personal distances on the basic of new

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contingencies. The environmental perspective views the reciprocal effects of behavior and environments, and complement concern for the physical environment with a concern for the social and psychological factors operating within the setting.

IV. ANALYSIS

This research analyze the case studies of several housing cluster in Bintaro Jaya that divided into three segments based on the categories of building area and the period of development. These three segments are small type with building area of 36-60 square meters, the middle type with building area 60-120 square meters, and the large type with building area 120-400 square meters [3]. These categories are based on the user segments of Bintaro Jaya consumers. The discussion also categorized by the housing development in two periods (TABLE I). The first period started at before 1995 while the second period is between 1995 - 2015. The case studies before 1995 represented by Permata Bintaro (small type), Kucica (middle type), and Graha Taman (large type). Whereas the period 1995 - 2015 represented by Bintaro Plaza Residences (small type), Discovery (middle type), and Kebayoran (large type).

TABLE I
HOUSING CATEGORIES

Period	Small	Middle	Large
Before 1995	Permata Bintaro	Kucica	Graha Taman
1995-2015	Bintaro Plaza Residences	Discovery	Kebayoran

A. Small Type

In the beginning of 1990s, the small type house is represented by Permata Bintaro cluster, located in Bintaro Jaya Sector 7. The range of building area is between 36 to 60 square meters and the range of a house land area is 72 to 90 square meters. We have found typical room of Permata Bintaro from the floor plan (Fig. 1) which consists of two bedrooms, one bathroom, drawing room integrated with dining room, kitchen, terrace, and carport. This small type is provided for the small family consisting of two to four family members [4].

Meanwhile on different period (1995 - 2015) in the same category is represented by Bintaro Plaza Residences Apartment [1]. It has three types of apartment units, that are studio type, one bedroom type, and two bedrooms type. The two bedrooms is taken as a case study because it has a similarity of building area with Permata Bintaro housing (36 square meters) although the Bintaro Plaza Residences has various of area unit (between 28 to 36 square meters). Hence, these units in the apartment are classified as small type which has two bedrooms, living room integrated with kitchen and dining room, one bathroom and balcony. This apartment accommodates parking area for its residents on parking floor.



Fig. 1 Permata Bintaro Housing
Source: <http://jayaproperty.com/>



Fig. 2 Apartemen Bintaro Plaza Residences
Source: <http://jayaproperty.com/>

Comparing two study cases of small type house (TABLE II), we found the similarities and differences of the building. Both Permata Bintaro and Bintaro Plaza Residences have similar building area (36 square meters). The differences shown by arrangement of their lay out of each units. The bedrooms of apartment unit is adjacent to each other, but two bedrooms at Permata Bintaro divided by a bathroom. The kitchen at Permata Bintaro placed on outside of the building, while the kitchen at the apartment integrated with the dining room. The parking area (carport) at Permata Bintaro placed on front yard of building, while parking area at Bintaro Plaza Residences separated with the apartment unit. The parking ratio for the apartment is 1:5 (1 parking area:5 units apartment). Permata Bintaro built on 72 square meters land area that means the owners are very likely to do some building expansion in the front yard and back yard. Meanwhile, the inhabitants of Bintaro Plaza Residences can not expand their building area because of their limited unit area.

TABLE II
THE ROOM'S CHECK LIST OF SMALL TYPE

Room's Type	Permata Bintaro (36 sqm/72 sqm)	Bintaro Plaza Residences (36 sqm/36 sqm)
Bedroom (2)	✓	✓
Living/Drawing Room	✓	✓
Dining Room	✓	✓
Kitchen	✓	✓
Bathroom	✓	✓
Terrace	✓	✓
Carport/parking	✓	✓

Therefore, the two case studies of small type have the same typology because they are continues with the previous tradition such as room's type with the changes of layout arrangements.

The typology changes of small type housing of Bintaro Jaya influenced by biologic factor that shown by concept of nuclear family (maximum consist of four family member). Moreover, the environmental factors also affect these changes, such as changes in land area and the increasingly price of land. With limited land area and the transformation of landed housing to vertical housing, a new style of living will arise that is enclosed inhabitants concept. With this concept, the frequently activities of occupants take place in the dwelling and less socializing with neighbours. Therefore, these changes influence the composition of the space and the psychological and spatial behavior of its inhabitants.

B. Middle Type

In the beginning of 1990s, the middle type of housing is represented by Kucica Housing, located on Sector 9, Bintaro Jaya. The building area is 161 square meters and built in 180 square meters of land area. We have found typical room of Kucica housing from the floor plan (Fig. 3) which consists of three bedrooms plus one maid's bedroom, two bathrooms plus one maid bathroom, drawing room integrated with the dining room, kitchen, front terrace, back terrace, void, and carport for two cars capacity. This middle type is provided for the middle family consisting of four to six family members [4].

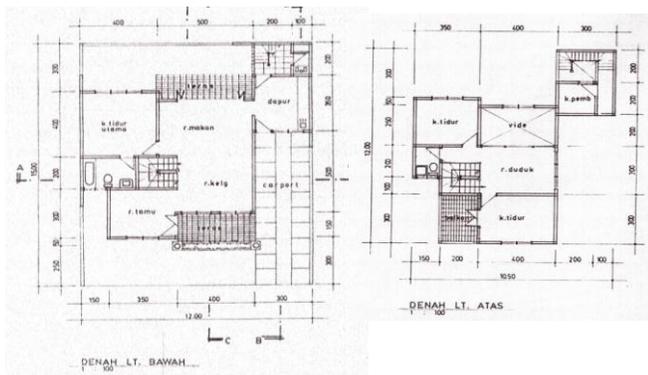


Fig. 3 Kucica Housing
Source: Respondent (Indira, 2015)

Meanwhile on different period (1995 – 2015) in the same category is represented by Discovery housing [6] with the 161 square meters of building area built in 135 square meters of land area. The Fig. 4 shows that the lay out arrangement of Discovery has four bedrooms plus one maid bedroom, three bathrooms and plus one maid bathroom, drawing room located on the front terrace, dining room integrated with living room, one kitchen, and carport for two cars capacity.



Fig. 4 Discovery Housing
Source: <http://jayaproperty.com/>

Comparing two study cases of middle type house (TABLE III) we found the similarities and differences of the building. They have the same room's type. While the differences found in the land area. The middle tiple of Kucica housing built in 180 square meters land area with 161 square meters building area, while the Discovery housing built in 137 square meters land area with 135 square meters building area. With the change of the dimension of the land area, developers tend to maximize the size of the building on the limited land by utilizing the maximum allowable building coverage [3].

The functions of the existing space both Kucica and Discovery housing are similar. However there are some changes in the arrangement adapted to the limited land area and also contemporary lifestyle of urban society today. It is indicated by the design of living room that allows receiving guests in considerable numbers. Meanwhile the living room of Discovery housing placed on the terrace of the house with a smaller capacity. This is due to the trend in urban societies today which more likely use public facilities for a place to meet up with relatives.

Changes in the arrangements of other space are found in the void in the middle of the building. According to Fig. 4, the Kucica housing is designed to have a void in the middle of the house that allow a more open relationship between each floor and give the impression of height and luxurious. However, the Discovery housing no longer has a void, but the upper floor space is maximized with the addition of three rooms, and for this reason the number of bedrooms at Discovery housing more than Kucica housing.

The two case studies of middle type housing can be seen in TABLE III. The checklist table shows that type of room is almost meets all the criteria of similarity of function space

offered by the developer. It indicates that the typology of early middle type is used to create new design of middle housing in the next period.

TABLE III
THE ROOM’S CHECK LIST OF MIDDLE TYPE

Room’s Type	Kucica (161 sqm/180 sqm)	Discovery (137 sqm/135 sqm)
Bedroom (3+1)	✓	✓
Living Room (2)	✓	✓
Drawing Room (1)	✓	✓
Dining Room (1)	✓	✓
Kitchen (1)	✓	✓
Bathroom (2+1)	✓	✓
Inner Bathroom (1)	✓	✓
Terrace	✓	✓
Carport/parking (2)	✓	✓

The changes of the middle type case studies shows that biological factors influence the proximity of individuals, including have the privacy, have the distance, as well as the overcrowded atmosphere. With the number of family members between four to six people, there are various possibilities for the arrangement of the space offered. For example the arrangement of the master bedroom on the second floor intended to enhance the user’s privacy. Utilization of the building area and the effective arrangement of space are presented as the solution of cultural factors inherent in society. As shown in Discovery housing, the use of the area under the stairs as a toilet. Furthermore, patio functioned as a living room and a family room located on the top floor. Therefore, the new design presents an adaptation of human life style.

C. Large Type

In the beginning of 1990s, the large housing types are represented by Graha Taman with the concept of traditional Balinese, located in Sector 9, Bintaro Jaya. In this case study, the building area is 283 square meters built in 387 square meters of land area. The Fig. 5 shows the arrangements of space which consists of four bedrooms plus two maid’s bedroom, three bathrooms plus two maid’s bathrooms, foyer connected to drawing room, a living room integrated with dining room, kitchen, pantry, front and back terraces, a garage for two cars, and carport for two cars. This design is intended for large family that consist of more than six family members [4].

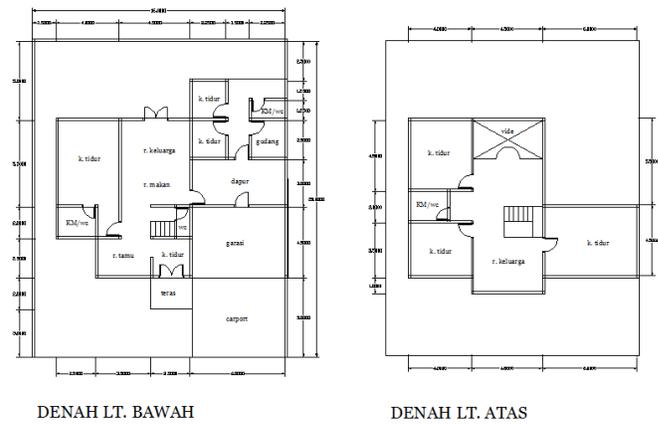


Fig. 5 Graha Taman Housing

Meanwhile on different period (1995 – 2015) in the same category is represented by the premium cluster of Kebayoran housing [7] with 255 square meters of building area built in 282 square meters of land area. Fig. 6 shows the arrangements of space which consists of five bedrooms plus one maid’s bedroom, three bathrooms plus one maid’s bathroom, living room, one kitchen, front and back terraces, three balconies and a garage for two cars and carport for two cars.



Fig. 6 Kebayoran Housing
Source: <http://jayaproperty.com/>

Comparing two study cases of large type house we found the similarities and differences of the building. The similarity is showed by the building area is about 200 square meters, almost the same amount of space that adjusted for the members of a large family with additional service area. While the difference shows from the land area and the space arrangement. The arrangement of space in Graha Taman divided into two floors and connected by a staircase. While at Kebayoran housing use a split-level, therefore actually looks like four levels in order to make effective use of land. This concept prevail considering the land area in Kebayoran smaller than the Graha Taman but with a building area which is almost the same. With a similar number of function space, the presence of voids in the middle type in Graha Taman which allow a more open relationship between the floor and

give the impression of height and luxurious. Such design not found in Kebayoran housing.

The floor plans (Fig. 5 and Fig 6) show that there are several changes in the form adapted to the limited space of land and also the lifestyle trends of contemporary urban society today. It is indicated by the early design (Graha Taman housing) of living room that specifically allows to receiving guests in considerable numbers. While the living room in Kebayoran housing is placed on the open terrace in front area of the house. Another case is kitchen area in Graha Taman which divided into two spaces for pantry and kitchen, while the Kebayoran housing has a simple one kitchen.

TABLE IV
THE ROOM'S CHECK LIST OF LARGE TYPE

Room's Type	Graha Taman (220 sqm/378 sqm)	Kebayoran (255 sqm/282 sqm)
Master Bedroom (1)	✓	✓
Bedroom (3+2)/(4+1)	✓	✓
Living Room (2)	✓	✓
Drawing Room (1)	✓	✓
Dining Room (1)	✓	✓
Kitchen (2)/(1)	✓	✓
Bathroom (2+1)	✓	✓
Inner Bathroom (1)	✓	✓
Terrace	✓	✓
Foyer	✓	-
Carport/parking (4 cars)	✓	✓

The two case studies of large type housing can be seen in TABLE IV. The checklist table shows that type of room is almost meets all the criteria of similarity of function space offered by the developer. It indicates that the typology of early large type is used to create new design of large housing in the next period.

The changes of the large type case studies shows that the biological factors, culture, and the environment is very influential in the resulting design. Type of housing segments are no longer intended for inhabitants of low economic level, middle, or high, but accommodated by the various trends that occur. For example are increasing the level of privacy, gender, social class, the ownership more vehicles and furnitures, new hobbies, as well as various standards of living. On biological factors, the house is not only accommodate the level of user privacy, but also associated with cultural factors. The house not only serves as shelter but also as a semi-public area where inhabitants can meet with relatives or associates. This condition is related to the trend in urban society nowadays in which people more often meet or gather. Environmental factors also arise in the presence of significant changes in the land use that is more effective by using the concept of split level. This factor is also related to biological factors of space users, that is the age level. The level of the inhabitants's age is also highly considered in the design of large housing types. Split level is the solution how space elderly users can continue to use and enjoy their dwelling comfortably and in accordance with the activity they are doing. Furthermore, the use of split

level is very useful to facilitate communication between inhabitants in different level as the function of void.

V. RESULTS

Typology eventually became the method used directly by developers in order to make the housing design. In considering the changes that occur in a physical building, the developer gave detail attention to some factors, such as economic, social, and cultural in the context of society. The various trends that occur also be accommodate, for example, the changing of the nuclear family concept (reduced number of family members), increasing the level of privacy, gender, social class, as well as a wide range of living standards [11]. High economic growth is also able to create social mobility that trigger community groups to have the ability to improve the quality of life standards. Those can be seen with the desire to have more vehicles and furniture, new hobbies, as well as having more housing property for investment. These things were ultimately used by architects (in this case is the developer) to make a wide range of possible options offered to the consumer.

We have observed the changes that occur from the process strongly linked to the relationship between the physical environment and humans as the users. As human spatial behavior mentioned that biological, cultural, and physical environment affect the transformation of the physical form [8]. Biological factors indicated by the presence of economic levels and the concept of the nuclear family. There were the tendency of individuals want to have privacy, have the distance, as well as overcrowded situation. Cultural factors indicated by the changing trends and standards of life, social class, as well as a variety of living standard. Those have become essential, because basically humans continue to adjust to a new living style. On the other hand, the environment factor looked at the effects of environmental reciprocal interaction between human behavior and environment. The transformation concern is more to the physical environment, social factors and psychological serve as the rule to achieve housing typology.

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