STUDY ON URBAN RESIDUAL SPACE AS SOLUTIONS REVIEW FOR AREA PROBLEMS

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Abstract
In cities, spaces were intentionally formed, planned, or unintentionally unplanned. Unlike planned spaces, unplanned spaces in urban areas eventually tend to cause problems for the area. These spaces were referred to as residual spaces, which were generally vacant land or open space in various urban spaces. Urban residual space was also commonly found in tertiary activity centers in big cities like Jakarta, one of which was in the trade and service area of the city. Residual space in such areas grew and developed due to dense activity within the area, resulting building density, irregularity in some spatial use and environmental degradation. Due such conditions, several questions are significant to be raised. What are the typology, utilization, and its impacts on the area? Did it only cause a problem, or could it be a solution to problems within the area? This study aimed to examine the typology of residual space based on the shape, location, utilization, and impact of trade and service activities in South Jakarta, Kebayoran Lama area. The proposed approach used was a qualitative study of the residual spaces in predetermined trade and commercial areas. The study results of the physical, spatial, visual, and social conditions of urban residual space were explained descriptively to get a picture of the characteristics of the form, location, utilization, and impact on the area.

INTRODUCTION

The city is a settlement with a relatively large population, limited area, generally non-agrarian, relatively high density. A group of people in a certain number settled together in a specific geographical area tend to have a pattern of rational, economic, and individuality relations. Space is a place includes land, ocean, and air as a unitary territory, where human being and living things live, perform activities and work for one's living [1].

Cities are the final product of people daily activities of the people who inhabit them. Various types and shapes of spaces and places are formed from the purpose of particular objectives by the community to meet their needs. The developer provides various forms of open space for its inhabitants as a condition of proper settlements and the fulfilments of the needs for socialization [2]. Zones of public and private in a city depend on the dividing boundaries. Boundaries establishment shows a limiting and protecting acts. It defines what will be shown and what is not. It is human nature to control boundaries, as stated by Utami [3]. Spaces in urban areas are formed intentionally, both planned and unplanned spaces. Unlike planned spaces, unplanned spaces in urban areas ultimately tend to cause new problems for the area. Ayudya and Heryanto [4] show that these unplanned spaces in urban areas are lost space, left over space, or residual space, usually plots of land or vacant lots from planning and development that cannot be utilized optimally.

Urban residual space is a lost space formed between the structure of the natural environment and the built environment [5][6]. The connotation of such space in urban areas is an open space unutilized by the community and generally found in most cities. They are usually found in corners and sides of the road, riverbanks, beachfront, both sides of the railroad, under the flyover, and between buildings in urban settlements [4]. These various types of urban residual space show in Figure 1.

The existence and phenomenon of the use of residual space by the urban community have become the interest of researchers to study. They examine the understanding of residual space [5, 6, 7, 8, 9]. Residual space's nature and function manage residual spaces that need to be discussed in the planning and design process, affecting the environment related to criminal resources [10, 11, 12, 13]. The community uses residual space's utilization, road median residual space utilization, residual space under elevated bridges, and the possibility of an alternative residual space or space that presents criminal activities in urban areas [13, 14, 15, 16].

In addition to the urban residential areas, the urban residual space is also commonly found in tertiary activity centers in large cities like Jakarta, such as the trade and service area. According to Jakarta Capital Special Region Province on Regional Regulation No. 1 of 2014, concerning Spatial Planning and Zoning Regulations, the activity center area is an area that is directed to concentrate various mixed and specific activities. Therefore, according to the hierarchy, this place has a strategic function in attracting various government, social, economic, cultural, and urban service activities. Thus, according to physical, spatial, visual, and social observations, the Kebayoran Lama area is carried out to identify the urban residual space based on its shape, location, utilization, and impacts on the area.

This study aims to obtain the distribution, typology, and community use of urban residual space in an urban trade and services area. Furthermore, it is getting just about residual urban space, causing problems or solving the area's problems. The hierarchy consists of primary activity center areas, secondary activity center areas, and tertiary activity center areas.

Residual spaces in the tertiary activity center area of the city grow and develop due to dense activity within the area, which in turn result in building density, irregularity and environmental degradation in some spatial use. For example, open space utilization, which users think has not been maximally utilized to support their daily activities, especially economic activities, causes overlapping activities. Residual spaces in the tertiary activity center area (Figure 2) are commonly found in areas with trade and service functions; such as on the sides and ends of roads, under bridges, and between buildings built with planning but experiencing a shift in function dense activity in the area.

Based on its understanding, residual space is a leftover space that has not been utilized but eventually is informally utilized by users of the area. These residual spaces are functionally and socially not initially used to review the shape, dimensions, and location unused for buildings. However, due to the dense activity, various factors affect the use of residual space due to its location, activities variation, and the backgrounds of the users. However, due to its unplanned nature, the utilization of urban residual space within the area tends to create new problems for the region.

Therefore, the formulation of the problem was raised from several issues found from the background.

Figure 1. Various Types of Urban Residual Space

Figure 2. Various Urban Residual Space in Tertiary Activity Center Area

This research will further examine the typology of residual space based on its shape, how the users of the area utilize it, and the impacts arising for the area from the utilization.

Furthermore, it is also be examined whether the utilization of urban residual space creates new problems for the area or can solve the existing problems.

Some of the research results related to the role of residual space for social activities can be reviewed from several previous researches. Research on *The Identification and Utilization of Residual Space in Urban Marginal Settlements* by Ayudya and Heryanto [4] identifies various forms. It uses residual space in urban fishing settlements in the fishing village of Kamal Muara, Jakarta.

The multifunctional space is related to slums with activity patterns, a case study of Sangkrah Village in Surakarta by Shobirin et al. [14]. This study examines the community's activities on utilizing the open space of the environment around their homes for cultivation.

Research conducted by Winterbottom, Danel [15], *Residual Space Re-evaluated,* examines that residual spaces in several American cities are road medians. Open spaces are land boundaries used by the community as a park or garden for planting ornamental plants or vegetables. In addition to the road median, the remaining space is from other parts of the road, crossroad land, roadside land, and other parts of the road. Therefore, according to him, the side space around the road can be planned and utilized correctly.

Shukla and Dipti [12], in his research, *Reconsidering Residual Space 'A Boon or Bane for the city?'*, explains that residual space is formed by the placement of buildings and city elements. According to him, residual space contained space on the side of the railroad track, under the bridge, the pedestrian path, the side of the building, the harbour with many problems: criminal problems, dirty, landfills, unhealthy, and others. Nevertheless, the residual spaces of the city are used by many people for economic activities.

There is a study conducted by Azhar et al. [11], *Re-thinking the role of Urban In-between Spaces.* It is about the impact of the development of cities that provide residual spaces. These spaces are spaces between buildings. It examines the problems that arise in the existing residual space and tries to answer them with an ecologically sustainable program-based approach.

In his research, Qamaruz-Zaman et al. [16], *Opportunity in Leftover Spaces: Activities Under the Flyovers of Kuala Lumpur.* It explained that although the urban living space in Kuala Lumpur was designed, many resulted in the remaining united spaces planned. One of them is the remaining space under the overpass. In general, the remaining space gives problems to the activities of the surrounding community. Therefore, researchers in their study try that the remaining spaces can be used for city activities.

METHOD
Site of Study

The research was conducted in a trade and service area of South Jakarta, namely the Kebayoran Lama, shows in Figure 3. Kebayoran Lama District is one of the sub-districts in the South Jakarta City Administration area.
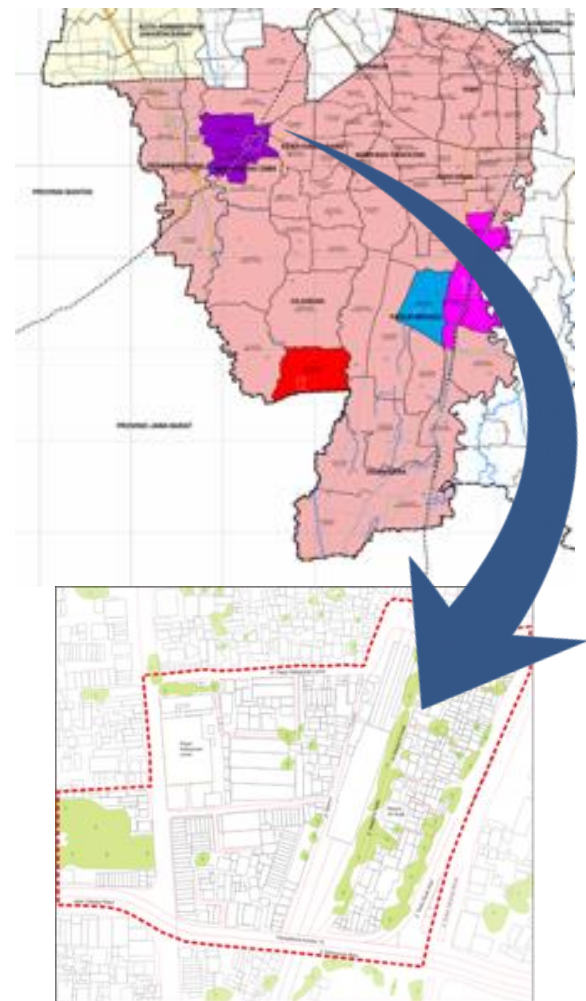

Figure 3. Site of Study: Kebayoran Lama Area

Based on the Decree of the Governor of Jakarta Special Region Province No. 171/2007, the area of Kebayoran Lama District is 19.30 km2 consisting of 6 villages (K*elurahan*), 77 Citizen Associations (*RW*), and 854 Neighborhood Associations (*RT*).

Geographically, the Kebayoran Lama area (11.36 Ha) locates at 6 ° 14'14.27 " South Latitude and 106 ° 46'54.94" East Longitude. This study's area is in parts of Cipulir and Kebayoran Lama Utara sub-districts with an area of 11.36 Ha.

Kebayoran Lama area has a strategic location, with the support of easy access to the achievement of transportation modes in the form of trains, Transjakarta buses, and other public transportation. With the support of activity centers in the form of the Kebayoran Lama Market and Kebayoran Station, the dense activity in the area has many potential and problems. Kebayoran Lama area also has several problems because of its position as the city's tertiary activities center. All the potentials and problems in the Kebayoran Lama area are the factors causing the emergence of urban residual spaces within the area.

Methods

The method uses in this research combination of qualitative and quantitative studies, shows in Figure 4. The study population is the area user that has been determined. Field observations were carried out to identify residual space based on typology, shape, dimensions, and utilization. The research sample was taken accidentally with area users who used residual space. Several questions are disseminated in the residual spaces to the community as respondents to assess their activities and behavior.

The conditions of the Covid-19 pandemic occurring in cities worldwide currently impact almost all aspects of life. This condition directly affects the implementation of this research. Significantly, the impact of a pandemic greatly affects surveys and research observations due to the area's status, which is the center of the city's tertiary activities. The site was temporarily closed to reduce the crowds from the community gathering. However, when the area's activities gradually return to normal, the observation can be done by adopting new habits and implementing health protocols. This condition makes data collection activities have to undergo a few adjustments. Therefore, most data collection methods, such as research samples and questionnaires, were conducted virtually through an online scheme. The research sample is people who have visited the study location. Questionnaires were distributed using online media, namely Google Form, in the designated study location.

A literature study was conducted to obtain residual space theory in urban areas, delineated as the research variables. The variables to be tested include location, time of use, type of utilization (main and additional), and the impact on the area. In addition, visual observations were carried out to obtain data on the physical condition, shape, and variety of uses of the urban residual space and their impact on the area.

Also, a literature study was conducted to obtain data on residual space theory in urban trade and service areas. Physical variables obtained from direct field observation include the distribution, shape, dimensions, users, activity/utilization of urban residual space, and utilization. Social variables, namely characteristics of utilization, are obtained from interviews with area users and residual space users based on age, gender, education, and occupation. Furthermore, other social variables that correspond to users were spatial utilization, means of use (shape, dimensions, material), occupation of urban residual space based on time, and reasons for use. Visual observations were made at the study site to obtain data on the physical condition and the shape and atmosphere of space life in the residual space.

The quantitative and qualitative study results describe typological characteristics, shape, dimensions, location of residual space, utilization, and the consequences of their use. In addition, the results of observing the visual condition of residual spaces in the area are explained descriptively. Finally, frequency tables explain the physical characteristics, time, activities, and behavior of the people who use them.
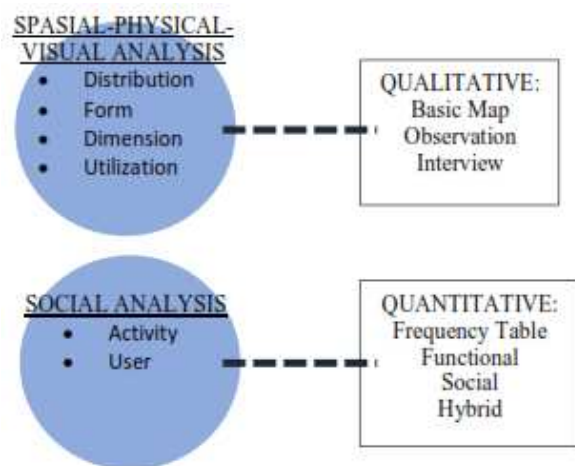

Figure 4. Research Framework Analysis

RESULTS AND DISCUSSION
Demography

Respondents in this study were users and visitors in the designated study locations. However, due to the pandemic condition in the middle of the research compilation period, the respondents had visited and had activities at the study location by filling out a questionnaire distributed through Google Form. The total respondents as a research sample were 50 people; 29 were men, and the remaining 21 were women. Thus, 42 respondents were 18-25 years old in terms of age, five respondents were in the age of 26-35 years, and three of respondents were in the age of 36-45 years.

There are no respondents who are more than 45 years old. The questionnaire's distribution focuses on respondents of productive age, namely students and workers who are still often active in urban trade and service areas. The gender and age graphics of area visitors show in Figure 5.

Meanwhile, most respondents were students as many as 36 people, four respondents were lecturers, one respondent was an architect, and 9 were private employees. Figure 6 shows the graphic of area visitors' occupation and study background. Thus, the data concludes that the respondents of productive age who frequently visit the city tertiary activity centers, especially in the urban trade and service areas, are students.
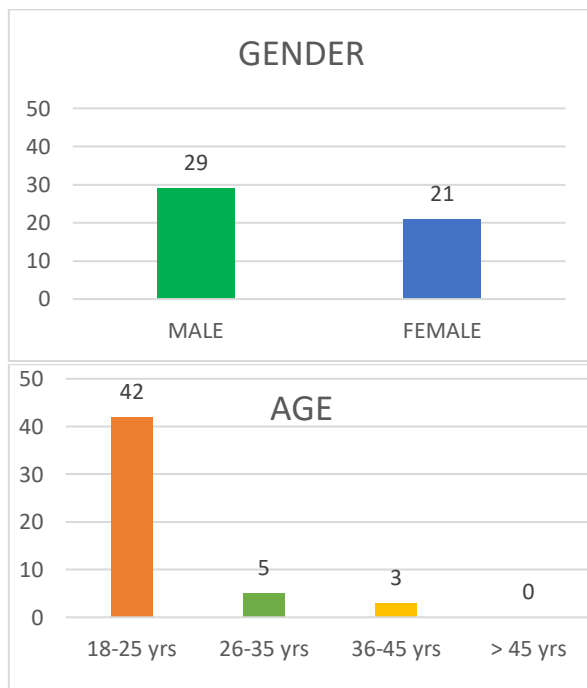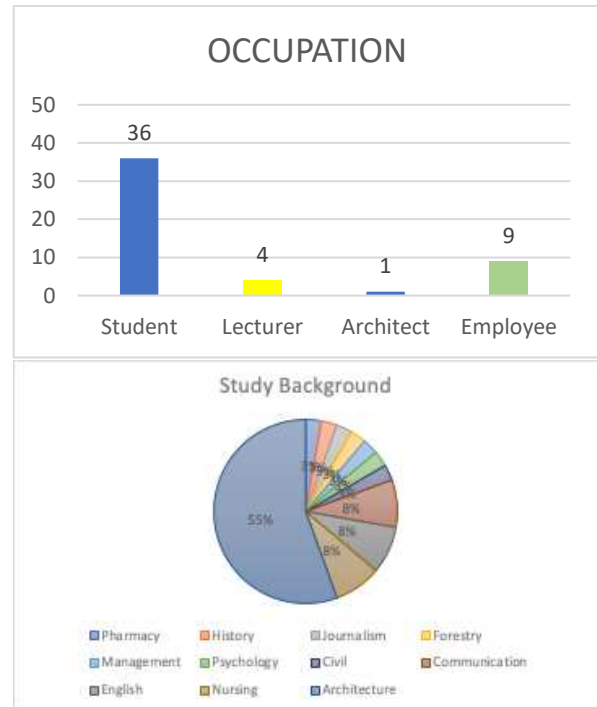

Figure 6. Occupation and Study Background of Area Visitors

The majority of 36 respondents who are students come from various backgrounds of study programs. There is only one respondent with a Pharmacy, History, Journalism, Forestry, Management, Psychology, and Civil Engineering background. Each of the three respondents from the study programs of Communication Science, English Literature, Nursing, and 20 respondents from the Department of Architecture. Most respondents are architecture students as they are the main target of this research sample. Architecture students are considered to have more perceptions and understand studies about urban areas, especially residual space. However, students with other study program backgrounds are not limited to giving their opinions. The students who were respondents in this study were taking different semesters. One respondent is a semester 1-2 student, 27 respondents are taking semester 3-4, two respondents are semester 5-6 students, and only one respondent is a semester 7-8 student. Of all the students who filled out the questionnaire, most were in their second year of study or semesters 3-4.

As an urban tertiary activity center in the form of a trade and service area with a strategic location, people come and do activities in this area. In contrast to tourist areas, which are visited once, urban trade and service areas have their charm that invites the urban community to come, as was the respondents' opinion repeatedly. Twelve respondents visited this area only once,

Figure 5. Gender and Age of Area Visitors

and the remaining 35 had previously visited this area for activities, although three respondents said they just passed through this area. There are several centers of activity in the area in the form of markets and stations. Besides, this area is accessible by almost all types of transportation modes in Jakarta. Therefore, respondents have quite varied reasons when visiting this area. For example, 15 people came to this area to do activities at the Kebayoran Lama Market. In addition, 20 respondents go to or come from Kebayoran Lama Station. Furthermore, ten respondents walk off to the flea market, and five people are doing culinary activities. The area visitors' period of visit and reason for the visit is illustrated in Figure 7.
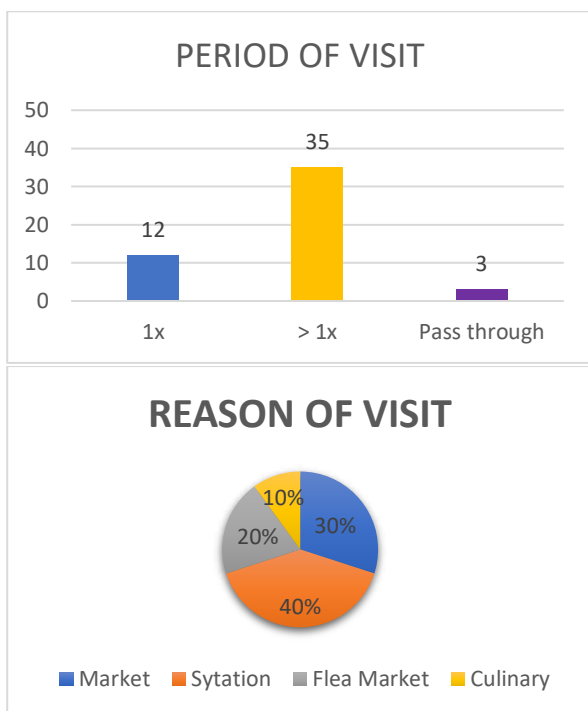

Figure 7. Period and Reason of Visit to the Area

Potentials and Problems

The Special Region of Jakarta Province is the center of government and the capital city of Indonesia. Besides, It is also the main gateway for foreign tourists, a center for trade, services, and industry at various national, regional, and even international levels. The many roles that the Special Region of Jakarta causes the economic turnover to be high and ultimately become an attraction for commuters to urbanize.

For the City of South Jakarta, the Kebayoran Lama area serves as the center of activity (stipulated as the center for tertiary activities Article 146 Local Regulation 1/2012), supporting the activity center in the Kebayoran Lama Market and the Kebayoran Station.

Kebayoran Lama Station is one of the busiest stations in Jakarta, as a transit station for residents around Jakarta and its proximity to Pasar Kebayoran Lama. Adjacent to this station, Pasar Kebayoran Lama and Pasar Bata Putih are owned and managed by PD. Pasar Jaya. Pasar Kebayoran Lama is also one of Jakarta's busiest markets. Apart from the market, there is the corridor 13 busway stop. There are also many commercial areas around the station, such as Gandaria City Mall, ITC Cipulir, Mayestik Market, ITC Permata Hijau, and luxury apartments such as Pakubuwono Residence, Pakubuwono Signature, and other luxury apartments. It such conditions make the Kebayoran Lama area becomes a center of market activity that is quite attractive. However, the existence of Kebayoran Lama Market and Kebayoran Station as centers of activity in the area is creating various potentials and problems.

The Kebayoran Lama area has a strategic location, supporting easy access to transportation modes in trains, Transjakarta buses, and other public transportation. However, the Kebayoran Lama area also has several problems due to its position as the center of its tertiary activities.

The Kebayoran Lama area possesses some potentials. This area has two main activity centers; the Kebayoran Lama Market and Kebayoran Station, as the center for tertiary activities. It is an active corridor as access for workers to the city of Jakarta. There is an empty land with the potential for development of 7,916 m2 (Governor's Decree No. 2776/2015). There is Pakubuwono Apartment, as potential demand for area users. In addition, there are Transjakarta services on Corridors 8 and 13. The following Figure 8 is a map of the distribution of potential in the Kebayoran Lama area.

There are several problems in this area, in general, in the form of a decrease in environmental quality, the life of the market building will end in 2022, the invasion of street vendors into public spaces (roads, pedestrians), which eventually causes traffic jams.

Figure 8. Potentials Distribution of Kebayoran Lama Area

Some of the problems in the Kebayoran Lama area are:
• Area degradation (degradation of environmental quality), resulting in low regional competitiveness
• Irregular use of space, not following zoning regulations
• Traffic congestion, due to occupancy of street vendors and online motorcycle taxis on pedestrians and road bodies
• Integration between transportation modes that are not well connected
• Congestion occurs on roads around the area (Jalan Kebayoran Lama, Jalan Kramat). Currently, these roads apply to a one-way road. Street vendors and vehicle parking play a role in narrowing road capacity (reduced levels of road services) with the invasion of roads and pedestrians.

Figure 9 shows a map of the distribution of problems in the Kebayoran Lama area.

Residual Space in Kebayoran Lama Area

All the potentials and problems in the Kebayoran Lama area described in the previous sub-chapter cause residual urban spaces. The formation of residual space in the center of the city's tertiary activities is different from urban residential areas.

Figure 9. Problems Distribution of Kebayoran Lama Area

In urban settlement areas, residual spaces are formed due to empty spaces or unutilized remaining spaces between buildings, exploited by the residential community due to social and economic factors.

As for trade and service areas such as the Kebayoran Lama area, residual space grows and develops due to various dense activities that cause environmental degradation, traffic congestion, the density of buildings, and irregularity in some spatial use. Therefore, it triggers the use of empty lands for several kinds of activity. The use is carried out on empty land and spaces designated for the public interest. Still, because area users perceive their utilization as not optimal, they are considered residual space and used to meet their needs.

Therefore, the type of residual space in the trade and service area in the center of urban tertiary activities is quite different from urban residential areas. For example, the edges and medians of the roads, which should function as pedestrian paths and road dividers, are considered residual spaces. These residual spaces are not fully utilized, so area users can use them to support their activities. Likewise, the space under a bridge or flyover used for urban greening is considered a residual space and used according to their needs. This improper use has resulted in many new problems in the region. The type of residual space in the Kebayoran Lama area as a trade and service area are illustrated in Figure 10.

Figure 10. Illustration of Residual Spaces in Kebayoran Lama Area

Distribution and Type of Residual Space

Based on the results of observations, the following Figure 11 shows the distribution map of residual spaces found in the Kebayoran Lama area. Map of the distribution of residual space in the Kebayoran Lama area shows that this area has quite many residual spaces.

Figure 11. Map of Residual Spaces Distribution in Kebayoran Lama Area

Figure 12. Types of Residual Space in Kebayoran Lama Area

There were 24 spots of residual space consisting of several types; the space under the bridge, at the end of the road, on the pedestrian path, between buildings, and the road's median. The types of residual space in the Kebayoran Lama area is shown in Figure 12. The space between buildings is a type of residual space commonly found in urban residential areas.

However, spaces under the bridge, at the end of the road, on the sidewalk, and the median of the road were also found due to the density of the area.

Form, Dimension, Utilization, and Time of Use of Residual Space

The shape and dimensions of each residual space within the study site are determined based on its type. According to data obtained through field observations, only two types of residual space were identified in the study location, elongated or linear and local or clustered. Linear residual spaces are found in residual spaces under flyover, sidewalks, and between buildings, which grow and develop following the surrounding activities. In comparison, the residual spaces are cluster-shaped, primarily found in spaces at the end of the road and in the road median, which arises from activity in linear residual spaces. Therefore, the dimensions also adjust; The residual spaces are linear in medium to large dimensions, while the residual spaces are in the form of clusters in small dimensions.

The use also varies in the study area with various residual spaces, namely parks, road access, parking lots, and places to sell. This variety of uses follow the needs of urban communities in the study area. Since the study area is a trade and service area, most users are traders from the informal sectors, such as food, beverage, and commodity sellers. They tend to take advantage of empty spaces or spaces that they think unmaximized to support their needs, namely selling and trading.

Apart from being a place for selling, residual spaces are also widely used as parking lots for those who go to the market, station, or flea market. Such a situation triggers people to keep their vehicles at the end of roads and even on pedestrian paths.

Diverse utilization of residual space affects its using time. It means residual space's using time follows its users' activities. Area activity centers like markets, stations, and flea markets, significantly affect the time to use the residual space because its users are area users who are active in the activity centers of the area. For example, Pasar Kebayoran Lama is one of Jakarta's main markets, which has 24 hours activity, and there is no difference during weekdays or holidays. Likewise, with stations that operate every day even though not 24 hours. When the station's working hours ended, the activity moved to a flea market, getting busier at night. The using time of residual spaces in the area follows the time of use of these activity centers. It is arguably always active throughout the day, weekdays, and holidays. The form, dimension, utilization, and time of use of residual space in the Kebayoran lama area lists in Table 1.

Under the flyover, there are three spots of residual space, as shown in Table 2. All of them are elongated in shape following the bridge because of its location, which utilizes the underpass. The dimensions of these three residual spaces vary from medium to large, as well as their utilization.

The utilization of residual space under the flyover shows in Figure 13. The first residual space (A1) has dimensions of 120 meters in length so that its space utilization is not limited to just one activity. Its location, close to the Kebayoran Flea Market, attracts many other street vendors to pop up to sell around the flea market location. It means that there are also buyers doing a trading activity and increase the area's density. Most of these buyers use motorbikes, so they need a vehicle parking location not far from their activities. Therefore, not only selling places but there was also a section of space utilized as a parking lot for motorbikes. This parking space has gradually developed into a transit location for online motorcycle taxi drivers while waiting, picking up, or taking passengers. The time to use the residual space follows the flea market activity in the afternoon until dawn.

Table 1. Form, Dimension, Utilization and Time of Use of Residual Space in Kebayoran Lama Area

RESIDUAL SPACE	FORM	DIMENSION	UTILIZATION	TIME OF USE
Type A: Under the flyover	Linear	Med to large	Park, Selling place, Parking lot	24 hrs, afternoon – dawn
Type B: Road's tip	Cluster	Small	Selling place, Parking lot	Dawn – afternoon
Type C: Pedestrian path	Linear	Long	Selling place, Parking lot, Greenery	Afternoon – dawn, 24 hrs
Type D: Between buildings	Linear	Medium	Road access, Selling the place	Dawn – evening
Type E: Road's median	Cluster	Small	Selling place	Dawn – evening

Table 2. Form, Dimension, Activity and Time of Use of Residual Space Under the Flyover

SPOT	FORM	DIMENSION	ACTIVITY	TIME OF USE
A1	Linear	120 m long	Sell/buy, Parking, Motorcycle taxi transit	Afternoon – dawn
A2	Linear	1.100 m2 wide	Closed Park, no activity	24 hrs
A3	Linear	9 m long	Parking, Motorcycle taxi transit	noon-dawn

Figure 13. Utilization of Residual Space Under the Flyover

The second residual space (A2) has enormous dimensions. The total dimensions are 1,100 m2, with the full use as an area park. There is no other use because the entire edge of the park is given a guardrail and blocks any access to the garden. On the one hand, this action provides a solution, considering area users' behavior who always uses minimal space for selling. Nevertheless, on the other hand, it is a bit unfortunate because the park under this bridge can be maximized as an active and inclusive public open space. The third residual space (A3) is the smallest dimension space, only about 9 meters in length, so its utilization is limited. Area users use this little space as a parking lot and a transit location for online motorcycle taxi drivers. The time to use the residual space also follows

flea market activities, from late afternoon to dawn. Still, online motorcycle taxis waiting for passengers are only seen during the day to midnight.

There are six spots of residual spaces at the end of the road, all clustered in one place. This shape adapts the remaining space at the end of the road, with relatively small dimensions, only about 2 to 3 meters. The form, dimension, activity, and time of use of residual space at the end of road is shown in Table 3.

Figure 14 shows the map and images of residual space's utilization at the end of the road. The map shows that the residual space spots of this type are scattered following markets and stations. It means that the utilization and activities that occur must also follow the two activity centers' activities. The majority of the residual space use here is a selling place to street vendors, a spill of traders from the market.

The atmosphere at each spot of this residual space activity is buying and selling the market commodities. It means that each point of space has the same density as in the market area. Apart from being a location for selling, two other spots are used as parking lots because it accommodates visitors due to new selling points outside the market. The residual space follows market and station activities from dawn to noon. The area is used as a trading place, and dawn to evening for vehicles parking.

Indeed, sidewalks or pedestrian paths are part of existing public spaces in urban areas. However, within the study location, the walking paths were not adequately utilized.

Figure 14. Utilization of Residual Space at the end of Road

Following a pedestrian path extending around the area, the residual spaces here are elongated in shape. Therefore, it can be assumed that the residual space dimension here has a long dimension following the sidewalk dimension, with a width of 2 meters. The length of residual space at each spot of residual space varies, as are the utilization and activities at each spot. The residual space utilization time also varies according to the utilization of the activity.

For example, market and street food vendors only last from dawn to evening. In contrast, flea market activities on the sidewalks occur from evening to dawn. The form, dimension, activity, and time of use of residual space at pedestrian path shown in Table 4.

Table 3. Form, Dimension, Activity and Time of Use of Residual Space at End of Road

SPOT	FORM	DIMENSION	ACTIVITY	TIME OF USE
B1	Cluster	2m wide	Parking	Dawn-afternoon
B2	Cluster	2m wide	Sell/buy	Dawn-noon
B3	Cluster	2m wide	Parking	Dawn-afternoon
B4	Cluster	3m wide	Sell/buy	Dawn-noon
B5	Cluster	2m wide	Sell/buy	Dawn-noon

Table 4. Form, Dimension, Activity and Time of Use of Residual Space at Pedestrian Path

SPOT	FORM	DIMENSION	ACTIVITY	TIME OF USE
C1	Linear	120m long	Sell/buy, Eat/drink	Dawn-evening
C2	Linear	70m long	Walking	24hrs
C3	Linear	20m long	Sell/buy	Morning-afternoon
C4	Linear	100m long	Walking	24hrs
C5	Linear	200m long	Sell/buy	Afternoon-dawn
C6	Linear	232m long	Sell/buy	Afternoon-dawn
C7	Linear	75m long	Sell/buy, Eat/drink	Morning-evening

Figure 15. Utilization of Residual Space at
Pedestrian Path

Shows in the images of Figure 15, the area users are mostly market traders and street vendors. Considering the pedestrian pathway to be underused, they think that the sidewalk is a remaining space that can be utilized more optimally to support their selling activities. Seen from most residual spaces used as places to sell, namely C1, C3, C5, C6, and C7. The goods sold in these spaces also vary, following the activities in the activity center of the surrounding area. Market traders use the residual space around the market to display their merchandise. The residual space around the station is used by street vendors selling food and drinks to catch train passengers going in and out of the station and buying their wares. Used goods traders also utilize the residual space around the flea market and the Kebayoran antique market because of this place's position, which is well known as a location for selling used goods, flea goods, and antiques. Of all the residual space points on the sidewalk, it turns out that two spots can still be utilized following the sidewalk's function, namely walking. These two spots are indeed quite far from the market or the station.

As is the case in urban residential areas, residual spaces must be found between buildings but with differences in spatial dimensions. The form, dimension, activity, and time of use of residual space between buildings show in Table 5. For example, in a residential area, the residual space between buildings is usually a field with a large enough dimension. While in urban tertiary activities centers, the residual space between buildings is narrow alleys with an average width of only 1 meter. It happens because of the very dense use of space in the area. Of course, the remaining narrow alleys should also be used as road access, but what happened in the study location was the overlapping use as a place to sell. Street food vendors who take advantage of this point follow the market operating time, from dawn to evening. The utilization of residual space between buildings shows in Figure 16.

The last type of residual space found in the Kebayoran Lama area is residual space at the roads' median. Only two road median spots were identified, which functioned as residual space by area users. The two are located quite apart, in front of the market and around the flea market location. Form, dimension, activity, and time of use of residual space at roads' median are listed in Table 6.

Figure 16. Utilization of Residual Space
Between Buildings

Table 5. Form, Dimension, Activity and Time of Use of Residual Space Between Buildings

SPOT	FORM	DIMENSION	ACTIVITY	TIME OF USE
D1	Linear	3m wide	Walking, Sell/buy, Eat/drink	Dawn-evening
D2	Linear	2m wide	Walking, Sell/buy, Eat/drink	
D3	Linear	1m wide	Walking, Sell/buy, Eat/drink	
D4	Linear	2m wide	Walking, Sell/buy, Eat/drink	
D5	Linear	1m wide	Walking	
D6	Linear	1m wide	Walking	

Table 6. Form, Dimension, Activity and Time of Use of Residual Space at Roads' Median

SPOT	FORM	DIMENSION	ACTIVITY	TIME OF USE
E1	Cluster	2m wide	Sell/buy	Dawn-afternoon
E2	Cluster	10m wide	Sell/buy	Afternoon-dawn

Figure 17. Utilization of Residual Space at Roads' Median

Because of its location at a relatively narrow median of the road, its utilization is limited, and there is only one type of activity, namely buying and selling. The residual space location determines the type of trader, the merchandise sold, and the timing of its use. Like is shown in Figure 17, point E1 adjacent to the market is used as a spilled market from dawn to evening, while point E2 around the flea market is used from late afternoon till the dawn

Impact of Residual Space Utilization

The use of residual space in the study location, an urban trade and service area with a level of space density and activity density, impacts the area. The utilization impact of residual space on the area is shown in Table 7. This utilization's impact is analyzed based on the typology of types and users of residual space because different types and users of space affect the area.

Table 7. Utilization Impact of Residual Space

TYPE OF RESIDUAL SPACE	UTILIZATION	UTILIZATION IMPACT
Type A: Under the flyover	Park, Selling place, Parking lot	Adding green open spaces Increase traffic jam
Type B: Road's tip	Selling place, Parking lot	Increase traffic jam Harm to space users
Type C: Pedestrian path	Selling place, Parking lot, Greenery	Reduce pedestrian space Harm to pedestrians Adding green open spaces
Type D: Between buildings	Road access, Selling the place	Reduce pedestrian space
Type E: Road's median	Selling place	Increase traffic jam Harm to space users

The use of type A residual space (under the flyover) to sell and a parking lot makes some spots look chaotic and unorganized. This condition also sometimes causes traffic congestion and affects the smoothness of traffic around it because it is an access road for motorbikes. On the other hand, using it as a park or green lane is excellent, as the lungs of the area and passive green open space, because access to the park is limited. On the other hand, in the type B residual space located at the end of the road, its utilization impacts the area's problem due to the relatively small dimensions of the residual space. Moreover, this type of residual space is a place to sell, and a parking lot requires reasonably ample space. As a result, road access and vehicle maneuvers are disrupted. Also, there is the risk of accidents and other dangers that threaten both traders and buyers.

The type C residual space, a pedestrian path, is mainly used to sell and a parking lot. Any improper use of pedestrian space always has a noticeable impact on the area. The sidewalk's reduced width is detrimental to pedestrians because space is disturbed, making pedestrians forced to access the road beside the sidewalk and is very dangerous. The residual space between buildings (type D) is used as additional road access, useful for area users or the community around the study location. Due to this road access, new activities have emerged around these utilization points, namely as locations for selling and food stalls. This further utilization reduces pedestrian space so that pedestrian comfort is also not achieved.

As with the type B residual space located at the end of the road, the type E residual space located in the road's median also harms the area. Its relatively small dimensions of the residual space and its location between roads, which are the primary access for motorized vehicles, make it impossible to use it, especially for economic activities. However, this small-dimensional

residual space is still used to sell, which means that there are buying and selling activities at that spot involving traders and buyers. Both are dangerous. What is more, this type of residual space is a place to sell and a parking lot that requires a reasonably large space. As a result, road access and vehicle maneuvers are disrupted. Besides, there is a risk of accidents that threaten the safety of both traders and buyers.

The time spent on residual space that follows activities in the area, especially activity centers, also contributes to residual space utilization. Therefore, at the time of use, the harmful effects of the use of residual space increase. Simultaneously, the Kebayoran Lama area is the center of the city's tertiary activities, with markets and stations as the center of activities, which always crowds throughout the week, even all day and night.

CONCLUSION

The following are some conclusions and suggestions that obtained from the results and discussion in this study. First, the study location is a trade and service area with a relatively high density and activity; there are spaces considered residual urban spaces. Second, however, there are variations in the typology of residual space based on its type, form, and utilization.

The study found that residual spaces in the designated location, Kebayoran Lama Market and Kebayoran Station, are evenly dispersed. There were 24 spots of residual space categorized into several types: the space under the bridge, at the tip of the road, on the pedestrian path, between buildings, and in the road's median. These types of residual space determine the shape and dimensions of the residual space within the study site. There are only two types of residual space identified in the study location: linear and clustered. The study found linear residual spaces under the bridges and flyovers, sidewalks, and between buildings, which grow and develop following the surrounding activities. At the same time, the study also found residual spaces in the form of clusters at the end of the road and the road's median, which appears as a result of activity in the linear residual spaces. Therefore, the dimensions also adjust; The residual spaces are linear in medium to large dimensions, while the residual spaces are in the form of clusters in small dimensions.

The utilization also varies in the study locations with various residual spaces, namely, a park, green lane, road access, parking lot, underpass, and selling space. This variety of uses follows the urban community's needs in the study location, an urban trade and service area where most users are economically motivated.

The use of residual space in urban trade and service areas with a high level of space and activity density causes impacts to the area. Utilization impacts are analyzed based on the typology of types and users of residual space, since different types and users of space have different impacts on the area. According to observations, several impacts are visible and can be felt directly by utilizing the residual space. The use of residual space as parks and green lines positively impacts the area, increasing green open space and potentially becoming the area's lungs. Other uses, which constitute most uses within the area as a place for selling and parking, have an unfavourable impact. The utilization of residual space as a place to sell and a parking lot increases traffic congestion, reduces pedestrian space, and threatens space users' security.

In general, residual spaces in the study area, as a trade and service area in the city's tertiary activity center, do not positively impact the location and even adds to regional problems. The unfavourable impact of residual space seen in the area's visual has become more irregular, affecting the accessibility of the site and the comfort of road and pedestrian users. Nevertheless, on the other hand, this problem has a pretty good impact on the economy, especially for the informal sectors, because of residual space to trade activities. It shows that residual space can positively affect and reduce problems in the area must be solved appropriately based on a prior assessment involving all stakeholders and area users. The solution programs must involve all parties who play a role in the area, such as city governments, provincial governments, market managers, station managers, and all area users such as market traders and street vendors. Utilization is carried out in spaces without activity density and returns to function as it should so that it can be a solution to problems in the area.

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