People’s Preference for Rusunawa Jogoyudan as a Residential Option

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Abstract. The high backlog of houses in Yogyakarta City illustrates the high demand for housing. Limited land stock causes the appearance of slums and vertically directed housing, for example, the construction of Rusunawa Jogoyudan. This study aims to analyze the assessment of housing quality, perceptions, and the population's preferences. This quantitative study uses data sources obtained from literature, questionnaire, and observation, then analyzed with diagrams and cross-tabulations descriptively. This study finds that there is a compatibility between the population's perception and the housing quality assessment. Between owning and needing a house, some populations answered owning a house for housing priority and plans. The choice of housing in the future was dominated by those who plan to live in non-flat housing rather than Rusunawa Jogoyudan. There is no correlation between the preferences in housing options with the income, housing quality, housing ownership status, also perception about Rusunawa Jogoyudan. Convenience is the population's motivation not to choose Rusunawa Jogoyudan. The comfort in question is a better environment, calmer atmosphere, no rental thoughts, already own a house, easier to interact with, more flexible, wider space, no need to go up and down with stairs, and more privacy than living at Rusunawa Jogoyudan.

1. Introduction

The provision of comfortable and decent settlements has a complex basis so that it becomes a challenge for any city, even settlement planning is one of the important agendas in international development. The right to adequate housing is even recognized in the Universal Declaration of Human Rights in 1948 and the International Covenant on Economic, Social, and Cultural Rights in 1966. Adequate housing is housing that meets the criteria of safe ownership, availability of services, adequate facilities and infrastructure, affordability, habitability, accessibility, access to sites, and cultural protection [1].

The city of Yogyakarta is the center of growth in the Province of the Special Region of Yogyakarta (DIY), given the position of the City of Yogyakarta as the provincial capital. The growth of Yogyakarta City encourages environmental degradation, especially in densely populated settlements. The importance of paying attention to settlements is supported by the existence of Law Number 1 of 2011 concerning Housing and Resettlement Area where the arrangement of housing and settlements aims to meet basic human needs and to realize decent housing and settlements in a healthy, safe, harmonious, and orderly environment.

The backlog perspective of the DIY Province housing has reached 88,568 units, while the City of Yogyakarta has reached 25,775 units [2]. The high backlog of houses illustrates the high demand for housing in the city of Yogyakarta, but it is not comparable to the availability of residential land, which is only a little left. The Yogyakarta City Urban Settlement Plan is 3,207.02 hectares, while the remaining stock of residential land is 48.62 hectares, meaning that the development of settlements to overcome the backlog needs to be directed at vertical housing due to limited land stock [3].

The need for residential land that is disproportionate to the availability of residential land, causing the emergence of slum settlements, is a problem in urban areas. Slums are often identified with...
settlements on river banks because of the declining environmental quality and riverbanks that should become protected areas of riparian zones [4]. Slum settlements along the riverbanks are also found in Yogyakarta City. These slums are often associated with the urban poor having unsecured and inadequate sanitation ownership [5]. These unsecured facilities and infrastructure cause low living comfort. Urban problems, especially slum settlements, have become a challenge in urban planning, one of its main ones is the development of comfortable residential areas.

The activities of residents in slum areas are one of the causes of the decline in social, economic, and environmental levels in urban areas, such as environmental problems in the form of river pollution and poor sanitation, low health, low educational outcomes, and high emission levels [6]. The majority of slum settlements in Yogyakarta City are located around the Winongo River, Code River, and Gajah Wong River [7]. The emergence of slum settlements is the impact of uncontrolled settlement growth considering that Yogyakarta City is an attractive area. The slum area in Yogyakarta City reaches 264.90 ha which is spread over 36 subdistricts in 228 hamlets. Jogoyudan Village in Gowongan Subdistrict, under Jetis District of Yogyakarta City is one of the slum areas handled by the central government [3].

Jogoyudan village located on the banks of the Code River is under the category of dense settlements and slum areas. The construction of Rusunawa (Simple Flats for Rent) Jogoyudan aims to provide housing for the community in the riparian zone of Code River and to deal with slum areas, considering that the area has a high appeal as a residential location because of the short distance to business places and the city center [8]. The program for providing housing in the form of flats on the banks of the Code River in the form of Rusunawa Jogoyudan has problems such as residents experiencing level III crowding due to disruption of 7 to 8 indicators of a total of 10 factors of crowding in Rusunawa Jogoyudan. The disturbing factors are ethnicity, gender, age group, experience, spatial dimensions, density, territory, relationship character, length of stay, and the location of the residential unit [9]. This congestion reduces the comfort, thus encouraging a low preference for Rusunawa Jogoyudan, [10] also said that the existence of Rusunawa Jogoyudan was considered only quite effective physically, but had not been able to improve the quality of the environment socially and economically.

The development of Rusunawa Jogoyudan was prompted as a strategy to handle the slum environment or revitalization in the city of Yogyakarta. However, this Rusunawa has not been able to attract local residents to live in Rusunawa Jogoyudan, this is because only 48% of the previous Rusunawa residents came from the surrounding area, even though the purpose of the Rusunawa development was to provide housing for the community in the riparian area of Code River [10]. The objectives of this research are; (1) Identifying the quality assessment of housing in the Rusunawa Jogoyudan area, (2) Identifying public perceptions of Rusunawa Jogoyudan, (3) Analyzing community preferences in choosing a place to live in Rusunawa Jogoyudan. The research results can be used as material and input in the field of regional development, especially settlements in urban areas. Hopefully, the results of this research can be used by the government in providing settlements to the community.

2. Methods

This research was carried out from February to September 2021. The research location is in the Rusunawa Jogoyudan area, precisely RW (hamlets) number 7,8,9,10,11,12, and 13 which are included in the slum settlements according to the rules of the Special Regional Regulation of Yogyakarta Number 9 of 2019. The study used a descriptive quantitative approach which is a sample representation of the population. The data were used in the form of secondary data and primary data collected through observation and questionnaires. The population unit is the number of families based on the Family Card (KK). The research sample was selected using stratified random sampling by dividing the population into two groups, namely residents of Rusunawa Jogoyudan and people outside the Rusunawa Jogoyudan.

Determination of the number of samples using the Nomogram Harry King table. The population of this study was 1538 based on data on the recapitulation of the number of households from RW (hamlets) 7,8,9,10,11,12, and 13 in December 2020. An error rate of 10% resulted in a population percentage of 4%. The number of samples was 74 based on the Nomogram Harry King table with an error rate of 10%.
The percentage of samples from residents of Rusunawa Jogoyudan was 30% or as many as 22 samples, while people outside the Rusunawa Jogoyudan was 70% or as many as 52 samples. The percentage difference took into account the number of households outside the Rusunawa Jogoyudan, which was more than the residents of Rusunawa Jogoyudan. Each household only had one opportunity to fill out a questionnaire.

The scale used in the questionnaire was the Likert Scale with the alternative answers as Very Good, Good, Medium, Bad, Very Bad, and nominal answers. The indicators used as the basis for grouping the scale based on the research objectives considered the guidelines from Badan Pusat Statistik (BPS-Statistics Indonesia) and Kementerian Perumahan Rakyat Kementerian Pekerjaan Umum dan Perumahan Rakyat (Ministry of Public Works and Public Housing of the Republic of Indonesia). The criteria for Very Good, Good, Medium, Bad, and Very Bad were categorized by the researcher according to the assessment guide so that the research data was accurate. Assessment guidelines can be seen in the table the Appendix A. The results of the primary data are then processed using descriptive statistical techniques in the form of bar charts, tables, and cross-tabulations.

3. Results and Discussion

The results and discussion of the research include the quality assessment of housing in the Rusunawa Jogoyudan area, perceptions of Rusunawa Jogoyudan, and preferences in choosing a place to live in Rusunawa Jogoyudan.

3.1. The quality assessment of housing in the Rusunawa Jogoyudan area

The characteristics of the population in the Rusunawa Jogoyudan area include its demographic, economic, and social characteristics. The population characteristics were represented by the research sample which was considered to be representative of the population. The population that played the role of determining the location of housing was dominated by those in productive age, with > 10 years length of stay in the Rusunawa Jogoyudan area, the number of households in the houses was still dominated by only one family, with sub-minimum wage, high school as the highest education, and self-ownership house status.

The quality of housing describes its physical quality and availability of facilities in the Rusunawa Jogoyudan area. Physical quality is comprised of the building feasibility level, the level of quality on drinking water supplies, the level of environmental drainage quality, the level of quality of wastewater management, and the level of waste management. Based on Figure 1. The feasibility of the Rusunawa Jogoyudan building in general was better than the feasibility of buildings outside Rusunawa Jogoyudan. The medium classification was found in buildings outside Rusunawa Jogoyudan, where the community's residential area had a ceiling height <2.8 m and floor area <7.2 m² per capita. Rusunawa Jogoyudan was already built according to standards, namely a roof ceiling height of >2.8 m, so that the main consideration is the floor area per capita, influenced by the number of people occupying each unit.
Based on Figure 2. The quality of the drinking water supply for the people outside the Rusunawa Jogoyudan was better than for the residents of the Rusunawa Jogoyudan. The quality of the water supply outside Rusunawa Jogoyudan was dominantly in the very good category, while in Rusunawa Jogoyudan was dominated by the medium category. It was in the medium category because residents who cannot access 60 liters of drinking water/day were still as many as 45.45%. This percentage was almost half of the residents of Rusunawa Jogoyudan, which happened because residents used bottled water to meet their drinking needs - the more demand of the drinking water, the greater the expenses the residents must prepare. In addition, water sourcing from drilled wells in Rusunawa Jogoyudan also sometimes did not flow because the pump engine was dead and the water was sometimes dirty.

Based on Figure 3. The quality of drainage in both residences was equally dominant of very good quality. The very good quality category meant that the available drainage was capable of draining rainfall-runoff, with the presence of coating material or no damage, inundation height of <0.10 meters, inundation area <1 ha, duration of inundation <1 hour, and never had any inundation at all. Drainage had been able to drain rainfall-runoff. Even though there were some points of residents' houses that did not have drainage, there had never been a puddle of water in that location. The rainwater flowed directly down to the Code River, considering the river's height was lower than the community housing. The existing drainage was also in good condition and had coating material. If there is a clogged drain due to the presence of garbage, the community is willing to clean it, therefore it wouldn’t cause inundation for too long.
Based on Figure 4. Wastewater management in the Rusunawa Jogoyudan area was dominated by poor quality, although in residential areas outside Rusunawa Jogoyudan it was still in very good quality of 25%. Rusunawa Jogoyudan provided a septic tank for the final disposal of feces, but household waste was still dumped in the river, causing the quality of wastewater management to be classified as poor. Likewise, people outside the Rusunawa Jogoyudan who still dump a lot of final feces and wastewater into the river, certainly made an impact on the environment, especially the Code River.

Based on Figure 5. The level of waste management in Rusunawa Jogoyudan was better than outside Rusunawa Jogoyudan. The Rusunawa Jogoyudan were dominantly classified as very good, while outside the Rusunawa there were still very poor categories. The good waste management is supported by the existence of public facilities, which are temporary landfills, divided according to the area of sub-districts.

The facilities in the Rusunawa Jogoyudan Area in this study were divided into two, namely public and social facilities. Public facilities are in the form of connecting roads and temporary landfills (also known as TPS). Social facilities include schools, health facilities, markets, places of worship, public toilets, and fire protection systems. The public and social facilities are used jointly for both residents and outsiders of Rusunawa Jogoyudan. Roads as public facilities were included in the medium category since the Rusunawa Jogoyudan area was already connected to environmental roads with a width of ± 1.5 m to 2.0 m. Environmental roads were dominated by roads that cannot be passed by cars, having the
good quality or without damage. There were small paths with stairs going downhill. The width of the road varies, some could be passed by motorbike, but some could only be passed by pedestrians. The descending road tends to be steep, so people must be careful (Figure 6). Waste disposal facilities in the form of TPS were under the very good category because all RWs (hamlets) in Kampung Jogoyudan from RW 7 to RW 13 already had TPS. The capacity of TPS varies, the smaller the capacity of TPS, the more often the waste is transported.

![Small paths with stairs going downhill](image)

*Figure 6. Small paths with stairs going downhill*

Source: Field Observation April 2021

Schools being one of the social facilities were very good, indicated by Early Childhood Education (PAUD) which were available in the smallest hamlet (RW) units while other educational levels could be accessed within the same sub-district areas. Health facilities, a part of social facilities, were also classified as very good, shown by the Posyandu available in the smallest RW units and hospitals were easily accessible within about 10 to 30-minute drive. Access for the community in the Rusunawa Jogoyudan area to the market is very easy. There are two markets in Jetis District, namely Kranggan Market in Gowongan Village and Pingit Market in Bumijo Village.

Roads are land use economic-associated facilities. This economic facility passes through Jalan Jenderal Sudirman and Jalan Pangeran Mangkubumi. Jalan Pangeran Mangkubumi is a part of Malioboro Block roads where the road is within the enclosed area, including paths filled with cultural and strive-for-independence values. The entry of this road into the Malioboro Block is supported by the proximity of the economic facilities of RW 7 and RW 13 to Malioboro and Tugu, which are the icons of Yogyakarta City, creating an opportunity for the community to access and take advantage of the economic sector.

The people in the Rusunawa Jogoyudan area are predominantly Muslim, so there are many mosques or prayer rooms. These mosques or prayer rooms also play a major role as public spaces for the community, as it is shown that the function of the mosque or prayer room is not only for praying but for several other activities. Every RW 7 to RW 13 has a public toilet, dominantly located near riverbanks. This placement takes into account the number of houses that do not have bathroom facilities. The cleanliness of the toilets varies, the more often they are used, the more cleanly they tend to be than the toilets that are rarely used.

Fire protection in Rusunawa Jogoyudan and its surroundings is in the medium category. This medium category is due to the fulfillment of 3 out of 7 fire protection criteria. The criteria that have been met are available water supply sources in the event of a fire, available environmental road that can be passed by fire fighting vehicles, and installed fire extinguishing hydrant in every RW/hamlet and unit in Rusunawa Jogoyudan. The criteria that have not been met are lacking means of communication for notification of a fire, no easily accessible data regarding the environmental fire protection system, no fire fighting vehicle, and no ladder car within the Rusunawa Jogoyudan area and its surroundings.

The quality assessment of housing in the Rusunawa Jogoyudan area gave better results than the housing outside of Rusunawa Jogoyudan. These results were based on the consideration of the quality of the Rusunawa Jogoyudan residency being more superior in building feasibility and waste management, while the housing outside of Rusunawa Jogoyudan only excels in the provision of drinking
water. The feasibility of the building is better in Rusunawa Jogoyudan because there are dwellings outside Rusunawa Jogoyudan that still have a roof ceiling height of <2.8m, while the total housing in Rusunawa Jogoyudan is >2.8m. The average number of people living in and outside of Rusunawa Jogoyudan is 4 people. The waste management of the Rusunawa Jogoyudan residency is also superior because most have implemented waste sorting and the proximity of the TPS encourages residents to dispose of their waste independently.

3.2. Perceptions of Rusunawa Jogoyudan

The residents' perception of the feasibility of the Rusunawa Jogoyudan building is good, having ease of access to water and sufficient electricity. Public space is considered to be able to accommodate the activities of residents, but the unit area is not sufficient to meet the spatial needs. Perception regarding security is very good. Occupants and occupant candidates answered owning a house is their priority. The choice of housing in the future is dominated by the answer that they plan to not live in an apartment. There is a match between perceptions and assessments of the quality of housing in Rusunawa Jogoyudan.

Congruency between the perception and assessment of building feasibility can be seen from the perception of the majority of the population saying that the feasibility level of the building is classified as good, which is in line with the results of the feasibility level assessment of Rusunawa Jogoyudan also being in a good category. The reason for such is the solid and permanent Rusunawa buildings for residents outside the Rusunawa, whereas the resident's reason that Rusunawa Jogoyudan is still a comfortable place to live, which can be lived in, with supporting low rental prices. Meanwhile, the congruence between the perception and security assessment of Rusunawa Jogoyudan is implied in the residents' answers about the frequency of theft on goods/money, the occurrence of fires, and the dangers of lightning and electricity in the span of one year. The fire track record in Rusunawa Jogoyudan is very rare, usually from a stove that is forgotten to be turned off to fire incidents that can be handled by the residents. Fire protection is available in every block in Rusunawa Jogoyudan, precisely on the ground floor, near the stairs and parking lots. Residents and outsiders of Rusunawa Jogoyudan both have the perception that Rusunawa Jogoyudan is not vulnerable to lightning and electricity hazards.

The conformity between perception and assessment on the level of electricity accessibility is in accordance with the fact that Rusunawa Jogoyudan has received electricity from PLN (State Electricity Company). The ease of access to water is dominantly fulfilled, however, there is still a perception of water scarcity/difficulty of access because the water pump engine is dead, and therefore residents need to go downstairs or look for water outside Rusunawa Jogoyudan. The suitability between perceptions and assessments of the available public space and the minimum unit area can be seen from public spaces that have served their purpose as spaces for gathering, socializing, and playing with children. The fulfillment of these public spaces is supported by the presence of a hall in each block on the ground floor and the proximity of Rusunawa Jogoyudan to the Jami' Baitul Makmur Jogoyudan Mosque which has a large yard, that may be used for children's play.
The area of Rusunawa Jogoyudan Block A and B are 21 m$^2$, while Blocks D and E are 18.9 m$^2$. Perception of unit area for residents does not fulfill the minimum residential area since the average minimum unit area is 30 m$^2$. The minimum unit area has taken into account the availability of 2 bedrooms and 4 people occupying the house. The assessment guide uses sources from BPS with a minimum area per capita of 7.2 m$^2$. If a house consists of 4 members, then the minimum unit area should be 28.8 m$^2$, while the unit area in Rusunawa Jogoyudan does not even reach 28.8 m$^2$. Not achieving the minimum unit size is consistent with the perception of the population, whereas much as 80% of people said it did not meet the minimum average unit size of 30 m$^2$. According to Figures 7 and 8. Between owning and needing a house, some populations answered owning a house for housing priority and plans.

3.3. Preferences in choosing a place to live in Rusunawa Jogoyudan

The preference for Rusunawa Jogoyudan is explored from the community's answers regarding housing options. This residential choice option is given to the community to identify the residential location acting as the community's goal and motivation in choosing the dwelling. The community's answers regarding the choice of housing are then connected with characteristics and perceptions to analyze their correlation to infer the community's preference for Rusunawa Jogoyudan. Based on Figure 9. The population's preference for housing choices in the study includes the choice to live in non-flat housing, Rusunawa Jogoyudan, or other flats. Residents in the Rusunawa Jogoyudan area prefer to live in non-flat housing.

Based on Tables 1,2,3,4, and 5. Preference in choosing the dwelling had nothing to do with the characteristics of income, quality of dwelling, homeownership status, or perception of Rusunawa
Jogoyudan. Based on Table 2. Population preferences have nothing to do with residents' perceptions of the area size per Rusunawa Jogoyudan units. The majority of the population chooses to live in non-flat housing even though they have the perception that the Rusunawa Jogoyudan unit area meets the minimum area for housing.

**Table 1. Cross-tabulation of income, homeownership status, and future residential options**

| Population category | Income          | Future Residential Options | Total |
|---------------------|-----------------|----------------------------|-------|
|                     |                 | Non-flat                   |       |
| Outside Rusunawa    | Above the       | Rusunawa Jogoyudan         |       |
| Jogoyudan           | Minimum Wage    | Other flats                |       |
|                     | of Regency/City |                            |       |
| Homeownershi p      | Free-rent/ride  |                            |       |
| status              | 25,0%           |                            | 25,0% |
|                     | Contract/rent   |                            | 15,0% |
|                     | 15,0%           |                            | 15,0% |
|                     | Other           |                            | 5,0%  |
|                     | 5,0%            |                            | 5,0%  |
|                     | One’s own       |                            | 55,0% |
|                     | 55,0%           |                            | 55,0% |
| Total               | 100,0%          |                            | 100,0%|
|                     |                 |                            |       |
| Bellow the Minimum  | Homeownershi p  |                            |       |
| Wage of Regency/City| status          |                            |       |
|                     | Free-rent/ride  |                            |       |
|                     | 31,3%           |                            | 31,3% |
|                     | Contract/rent   |                            | 21,9% |
|                     | 21,9%           |                            | 21,9% |
|                     | Other           |                            | 3,1%  |
|                     | 3,1%            |                            | 3,1%  |
|                     | One’s own       |                            | 40,6% |
|                     | 40,6%           |                            | 43,8% |
| Total               | 96,9%           |                            | 100,0%|
|                     |                 |                            |       |
| Total               | Homeownershi p  |                            |       |
|                     | status          |                            |       |
|                     | Free-rent/ride  |                            |       |
|                     | 28,8%           |                            | 28,8% |
|                     | Contract/rent   |                            | 19,2% |
|                     | 19,2%           |                            | 19,2% |
|                     | Other           |                            | 3,8%  |
|                     | 3,8%            |                            | 3,8%  |
|                     | One’s own       |                            | 46,2% |
|                     | 46,2%           |                            | 48,1% |
| Total               | 98,1%           |                            | 100,0%|
|                     |                 |                            |       |
| Total               | Homeownershi p  |                            |       |
|                     | status          |                            |       |
|                     | Contract/rent   |                            |       |
|                     | 50,0%           |                            | 50,0% |
| Total               | 50,0%           |                            | 100,0%|
|                     |                 |                            |       |
| Bellow the Minimum  | Homeownershi p  |                            |       |
| Wage of Regency/City| status          |                            |       |
|                     | Contract/rent   |                            |       |
|                     | 72,2%           |                            | 27,8% |
| Total               | 72,2%           |                            | 100,0%|
|                     |                 |                            |       |
| Total               | Homeownershi p  |                            |       |
|                     | status          |                            |       |
|                     | Contract/rent   |                            |       |
|                     | 68,2%           |                            | 31,8% |
| Total               | 68,2%           |                            | 100,0%|
|                     |                 |                            |       |
| Source: Processed from primary data (2021)

**Table 2. Cross-tabulation of area perception per unit Rusunawa Jogoyudan and future residential options**

| Population category | Perceptions of the area size per Rusunawa Jogoyudan units | Future Residential Options | Total |
|---------------------|-----------------------------------------------------------|----------------------------|-------|
|                     | Fulfill                                                   | Rusunawa Jogoyudan         |       |
|                     | Does not fulfill                                         | Other flats                |       |
| Outside Rusunawa    |                                                          |                            |       |
| Jogoyudan           |                                                          | Non-flat                   |       |
|                     |                                                          |                            |       |
|                     |                                                          | Fulfill                    | 44,2% |
|                     |                                                          | Does not fulfill           | 53,8% |
|                     |                                                          |                            | 53,8% |
| Total               |                                                          |                            | 100,0%|
|                     |                                                          | Fulfill                    | 9,1%  |
|                     |                                                          | Does not fulfill           | 90,9% |
| Total               |                                                          |                            | 100,0%|
| Source: Processed from primary data (2021)
Based on Table 3. Population preferences have nothing to do with residents' perceptions of the accessibility to electricity and water. The majority of the population chooses to live in non-flat housing, although residents have the perception that easy access to electricity and water in Rusunawa Jogoyudan is already fulfilled. Based on Table 4. The predominantly very good perception of security in Rusunawa Jogoyudan has no effect on preferences for choosing the housing because of the safety factor that is taken into consideration – which is height. According to respondents, going up and down the stairs as they carry out daily activities is not safe. Based on Table 5. The residents of Rusunawa Jogoyudan who still choose Rusunawa Jogoyudan as their place of residence have a higher percentage on the perception of good building feasibility. However, this does not significantly affect the population's preferences because in general the population prefers horizontal housing instead of flats.

Table 3. Cross-tabulation of electric accessibility perception, water, and future residential options

| Population category | Electric Accessibility Perception               | Future Residential Options | Total |
|---------------------|-----------------------------------------------|----------------------------|-------|
|                     | Always fulfilled every day                     | Non-flat: 76,9%            |       |
|                     |                                                | Rusunawa Jogoyudan: 1,9%   |       |
| Outside Rusunawa Jogoyudan | Very rarely trouble                           | 7,7%                       |       |
|                     | Sometimes it’s hard                            | 13,5%                      |       |
| Total               |                                                | 98,1%                      |       |

Table 4. Cross-tabulation of security perceptions and Future Residential Options

| Population category | Security perceptions | Future Residential Options | Total |
|---------------------|----------------------|----------------------------|-------|
|                     | Very good            | Non-flat: 59,6%            |       |
|                     | Good                 | Rusunawa Jogoyudan: 1,9%   |       |
| Outside Rusunawa Jogoyudan | Medium       | 32,7%                      |       |
|                     | Bad                  | 1,9%                       |       |
|                     | Very bad             | 1,9%                       |       |
| Total               |                      | 98,1%                      |       |

Table 5. Cross-tabulation of building feasibility perceptions and future residential options

| Population category | Building feasibility perceptions | Future Residential Options | Total |
|---------------------|----------------------------------|----------------------------|-------|
|                     | Very good                        | Non-flat: 40,9%            |       |
|                     | Good                             | Rusunawa Jogoyudan: 27,3%  |       |
|                     | Medium                           | 18,2%                      |       |
|                     | Bad                              | 9,1%                       |       |
|                     | Very bad                         | 4,5%                       |       |
| Total               |                                  | 68,2%                      |       |

Source: Processed from primary data (2021)
The motivation of choice is based on the comfort factor of living in a non-flat. The comfort mentioned is based on several aspects, namely an environment that feels better, more serene, without thinking about the rent, with readily available houses, that is more interactive, with more mobility, wider space, no need to go up and down the stairs, with more gaps, and better privacy. According to residents, the environment that is considered better is the kind where there is still vacant land surrounding a house. Although there is still vacant land or open space, for residents it is still different around Rusunawa Jogoyudan, the stigma of discomfort arises as you have to go downstairs to reach open space. Residents still view that the meaning of flats is limited to Rusunawa, even though there are also Rusunami (Simple Flats owned), special flats, state flats, and apartments. However, since the majority of the population in the Rusunawa Jogoyudan area has low-socioeconomic status, the residents only view flats as only Rusunawa.

Each flat consists of dozens of units with numerous occupants. The huge number of residents affected the perception of people outside the Rusunawa Jogoyudan claiming that living in an apartment is too noisy, crowded, with a lot of passersby, thus disrupting the serenity. According to the society, the more the people the less serene it would be. The absence of rent also provides a sense of comfort for the community because it is considered to be a burden on the economy, especially for people with incomes below the Minimum Wage of Regency/City. While people have the opportunity not to pay rent, people prefer to live in houses that do not require rent at all, for example by staying at the house of their parents or in-laws. Having one's own house or a relative's house that can be lived in without paying the rent provides a sense of comfort more than living in a flat, even when one house consists of >1 family.

Some people perceive living in flats reduces interaction with neighbors, even though the respondents feel that public space in flats is already adequate. Living in a non-flat is valued to have more mobility and more spacious. Those who claim as such have a larger house areas than the Rusunawa Jogoyudan unit area. Flats certainly consist of more than one floor, so it is necessary to go up and down the stairs to carry out daily activities, which is considered to be less comfortable. The location of adjacent units makes it feel cramped due to the lack of space or distance between units, giving the perception of unsecured privacy.

Likewise, the motivation of Rusunawa Jogoyudan residents in choosing to live in Rusunawa Jogoyudan is dominant because they do not have a house, while the reason for them staying in Rusunawa Jogoyudan is also because they still do not have a house. The factor of not owning a house is the most dominant, accompanied by other factors, namely the low cost of Rusunawa Jogoyudan, strategic location, and wanting to live independently without bothering one’s parents. Residents of Rusunawa Jogoyudan plan to live in non-flat buildings because they want to have their own house and feel that the unit area in Rusunawa Jogoyudan is not spacious enough. Respondents who feel that they have less space already have more than one child, feeling they have less mobility.
4. Conclusion
The quality of Rusunawa Jogoyudan regency is superior in terms of building feasibility and waste management, while the housing outside of Rusunawa Jogoyudan only excels in the drinking water supply. The population's perception and the housing quality assessment are compatible. Between owning and needing a house, some populations answered owning a house for housing priority and plans. The choice of housing in the future was dominated by those who plan to live in non-flat housing rather than Rusunawa Jogoyudan. There is no correlation between the preferences in housing options with the income, housing quality, housing ownership status, also perception about Rusunawa Jogoyudan. Convenience is the population's motivation not to choose Rusunawa Jogoyudan. The comfort in question is a better environment, calmer atmosphere, no rental thoughts, already own a house, easier to interact with, more flexible, wider space, no need to go up and down with stairs, and more privacy than living at Rusunawa Jogoyudan. Further research can add variables and information on housing in the Rusunawa Jogoyudan area to make it more in-depth.

5. Acknowledgments
We are grateful for the participation of all respondents and parties who helped in this research.

6. Appendices
Appendix A. Assessment guidelines

**Table A.1. Building Feasibility Assessment Guide**

| No | Criteria                          | Alternative Answer          | Grouping Answer Categories                                                                 |
|----|-----------------------------------|------------------------------|-------------------------------------------------------------------------------------------|
| 1  | The roof of the house             | a. Concrete                  | a. Very Good (a/b/c/d/e-a/b/c/d/e-<>7,2m square per capita-b-b)                            |
|    |                                   | b. Roof tile                 | b. Good (fgh-a/b/c/d/e-b/c/d/e-/>7,2m square per capita-b-a/b) or a/b/c/d/e-f/g-h/b/c/d/e-<>7,2m square per capita-b-a/b) or a/b/c/d/e-f/g-h/b/c/d/e-<>7,2m square per capita-b-a/b) |
|    |                                   | c. Wood/shingle              |                                                                                           |
|    |                                   | d. Asbestos                  |                                                                                           |
|    |                                   | e. Zinc                      |                                                                                           |
|    |                                   | f. Bamboo                    |                                                                                           |
|    |                                   | g. Straw                     |                                                                                           |
|    |                                   | h. Others, please specify......|                                                                                           |
| 2  | Wall of the house                 | a. Wall                      | c. Medium (a/b/c/d/e-a/b/c/d/e-<>7,2m square per capita-b-a/b) or (fgh-a/b/c/d/e-b/c/d/e-<>7,2m square per capita-b-a/b) or a/b/c/d/e-f/g-h/b/c/d/e-<>7,2m square per capita-b-a/b) or a/b/c/d/e-f/g-h/b/c/d/e-<>7,2m square per capita-b-a/b) |
|    |                                   | b. Plaster of woven bamboo/wire|                                                                                           |
|    |                                   | c. Wood/board                |                                                                                           |
|    |                                   | d. Woven bamboo              |                                                                                           |
|    |                                   | e. Logs                      |                                                                                           |
|    |                                   | f. Bamboo                    |                                                                                           |
|    |                                   | g. Others, please specify......|                                                                                           |
| 3  | The widest type of floor          | a. Soil                      | d. Bad (f/g/h-f/g-f-<7,2m square per capita-a/b-a/b/c)                                      |
|    |                                   | b. Board                     |                                                                                           |
|    |                                   | c. Cement                    |                                                                                           |
|    |                                   | d. Tile                      |                                                                                           |
|    |                                   | e. ceramic                   |                                                                                           |
|    |                                   | f. Others, please specify......|                                                                                           |
| 4  | The floor area of the house per capita |         m2 per capita              |                                                                                           |
| 5  | The ceiling height of the roof of the house | a. < 2.8 meters from the floor |                                                                                           |
|    |                                   | b. > 2.8 meters from floor   |                                                                                           |
| 6  | Sources of lighting at home       | a. PLN electricity            |                                                                                           |
|    |                                   | b. Non-PLN electricity        |                                                                                           |
|    |                                   | c. Non-electricity, for example, for example, kerosene such as petrol/press lamps, etc. |                                                                                           |

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia

**Table A.2. Drinking-Water Supply Assessment Guide**

| No | Criteria                          | Alternative Answer                          | Grouping Answer Categories |
|----|-----------------------------------|---------------------------------------------|---------------------------|
| 1  | Criteria                          | Alternative Answer                          | Grouping Answer Categories |
|    |                                   |                                             |                           |

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia
The dominance of family drinking water sources

- Branded bottled water
- Water refill
- PAM/PDAM tap water
- Drilling well/pump
- A protected dug well with a minimum wall of 0.8 meters
- Dug wells are not protected by walls
- Protected springs
- Unprotected springs
- Surface water such as rivers
- Rainwater
- Others, please specify

Availability of drinking water facilities in the family

- Alone (only by own household members)
- Together (together with other households)
- Public (facilities can be used by anyone)
- There is not any

The ability of each individual in the family to access drinking water of at least 60 liters/day

- Yes
- No

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia

### Table A.3. Environmental Drainage Assessment Guide

| No | Criteria | Alternative Answer | Grouping Answer Categories |
|----|----------|--------------------|---------------------------|
| 1  | Drainability in the environment | a. Not available  
b. Unable to drain rainwater runoff  
c. Capable of draining rainwater runoff | a. Very Good (c-c-e-e-e-e)  
b. Good (c-c-d-d/e-d/e)  
c. Medium (c-b-c-b/d-e-a/b/c/d/e)  
d. Bad (b-b-c-a/b/c/d-e-a/b/c/d/e)  
e. Very Bad (a-a-a/b/c/d-e-a/b/c/d/e) |
| 2  | Availability of drainage construction in the neighborhood | a. Not available  
b. Poor, only in the form of excavation without a cover, or cover or there has been damage  
c. Good, there is a coating material or no damage | d. Bad (b-b-b-a/b/c/d-e-a/b/c/d/e)  
e. Very Bad (a-a-a/b/c/d-e-a/b/c/d/e) |
| 3  | The height of the puddle in the environment | a. > 0.50 m  
b. 0.30 m - 0.50 m  
c. 0.20 m - < 0.30 m  
d. 0.10 m - < 0.20 m  
e. < 0.10 m | |
| 4  | Area of standing water in the neighborhood | a. > 8 ha  
b. 4 – 8 ha  
c. 2 - < 4 ha  
d. 1 - < 2ha  
e. <1ha | |
| 5  | Duration of standing water in the environment | a. > 8 hours  
b. 4 – 8 hours  
c. 2 - <4 hours  
d. 12 hours  
e. < 1 hour | |
| 6  | Frequency of inundation in the environment | a. Very often (10 times/year)  
b. Often (6 times/year)  
c. Less often (3 times/year)  
d. Rarely (1 time/year)  
e. Never | |

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia

### Table A.4. Wastewater Management Assessment Guide

| No | Criteria | Alternative Answer | Grouping Answer Categories |
|----|----------|--------------------|---------------------------|
| 1  | Availability of a place to defecate (latrine/closet) in the family | a. Alone (only own family members)  
b. Shared (used by <5 households)  
c. Communal MCK (used > 5 households)  
d. General (used by anyone)  
e. There is not any | a. Very Good (a/b/a/a/b/a/b)  
b. Good (b-b/b/b/b/b)  
c. Medium (c-a/b/a/b/b/b)  
d. Bad (a/b/d/e-c/d/e-c/d/e)  
e. Very Bad (e-e-e-e) |
2. Type of latrine/closet in the family
   a. Goose-neck toilet
   b. Plengseran
   c. Cemplung
   d. Cubluk
   e. Do not use

3. The final disposal site for feces in the family
   a. Septic tank
   b. Wastewater Treatment Channel (SPAL)
   c. Earth hole
   d. River
   e. Other, ....................

4. The final disposal site for wastewater in the family
   a. Septic tank
   b. Wastewater Treatment Channel (SPAL)
   c. Earth hole
   d. River
   e. Other, ....................

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia

### Table A.5. Waste Management Assessment Guide

| No | Criteria                          | Alternative Answer | Grouping Answer Categories |
|----|-----------------------------------|--------------------|---------------------------|
| 1  | Availability of waste sorting in the family | a. Yes | a. Very Good (answer as much as 4) |
|    |                                   | b. No             | b. Good (answer as much as 3) |
| 2  | Participation in disposing of waste at TPS | a. Yes | c. Medium (answer as much as 2) |
|    |                                   | b. No             | d. Bad (answer as much as 1) |
| 3  | Availability of garbage collectors in the neighborhood | a. Yes | e. Very Bad (overall answer b) |
|    |                                   | b. No             |                           |
| 4  | Availability of integrated waste management in the environment | a. Yes |                           |
|    |                                   | b. No             |                           |

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia

### Table A.6. Safety Level Assessment Guide

| No | Criteria                                      | Alternative Answer | Grouping Answer Categories |
|----|-----------------------------------------------|--------------------|---------------------------|
| 1  | Frequency of fires                            | a. Never           | a. Very Good (a-a-a)      |
|    |                                               | b. 1 time          | b. Good (a/b-a-a-b/a-b)   |
|    |                                               | c. 2 times         | c. Medium (a/b-c/a-a-b/a-c/a-b) |
|    |                                               | d. 3 times         | d. Bad (a/b-c/d-a/c/a-b/a-c/a-d/a-b/d) |
|    |                                               | e. >4 times        | e. Very Bad (e-e-e)       |
| 2  | Frequency of lightning hazard and electrical hazard | a. Never |                           |
|    |                                               | b. 1 time          |                           |
|    |                                               | c. 2 times         |                           |
|    |                                               | d. 3 times         |                           |
|    |                                               | e. >4 times        |                           |
| 3  | Frequency of theft of goods/money             | a. Never           |                           |
|    |                                               | b. 1 time          |                           |
|    |                                               | c. 2 times         |                           |
|    |                                               | d. 3 times         |                           |
|    |                                               | e. >4 times        |                           |

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia

### Table A.7. Comfort Level Assessment Guide

| No | Criteria                                      | Alternative Answer | Grouping Answer Categories |
|----|-----------------------------------------------|--------------------|---------------------------|
| 1  | Sufficient floor area for daily activities    | a. Yes             | Appropriate answers: Yes, Yes, Yes, No, No, No |
| 2  | Maintenance and care                          | a. Yes             |                           |
| 3  | Availability of natural ventilation           | a. Yes             | a. Very Good (all answers are correct) |
| 4  | Distraction by glare and reflection of sunlight | a. Yes | b. Good (Answer according to 5) |
| 5  | Vibration                                    | a. Yes             | c. Medium (Answer according to 3/4) |
| 6  | Noise                                        | a. Yes             | d. Bad (Answer according to 1/2) |
|    |                                               | b. No              | e. Very Poor (All answers do not match) |

Source: BPS-Statistics Indonesia and Ministry of Public Works and Public Housing of the Republic of Indonesia
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