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# Rural-urban Area as a New Growth Center: Problem or Challenge?

Jeki Trimarstuti[1]
[1]Corresponding Author, Department of Urban and Regional Planning, Faculty of Science and Technology, University of Technology Yogyakarta, Indonesia

Rika Nuraini[2]
[2]Department of Civil Engineering, Faculty of Science and Technology, University of Technology Yogyakarta, Indonesia

**Abstract:- Spatial transformations that occur especially in the residential area in the rural-urban (peri urban) areas has become a dominant image of rural economy transformation nowadays. The purpose of this research is to identify problems and recognizing challenges related to the opportunities for rural-urban areas as new growth areas seen from housing development perspective. This research was conducted in Seyegan District, Sleman Regency, Yogyakarta Special Province. Analysis method used in this reserarch is geograpic information system analysis (overlay analysis) and descriptive analysis. This research has found a kind of pattern of residential spaces controlled by private developers in rural areas that have experienced changes due to urban dynamics issues. It showed that the main problem relate to the rural-urban area depend on the development of structural plans and spatial patterns, which may have distract by the house developer which then shaping a new form of direction in rural-urban spatial transformation.**

***Keywords:-*** *Rural, Urban, Housing, Development, Growth.*

## I. INTRODUCTION

Peri-urban areas has determined as expansions of the designated cities they surround since they are not only ecologically but also socio-economically integrated into urban functions within the cities [1]. Indonesia has locally considered the term of '*desakota*'-the term for rural-urban which translated and discussed as a blurring divide between urban and rural livelihoods [2]. The term of peri-urban and rural-urban in this research has defined as a transition area that effected by the process of peri-urbanisation which showing a drastically transformation, especially in spatial, economic and social issues. Rural-urban development in developing countries has characterized by mixture agricultural and non-agricultural activities, and also recognized as a shift to urban life and disperserd urban sub-centers [3].

Indonesia as on of the most dynamic country in East Asia show a remarkable development within its rural-urban areas. Sleman Regency is located in the north of Yogyakarta City and has become as on of the dynamic regency in Java Island. Sleman Regency is an area that is experiencing rapid development and has a strong appeal for investors, especially investors in the housing sector. This attractiveness, among others, is influenced by the existence of higher education institutions, both public and private, in the Special Region of Yogyakarta Province and particularly in Sleman Regency (Ningsih, Tutik Rahayu. 2017; Leora, Deva Rozano. 2001). In addition, Sleman Regency is also known as an area with natural potential and physical conditions that are very suitable for residential areas (Sleman Regency Medium-Term Development Plan Document 2011-2015). In 2018, it is known that the total land area that has changed to business functions is almost 87% of the total land that has been converted from the function of rice in Sleman Regency. Based on data on space utilization permits, the function change in 2018 was 69.93 Ha with the following details:

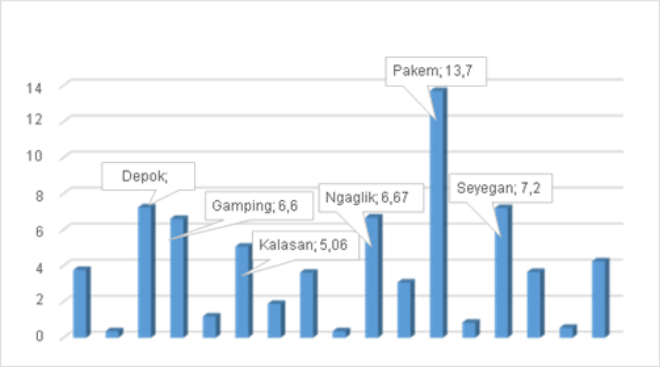


Fig. 1. Data on Transfer of Land Functions in Sleman Regency in 2018 *https://pertaru.slemankab.go.id, 2019*

In 2009, the Sleman Regency Land Control Service stated that there were 1,057 applications for IPPT (Land Use Allocation Permits). A total of 746 or it is said (70.57%) applications have been approved and 184 or (17.4%) applications have been rejected, and about 127 (12%) applications at that time are still in process [4]. The relatively high number of requests is an indication that Sleman Regency has the potential for residential space which continues to develop as a result of urbanization occurring in suburban villages. From research conducted in 2018 regarding the level of development of spatial urbanization in the outskirts of the Yogyakarta Urban Area, it was found that the number of suburban villages experiencing spatial urbanization is increasing where the percentage of urbanization that occurs in suburban villages is obtained based on the total area land change. The greater the area of land change that occurs each year, the higher the percentage of spatial urbanization rates [5].

Research that has been conducted and published in 2011 further confirms that there is significant conversion of agricultural land in Sleman Regency where most of the agricultural land has been turned into residential land. The location of the largest land conversion is in the Sleman area which located in the border of Yogyakarta, particularly the north ring road. The conversion of agricultural land in Ngaglik District was 26.87%, Depok District was 7.45% and Mlati District was 2.10%. The large amount of agricultural land conversion in Ngaglik District is caused by the trend of housing development in this area [6]. With the changes in data from the Department of Land and Spatial Planning in 2018, the research locations selected in this study can provide new information findings that enrich insights about the development implications of land use change in Sleman Regency nowadays.

## II. LITERATURE REVIEW AND HYPOTHESIS

### A. *Rural-urban Real Estate Growth*

The development of the urban spatial shape of Sleman Regency related to the existence of housing growth from 1980 to 2005 has been studied and the results show that the largest increase in housing development occurred in the 2001 to 2005 period. The shape of the distribution of housing development to the spatial structure morphology of Sleman Regency is conversion of non-urban land to urban land. This change in physical form occurs as a result of housing development which subsequently forms a residential area. This area has contributed to the development of infrastructure and functions and activities around housing. From the perspective of spatial development, this study has concluded that housing development is scattered and scattered so that the physical development process of the city is a leatlog [7].

Similar research also reveals the speed of real estate growth in Sleman Regency. Research published in 2013 shows that there have been 68 housing complexes in Mlati sub-district from 2004-2011. The highest rate of land use change in the 2001-2007 period was in Sinduadi Village (18.39 Ha / year), while in the 2007-2011 period it was in Sumberadi Village (5.52 Ha / year) [13]. This research needs to be further developed in relation to current conditions in terms of changes that have occurred in the impact of the expansion of the Yogyakarta Urban Area.

As for other impacts that are more closely investigated related to the growth of real estate in rural areas or suburban areas, it shows that housing development in several areas including Sleman Regency has brought social changes to the surrounding rural communities [4; 9]. The negative impact highlighted by research in 2018 in Bandung Regency shows that the development of housing clusters has reduced the value of concern and led to individualistic attitudes from village communities due to the inevitable social interactions with migrants [8]. Another study that was carried out in Sleman Regency in the same year concluded that the development of housing clustering has created a new form of community, known as a "fenced community" or gated community [9]. These studies also show that the impact of real estate changes can not only be seen from the spatial side, but also from the perspective of social changes that occur in society.

### B. *Transition Space from Rural to Urban*

Spatial ttransformation in peri-urban areas of East Asian metropolitan regions has been a complicated phenomenon nowadays. The areas are also much more dynamic than just the rural-urban areas. Peri-urbanisation can be determined as ‘a process in which rural areas located on the outskirts of established cities become more urban in character, in physical, economic, and social terms, often in piecemeal fashion’. It is characterised by changing local economic and employment structures from agriculture to manufacturing, rapid population growth and migration, rising land values and mixed land use [10].

## III. RESEARCH METHOD

### A. *Research Location*

Sleman Regency is a regency located in the north of Yogyakarta Special Region Province, and directly adjacent to Yogyakarta City. The area of Sleman Regency is 57,482 ha or 574.82 km2 or about 18% of the area of the Special Region of Yogyakarta, which is 3,185.80 km$^2$. The sub-districts of observation in this study were Pakem and Seyegan Districts, with the reason for selecting the sub-districts with the highest value for land use change. Pakem District is located in the northernmost part of Sleman Regency, while Seyegan District is in the west, directly adjacent to Sleman District in the north, where the Regency capital is located.

### B. *Analysis Technique*

The analysis technique used in this study is Spatial analysis of GIS (Overlay Analysis) based on time periodization. Most of the presentation of spatial data always refers to the capacity of GIS / Remote Sensing to analyze data (data analyst). The results of geographic data analysis conveyed through the media of maps, reports or both. Maps used to display the geographic relationship of data, while reports are very appropriate for summarizing tabular data and documenting a value from a calculation or analysis. Overlay analysis has carried out using satellite image data of land use conditions for the previous 5 to 10 years to superimpose the imagery from the current land use, by identifying the location of housing or real estate in the sub-district of observation. This spatial analysis will later be derived into various forms of spatial analysis such as Buffering analysis using ArcGIS 10 software. Scoring and overlays are often used together to produce certain conclusions in this spatial analysis process.

## IV. RESULT AND DISCUSSION

### A. *Problem of Rural Urban-Area: The Flows and the Growth of Housing Development*

Based on the results of field surveys and validation of Google Maps in September 2020, it is known that there are 15 (fifteen) houses scattered in Seyegan District. The area of housing varies considerably, from the smallest 400m2 to the largest reaching 76,700m$^2$ or around 7 ha. Based on this area, housing in Seyegan District can be classified into 3 (three) types, namely small housing (type 36), medium (type 45), and

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large (providing varied types up to type 60). Small housing types dominate Seyegan Subdistrict, namely 8 houses (53%). Large type of housing consists of 5 houses (33%), and medium type is 2 (13%).

Meanwhile, if seen from its distribution, most of the housing estates are located in the southern (lower) part of Seyegan District, with a tendency for locations to be on the border between sub-districts (Kec. Godean). Both small, medium, and large housing types gather at that location. As for the area of Seyegan Subdistrict, the middle-eastern part, there are 3 (three) small type housing and one medium type housing. Meanwhile, in the northern part of Seyegan Subdistrict, there are also 3 (three) small housing types with the distribution approaching the local road or the main road that divides Seyegan District, and borders Mlati District.

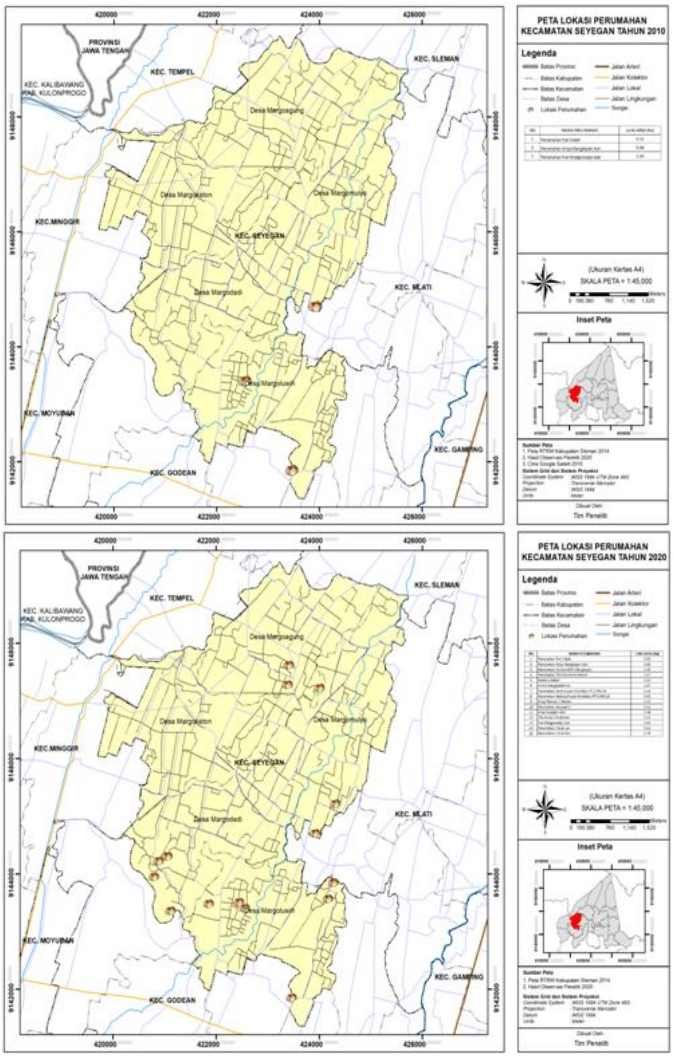


Fig. 2. Adding progress of housing development built up by private sector in Seyegan District (top image is in 2010, and bottom image is in 2020)

*B. Chalenge for Rural Urban-Area based Density, Form and Direction Pattern Analysis*

Density analysis of public facilities (heatmaps) in Seyegan District was carried out using the Densities analysis tool in ArcGIS. The heat map map shows that the central to northern part of Seyegan District has the highest facility density value compared to other parts. The results of this analysis, when combined with the trend of housing location movements in Seyegan Subdistrict, one of which is towards the north, reinforces the indication that the existence of public service facilities is a significant factor in determining the location of housing.

However, there is another development trend towards the south-east of the sub-district area, indicating that there are other factors behind the direction of housing development besides the existence of public service facilities at the sub-district scale. This indication can be taken from a heat map, where the distribution of public service facilities in the southern and eastern parts of Seyegan District is not as dense as in the northern part. In fact, the data shows that nearly 50% of the total new housing locations are in the southern part of Seyegan District.

Eventhough it is located in an area with a relatively low density of public service facilities in Seyegan District, in fact the expansion of housing development has continued to choose that location in the last 10 years. Basically, this can indicate that the point of density for the location of the highest public facilities does not always dominate the preferences of housing developers in determining housing location choices. Even so, this study has a limited scope of analysis, so that these conclusions cannot be drawn. This study did not involve an analysis of the density of public service facilities outside the observation area, eventhough most of the housing locations were closer to other sub-districts than the density centers of public facilities in the sub-district. It is shown that the direction of movement of real estate will still be closer to the center of public service facilities even though different administrative areas. Moreover, the preferences of the people tend to choose the level of accessibility that is easier to get public services, therefore, further research is needed regarding the distribution of public service facilities in the surrounding sub-districts to determine the position of housing in Seyegan District within the reach of public service facilities in other sub-districts.

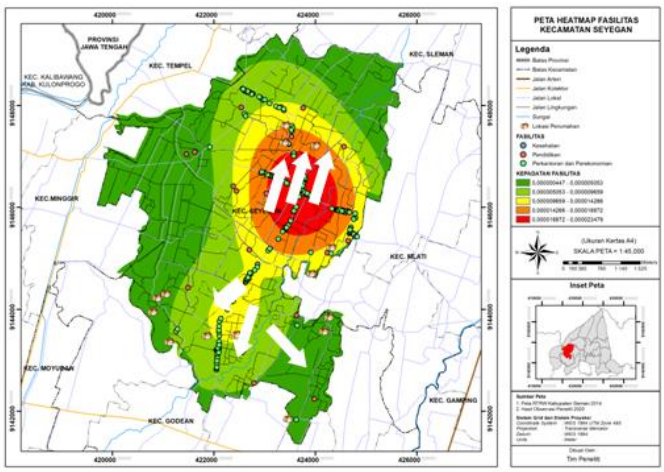


Fig. 3. Heatmap analysis based on the economic and social facility location in Seyegan District, 2020

In general, the direction and development of housing in Seyegan District moves in 2 (two) directions, namely north

and south. In its movement, housing locations are always within a walkable distance, 100-300 m from road access. One of the interesting findings is that many new housing estates are built in the middle of already formed residential villages. This then indicates the developer's effort to take advantage of the settlement system that has been formed such as road accessibility and a conducive social atmosphere to increase the attractiveness of the newly built housing. As for the aspect of the availability of public service facilities, housing development in Seyegan District moves in 2 (two) opposite directions, namely areas with medium-high facility density and areas with low-medium facility density.

One thing should be considered in this study is the limitations in identifying the direction and development of housing from factors outside the area of observation. In this study, the scope of observation is limited to the administrative boundaries of the sub-district, while the factors that attract the development of housing development cannot be limited. The use of space usually crosses administrative boundaries, so it is likely that the movement of housing developments has also caused by the towing factors that exist in the vicinity. In the case of Seyegan District, the existence of housing locations that tend to lead to areas with medium-high and medium-low facility density cannot be answered simply by conducting a heat map analysis of the observed area. Additional heat map analysis has needed in the surrounding sub-districts to determine whether housing movement to the part of the area with medium-low facility density in Seyegan District actually leads to the part of the area with medium-high facility density in the surrounding sub-districts such as Godean and Mlati. This is very possible when considering the preferences of the people who tend to choose the level of accessibility that is easier to get public services. In fact, housing locations in the areas of medium-low density in Seyegan District tend to be on the border of the district. In addition, if you look closely, the location of the housing is closer to the main road access in other districts. Differences in road function will affect the types of public service facilities in the area, where generally public facilities with a higher service scale are easier to find. Related to the pull factor outside the observation sub-district, a common thread can then be drawn between the direction of development of housing locations in Seyegan District which is part of the rural area of Sleman Regency, and the direction of development of the Yogyakarta urban area which is set in parts of Sleman Regency.

## V. CONCLUSION

Problems from rural-urban areas are highly dependent on the direction and shape of the space pattern created from the meeting between supply and demand in the provision of residential facilities and infrastructure. Rural-urban areas are transitional spaces that require such policies that focus on improving the quality of rural communities, be it from an economic, social, or environmental perspective. We cannot avoid spatial transformation as a result of rapid land use change, but it must be controlled by observing the forms and patterns of increasing the distribution of urban population migration to rural areas. Some things we may not be able to avoid such as changes in environmental ecosystems. However, we can observe and project patterns of space use in the future, so that early planning can be done to accommodate the challenges of spatial and sectoral changes.

Some of the challenges that must be faced by rural-urban areas are closely related to the development of activity service centers which located at the core of concentration of facility density. However, distraction to the development center plan can change the existing spatial plan structure and pattern. One of the distractions can be caused by housing development that are not based on the structural plan and spatial pattern. In addition, challenges are also faced with the issue of controlling the extent of agricultural areas as the main focus of the sustainability of rural areas. The extent of agricultural areas will greatly affect the issue of food security and ecosystem biodiversity. For somehow, this is not a kind of an easy challenge to overcome.

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