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Land use change in sub district Mranggen because of residential development

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Abstract

The availability of land within the city are fixed and cannot be limited meet the needs of the population, and that causing the space to the occurrence of the function of land in suburban areas. The process of physical appearance spread outwards urban areas referred to as urban sprawl. Development of Semarang had an impact on the emergence of the region that has characterized the urban areas of the suburbs, one of them in the Mranggen Sub-district that borders the city of Semarang. The change of land use influenced by the construction of a small house on a large scale (Perumnas Pucang Gading) resulting in a change in the characteristics of land use change in Sub district Mranggen this course has specific characteristics that lead to changes in land use from village to urban areas. What kind of urban land use change that happened in Mranggen?. Methods used to analyze the development of the land over the function using a geographic information system (GIS), to describe spatial patterns that can be used to assist in decision-making in the planning area.

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1. Introduction

High utilization of land for residential areas along with increasingly high rates of population growth either naturally or migration. The increase of population by the opinion of Kivell (2003) that the population in developing countries is a major cause of the occurrence of the expansion of the city. The increase in population will increasing need for

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various facilities and means of service of the city, such as housing, social facilities, public facilities and a wide network of urban infrastructure. Also the city space is formed by two things, namely from planning resulted in a planned settlement while the urban process generates unplanned settlement according to Kostof in Sutomo (2009). The change of rural areas into urban areas formed of three processes i.e. suburbanization, the urbanization and periurbanisasi. Suburbanization is a process of changing rural into urban areas caused by the presence of the dispersion process. Suburban area that is formed is still hanging with the city core. The physical development of the city sometimes past the confines of the city itself. The size of the city continue to widen until at one point looks like a blend with the surrounding cities making two or more areas administratively (separately) but so a unity appearance urban areas (metropolitan city) with the form and functions of the characteristic buildings of the city. Over the function of land is a major problem in the process of urban development of Western countries in the 20th century was accompanied by a series of environmental issues and social economic, but it has gotten more attention (Feng, 2009).

The high population growth and dynamics of development in a city will result in the need for land will continue to evolve to a suburban area with consideration of still ample land availability, land prices are cheaper and of better environmental conditions. This condition has continued to evolve and extend so that it becomes a problem of the city. According to Yeates and Garner (1980), in addition to being caused by increased needs for space, is also caused due to changes in the ability of the transportation system, housing development and the existence of the infrastructure. Investors who developed suburban area is the most influential party against the occurrence of land over the function. Other factors that encourage the acceleration of the process of suburbanization is the ease in the ownership of a motor vehicle that supported by the availability of infrastructure of roads that facilitate access to various areas in the urban area of settlement expansion so that it became a district with low density in environments like the rural area.

The emergence of residential areas are scattered, disorganized and not integrated with each other in suburban areas appear empty spaces between either the residential or residential area between the town center. This residential area is not as the effective provision of infrastructure due to the expensive cost of procurement is not proportional to the number of users. So it's not wrong if sprawl defined as a process of growth in suburban areas leapfrog from the core city, where the growth of the city which is not compact caused the facilities and infrastructure of the city being inefficient (Burchell et al, 2005). Many towns are not aware of the occurrence of a change of control of the land; this function causes the problems posed to become very complex and difficult to resolve. So the need for the identification of the characteristics and development direction of over of land in a city function, so that local governments are ready to anticipate by making various city plans that are adaptive. This phenomenon over the function of the land is not only happening in big cities but also in smaller towns such as Mranggen. In general the existence of the function of land in an area marked by the appearance of settlements in the suburbs, similarly happened in sub-district Mranggen, the development of new settlements, the more spread especially in the region bordering the city of Semarang. Land use change on all road corridor which connects Semarang with sub-district Mranggen which was originally farmland being awakened that area used for various activities be it industrial, trade and services as well as settlements. Based on data obtained from the national land Agency of the Central Java Regional office obtained information, that in 2009 Demak over the function changing the land use of 2.317.873 m² in comparison to other districts exist around the City such as Semarang, Kendal, and Grobogan.

The changeover function the most rapid land occurs in sub-district Mranggen, this happens because of the growth of new residential areas (Perumnas Pucanggading Semarang) as well as the development of industry around Semarang-Mranggen road corridor. Cheap land prices along the road corridor Semarang Mranggen compared to the price of land in Semarang also triggers the growth of other supporting facilities such as trade, services, education and so on. In addition to the high movement of commuter heading to work towards Semarang showed the existence of dependency among Sib Mranggen the city of Semarang. Process control of land functions that occur at the Sub-District of Mranggen is in compliance with the applicable local Demak number 6 in 2011 about the Spatial Plan of the region of Demak Regency in 2011-2031 is the only rules governing the utilization of space in Demak. The regulation of those areas mentions that sub district Mranggen included into units of territorial development (SWP II) which served as a trade and service industries.

However, the process of land over the function that occurred in sub-district Mranggen indirectly pose a negative impact, among others, lack of provision of facilities and infrastructure as well as traffic congestion along the corridor. This lack of infrastructure provision requires the existence of anticipation of the Demak Regency Government to address land use before these problems more difficult to overcome. As for the questions that will answered in this research is what kind of urban land use change that happened in Mranggen?. Methods used to analyze the development of the land over the function using a geographic information system (GIS), to describe spatial patterns that can be used

to assist in decision-making in the planning area.

2. Growth and Population Density

The condition of the sub-district Mranggen of border regions as the border city of Semarang when it has shown rapid development. Subdistrict Mranggen that was still rural in nature has now developed into urban areas. The development of the existing urban area in sub-district Mranggen happened indicated due to interactions with the city of Semarang is the construction of the area of the settlement, industry, trade and services in the border region. The development of the sub-district of Mranggen can also seen from the growth of the population increasing from year to year. The population of sub-district Mranggen as much as 2014 of 176.566 inhabitants, whereas in 2006 as many as 126.966 people. The rate of population growth of sub-district Mranggen was seen from the population for 2006-2014 the growth of 3%. Highest population growth occurred in 3 villages namely Batusari, Kebonbatur and Bandungrejo. In addition to the population affected by birth is also due to migration. The migration that occurred in Mranggen sub-district affected by the existence of a housing development appeals increasingly spread in the region especially in the Batusari, Kebonbatur and Bandungrejo. Based on the data of the Central Bureau of Statistics (BPS) in 2009, arrivals in Demak totaled 18.081 people, of which 84,21% i.e. 15.226 people are newcomers in district Mranggen

According to the BPS in 2014, that 15% of the population in Demak Regency, subdistrict of Mranggen. It is among other things caused by housing developer intervention. Sub Mranggen potential to the development of housing due to its location directly adjacent to the city of Semarang. When compared with another sub in Demak, district Mranggen has the highest population density i.e. 2.239 persons per km². Those values far above the density of Demak which is only 1.203 persons per km². Then based on the density in district Mranggen seen only four villages that have a relatively high density, namely Mranggen, Batusari, Bandungrejo and Brumbung. Based on the rate of change of the livelihoods of the population that works agriculturally into non-agricultural Year 1999-2014 on average by 8% per year, look once more that indicate the rate of change is great including the Waru, Banyumeneng, Batusari, and to Kalitengah, Sumberejo (BPS 2014). This condition indicates that the villages in the Sub-District of Mranggen the remote location (accessibility low) have shown the level of changes in economic activity.

Changes in people's lives from the nature of the village became an urban. These changes include behavioral economics, society, culture, politics, and technology. From economic aspects such as can be seen from the change of agrarian livelihoods be non-agrarian. Within 2001-2014, an agricultural population in the Demak decreased by 17%. The highest decline town is Subdistrict of Mranggen i.e. 26%. According to the BPS, the District of Demak Mranggen population who have livelihoods as farmers has decreased over the period 1997-2001. In 1997 the population of an agricultural livelihood as much as 19.397 people and in 2014 became 15.235 people. In contrast to residents who work in the industrial sector, that is experiencing a considerable improvement. In 1997, the population working in the industrial sector become 7.168 people, whereas in 2014 became 20.591 people. Likewise, the trade sector in 1997 totaled 3.652 people and in 2011 become the 14.274 persons.

Concerning aspects of technology such as the use of household appliances from simple become users of motor vehicles. In two districts in the border region between the cities of Semarang and Demak Regency, the increased use of motor vehicles from 2006-2014 experienced significant improvement. In 2006, ownership of the vehicle in the Subdistrict Mranggen of 8.831 units by 2014 and increase to 23.320 units. This ownership of the vehicle is in accordance with the opinion of the Yeates and Garner (1980), in addition to being caused by the increase in space requirements, also due to changes the ability of the transportation system, housing development and the existence of the infrastructure. Investors developing suburban areas is the most influential party against the onset of urban development in district Mranggen. The driving factor that accelerates the process of suburbanisation is the ease in the ownership of a motor vehicle that supported by infrastructure road provision that provides easy access to various areas in the urban area of settlement expansion so that it became a district with low density in environments that are rural.

3. The Development of Land Use

Land use in the study area showed an increase in the number of lands woke up suggests that the increasing need for space. Many of the agricultural lands are turning the function into non-farming. The transition of the land uses for construction, industrial development or the construction of various infrastructures existing in Denmark. Magnitude

control of the function of agricultural land into non-farming in Demak growing each year. In 2002, the number of over the function of the land of 83.363 m², and rise sharply in the year 2010 was amounting to 1.250.857 m². As for the average amount over the function of the land every year from 2002 to 2010 amounted to 490.317 m². The limited land area in the city of Semarang, causing the demand for housing is still not sufficient. These conditions encourage the development of housing that is ready in the suburban area of habitation. Land in the city is relatively empty, and prices are still relatively cheap compared to the center of the city, promote the development of the city mainly use land settlements scattered sporadically in the suburban areas of the city. Increased land woke up with a disproportionate increase in the number of inhabitants in the Sub-District of Mranggen significantly can be seen in the village of Batusari. For ten years from 2001 until 2014, the number of inhabitants in the village of Batusari increased 12.848 inhabitants (51%) while the land woke up increased 149 Ha (91%). This increased is because that residential development occurs nearby a major way.

Residential development in the village of Batusari based on the location of the village that is directly adjacent to the city of Semarang was supported by land prices are still relatively low. Perumnas Pucang Gading is the first housing built in the village of Batusari, development of the trigger housing developing other new housing on a smaller scale such as housing: Majapahit I, Majapahit II, Plamongan Indah and Batusari Asri in Batusari. The extent of the land that has mastered and was built by the developers of the cause of the increased land area woke up in the village. In subsequent years an increase in the population, this is due to the increasing population that occupies housing has been built. Also it is also affected by the land use in the area of Semarang city bordering the Demak who bypassed arterial road, Semarang-Demak is for industrial areas. The development of industry in the Sub-District of Mranggen supported by a strategic location that bypassed arterial road, Semarang-Demak Grobogan direction so it has a good accessibility



Fig.1. Building mass 2014

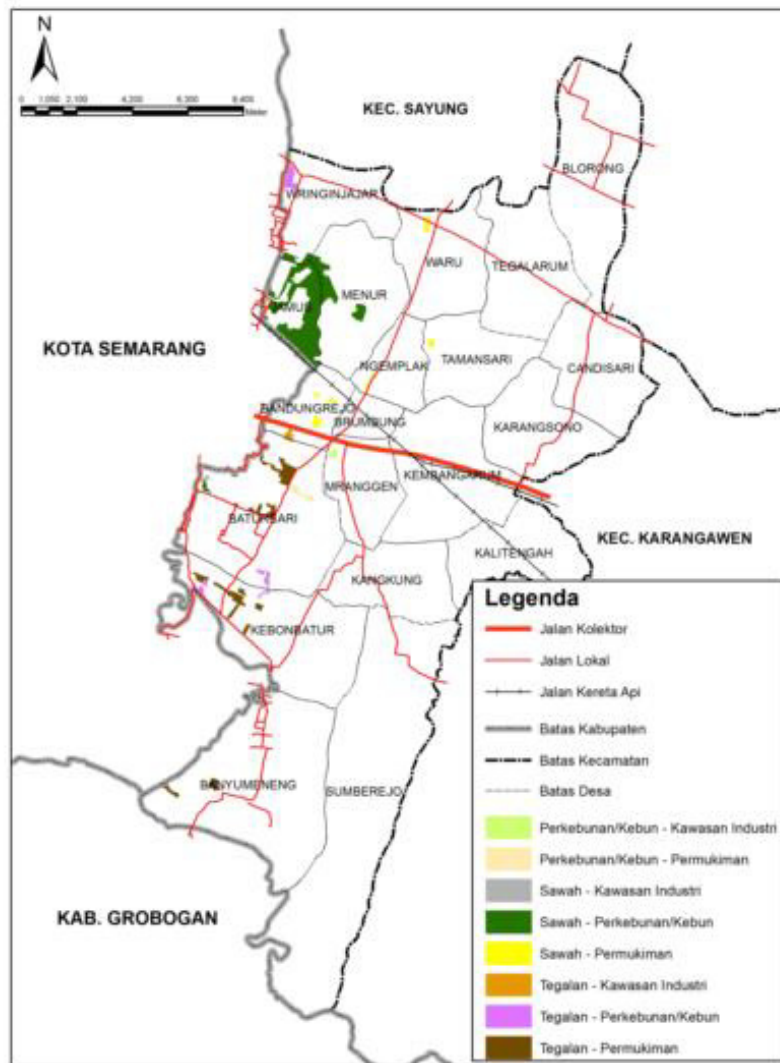


Fig. 2. of the change of land use in 2000 and 2014

Table. 1. Area (Ha) Land Use Change Sub Mranggen

Land Use Change	(Ha)
Farm- Industrial Area	2,16
Farm- Settlement	4,29
Rice field – Industrial Area	0,79
Rice field – Industrial Area	131,30
Rice field - Settlement	10,85
Field- Industrial area	2,91
Field- Farm	16,64
Field- Settlement	42,25

4. Distribution of Facility

The more density of the population in a particular area will cause the growth of settlements that must be balanced with the availability of service facilities. Subdistrict Mranggen year in 2014 has had 200 school facilities (55 kindergartens, 81 primary schools, 37 middle school and 32 high school). This number is far above the number of education facilities available in other even Subdistrict of Demak which is the capital of the district which has only 133 school facilities (37 kindergartens, 64 primary schools, five middle schools, and four high schools). As for health facilities, there are three hospitals (RSU) in Demak, each located in Sub district Mranggen, Demak and Wonosalam. Sub district Mranggen has 16 health facilities such as one Hospital (RSU), three community health centers (puskesmas), four assistants community health centers (puskesmas pembantu), six clinics (balai pengobatan) and two maternity hospital (rumah bersalin). Just as is the case with school facilities the number of health facilities that Sub-District of Mranggen owned the second largest after the Sub-District of Demak. For the trade facilities which is currently also available in sub-district Mranggen was three public markets and one animals market. In general, it can be seen that the provision of education, health, and trade in district Mranggen very adequately based on the number and range of services, but the visible tendency for residents of the Subdistrict Mranggen in General still use the facilities in the city of Semarang. Such dependency seen on the tendency of sub-district Mranggen residents commuting to the Semarang city like such as work, school, leisure and others. The choice of use of Semarang city facilities is based on a selection of quality.

5. Conclusions

Limitations of land in Central Semarang cause growing suburban district (Sub-district Mranggen). The spread of urban physical appearance in sub-district Mranggen uneven, because they follow the line of the road or a strategic location. The change of land use in district Mranggen a lot more happening in the South of Semarang Mranggen road corridor. This land use change led to the provision of the facilities in district Mranggen exceeds the number of facilities there are in sub-district Demak as the capital of Demak Regency. In addition to that system of Government can also encourage a change of land use with a particular policy assignment (lean,2000). This policy is related to the policies of the Central Government to build small housing large scale (perumnas Pucang Gading) that is currently followed by small-scale housing development nearby. However, residential development is uneven, so it resulted in no effective provision of infrastructure, such as drainage, etc. The limited public transport in new neighborhoods led to the high ownership of a motor vehicle. It is necessary for the provision of mass transit facilities and infrastructure that is integrated with the nearby terminal in the city of Semarang, so that the residents in the new residential area in sub-district Mranggen don't need to use private cars to go to work or the center of the city of Semarang. It can suppress the high ownership of a motor vehicle so as to lower the amount of emissions of pollutants from motor vehicles.

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