

# Economic Space Movement: Shifting Functions of Semarang Suburban Land at the Beginning of the 21<sup>st</sup> Century

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## Abstract

In long-term planning, the central area of Semarang City is intended to serve as a centre for government, business development, and trade. As a result, more and more settlements are being evicted or marginalized. The manufacturing industry was relocated for business expansion, so it needed new land both to develop activities and provide supporting facilities. These two sectors eventually shifted to the city's outskirts, causing spatial transformation in suburban areas. This research was conducted as social research with an environmental history approach. The problem that arises is how suburban areas should move due to changes in land use and significant increases in land values. This study applies qualitative research methods with a historical approach to look at phenomena that occur in the suburbs of Semarang. The research results show that, in the 21st century, rice fields and swamps in the eastern region of Semarang City have been converted into industrial areas. This area connects Semarang City with cities in the eastern region of Java Island. Meanwhile, the western part of the city of Semarang, with its flat topography and close to the coast, has become an industrial area and is also being built for residential purposes. Both are close to Tanjung Emas Harbor. Increasingly intensive changes in land use have caused land prices to increase significantly yearly.

**Keywords:** Space Movement; Shifting Functions; Suburban Land; Semarang.

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## Introduction

The transformation of the structure of the suburban area of Semarang City from agricultural to non-agricultural includes physical and socio-economic aspects. The shift in space from the city centre to the city's outskirts was triggered by increased population and industrial economic activity, which resulted in the need for space. The growth of peripheral communities is increasingly accelerated when capitalist groups are intensively involved in industrialization. Meanwhile, improvements to various infrastructures in the city centre have attracted investment in trade and services. The increasing need for spatial space for investment in this sector raises the problem of

land availability. Dense settlements, increasing economic activity, trade and services, increasingly narrowing open space, the higher the value of land prices (Surbakti, 1996, pp. 11-22). The suburban spatial structure is developing rapidly, marked by the growth of economic activity areas and new housing, which is natural when there is a shift and change in the use of city centre space. The use of suburban space certainly requires instruments that regulate economic activities and must be accompanied by consideration of sustainability aspects (Anwas, 2014, p. 42). According to the IUCN Program 2004, sustainability, in this case, illustrates the importance of interdependence between components such as economic, social and environmental. Thus, when the built-up area is expanded in the outskirts of Semarang City, the balance of socio-economic and environmental aspects must be maintained.

The topography of the city of Semarang is very unique and diverse. As a coastal area, Semarang City consists of coasts, lowlands, and hills. The city center is in the lowlands and settlements are developing in the hilly areas. Land use in the city center occurs in various groupings (segregation) in the form of zones including government centers, housing, offices, shops and commerce. This group tends to occupy the core area in the central and central parts. Elite housing tends to occupy hilly areas. Industrial activity follows the coastline, to the west and east, to the city's outskirts. Location of areas with diverse topography. The aim of the research is to obtain an explanation of the transformation of land use changes in the suburban areas of Semarang City.

Spatial changes in urban space can occur with the addition of built-up areas and population growth. Developed patterns that are well planned will encourage sustainable development (Torrens 2008). City area development spurs regional development which not only has an influence on the city, but also provides opportunities for other areas in the surrounding area to develop as well. Physical development in the form of public facilities or infrastructure extending to peripheral areas aims to improve people's lives. A socio-economic approach is used to look at the value of land due to conversion of functions and existing resources (Rosyidi, 2011, p. 2). The two works above are a reference, looking at strategic spaces in suburban areas of Semarang which have the ability to increase land use value, by optimizing their use.

Fringe areas are areas around cities that are between rural areas and urban areas. Some areas will show the shape of a city, but some suburbs will show another shape (Yunus, 2008, p 11) which is closer to rural characteristics. Such areas are often defined as peri-urban areas. Peri-urban areas are characterized by a mixture of the physical capabilities of urban and rural areas are symbolized by the form of land use. This area shows dynamics in various activities compared to other parts of the peri-urban characteristics that have been stated by Yunus (2008), as a basis for analyzing the development of the outskirts of Semarang City which tends to follow centrifugal force, moving away. Kurnianingsih (2013) is the basis for looking at the development of the suburbs of Semarang City based on regional typology. As stated by Cahyati (2010), the relatively flat outskirts of Gresik have become industrial economic areas Semarang places all industrial areas in the lowlands, while Semarang, which also has hilly areas,

is a residential and higher education area. Yesiana (2014), provides an overview of Klaten, a peri-urban area located on the main traffic route with a strategic location, providing easy economic accessibility.

When Semarang chose and placed various economic and industrial activities in the western and eastern areas of the city center, this was a long-term sustainable development plan. Meanwhile, in the Southern region with hilly topography, including Tembalang, Banyumanik, Gunungpati, Mijen, it is designated for residential, educational and service areas, as well as non-manufacturing industrial economies. The increasing burden on urban space, over time, has resulted in land conversion in suburban areas. This condition causes an unavoidable increase in land prices on the outskirts of the city, following the functional change of land to become a more productive location for economic activity. These conditions directly trigger land prices in suburban areas to increase significantly over time.

## **Method**

This article uses the historical method. According to Kuntowijoyo, the stages of the historical method consist of heuristics, external and internal criticism, interpretation, and historiography (Kuntowijoyo, 2013, p. 69). Various reviews of land function movement in Semarang City were obtained through different written sources in the form of documents published by relevant institutions, such as archives in the form of documents related to Semarang City. This article also uses secondary sources such as books and articles from various journals to acquire a more complete and in-depth context.

## **Leaving the City Center: Entering the Outskirts**

Regional autonomy has been implemented in Semarang City since 2001. Since then, Semarang City has strengthened its position as a centre for business activities, services, and public spaces. However, when the Semarang City Government began to establish a long-term master plan, segregation occurred in society. Previously, the government had designated the national main road area, including Pahlawan Street, Pandanaran Street, MT Haryono Street, and Pemuda Street, as the centre of government and business. The area then formed an office environment for both government and private, as well as the development of the service sector, shops, education, and several public facilities. Moreover, a policy emerged to optimally utilize the suburban area as a buffer for the city centre. Based on this, McGee argued that the heavy physical burden on the city resulted in a massive land-use transformation. These transformed the area into an industrial area on the outskirts of the town (Mc Gee, 1991, pp. 3-25; Dicky, 2002, p. 57). Therefore, many investors began to invest in industries in the suburban area.

During its development, land use in the suburban areas of Semarang City began to be influenced by the increasing population. Its conciseness also affected the need for increasingly diverse land use to meet the social and economic needs of the community. Semarang City's different needs must be met, and more representative space is

required. Meanwhile, city space is limited and needs to meet the community's demands, namely the need for space to carry out economic activities. Hence, suburban areas were chosen as an alternative to solve various problems. Further, the area directly adjacent to the city centre is the target of city development.

The needs of the community with the availability of space in the city of Semarang are not balanced because the availability of land is limited. However, many still assume everyone can access city space (Haryono, 2003, p. 133; Madanipour, 1996, p. 167). On the contrary, serious handling is needed to provide awareness to the community about city space as a public space. It must be done because today's society cannot keep up with the rhythm of city life, which must be abandoned. In fact, people with such a mindset need to be moved to the suburbs to make their lives easier. That differs from people who have succeeded in living in the city as entrepreneurs. They then occupy suburban areas close to the town to develop their businesses because of easier access.

### **Scramble Suburban Space**

2004 the government issued Government Regulation No. 16 of 2004 concerning Spatial Planning. Article 2 states that land use must be able to increase land value following the function of the space. That policy then caused the suburban areas of Semarang City to begin to have other roles besides being areas for expanding economic activities. Hence, the suburban areas began to be allocated through careful planning because of the varied land contour conditions in Semarang City. Consequently, land use needs to be initiated with various studies and research from various disciplines. Land uses need their value so that the area can support regional income in various sectors. In addition, land use also influences the economic activities of the population to become more varied.

The role movement of the suburban areas of Semarang City, such as the Tugu, Ngaliyan, and Genuk Districts, into industrial areas has also affected the people around the area. It can be seen from the community's economic activities, which are starting to become involved in the industrial sector. Various changes and movements in the role of the suburban areas have caused segregation in society. That is caused by grouping economic activity spaces in the community, such as housing, shops, offices, and trade centres.

Segregation has been a long-standing issue in suburban areas. However, until the 21st century, it did not pose significant problems due to the lack of competition for space in community activities. Yet, as the intensity of each group increased, problems began to emerge. The community groups have shown remarkable adaptability, finding new ways to expand their economic activities to survive and thrive in the changing landscape.

Principally, there are differences between the city centre and the suburban areas. It can be seen from slum areas that only exist in the city centre. Meanwhile, rural areas close to the city centre play an important role in supporting the city centre. Consequently, changes in land use in the suburban location will cause a

transformation built based on social and economic relations based on sustainable spatial planning (Prins & Peter, pp. 158-167). For the indigenous people of Semarang City, changes in land use also affect their lives, including increasingly appreciating time and accepting different types of livelihoods. These changes can be caused by their interactions with newcomers and the environment that is starting to develop with various economic activities.

Land use changes from one user to another over time (Pidora, 2010, p. 10). Furthermore, several areas on the outskirts of Semarang City that were initially forests and fields or rice fields began to decrease or even disappear altogether. However, infrastructure development is improving. It is evident from the construction of roads of increasingly better quality. Residential and industrial areas are also starting to have adequate facilities and infrastructure. In other words, companies operating in nine industrial area locations also benefit. Therefore, the development of the outskirts of Semarang City is strongly supported by the availability of supporting facilities. That's in line with a study conducted by Alhusain, which states that facilities and infrastructure are urgent in helping and supporting the wheels of industry (Alhusain, 2014, p. 40).

Furthermore, the movement of Semarang City space has become more dynamic since the beginning of the 21st century due to changes in the function of space as a city centre. The city centre area began to be designed as a centre for government offices, tourist destinations, culture, public facilities, and businesses. The movement of the city core area caused the suburbs to begin to be prioritized for development by the community and city government. For example, the Gunungpati area began to be developed into a residential area, tourism, and one of the new educational areas. The Genuk area also began to show its identity as an industrial area even though it has been prone to tidal flooding since the 2000s. Besides, Prihanto (2012) has analyzed the development of two other suburban areas, namely Ngaliyan and Tembalang, some of which are hilly. In his study, he described the conditions of the two areas as continuing to develop as educational, residential, and public spaces.

Based on the research results, the suburban areas of Semarang City began to be of interest to domestic and foreign investors in the early 21st century. The demand for land caused changes in land function and the movement of economic space in the two areas (Ngaliyan and Tembalang). Entering the second decade of the 21st century, the Gunungpati and Mijen areas became the target of developers to invest their capital in the two areas. Geographically, the four areas are partly or even 80 per cent hills, so they are considered ideal residential areas. Developers also continuously began to convert land into residential areas with various classifications based on marketing prices. They built residential areas with high prices for the elite and some with low prices that low-income people could reach. The four areas became the location for the construction of state and private universities. That condition triggered the construction of public facilities for economic services, health, and transportation that were adequate and integrated with residential areas.

Furthermore, the Semarang City government began to determine the division of

areas with existing land conditions. The industrial area is designated to be in the western suburbs, although some are in the Ngaliyan and Tugu Districts. The determination of Ngaliyan and Tugu Districts as industrial areas is because they are not far from the port area. In its development, rice fields have been converted into industrial areas, settlements, facilities, and public infrastructure that is increasingly intensive in the Ngaliyan, Tugu, Tembalang, Gunungpati, and Mijen Districts (Figure 1).

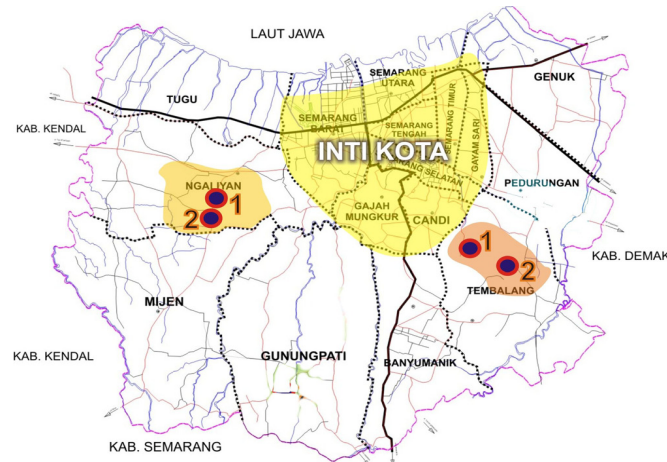


Figure 1.

Source: Pihanto, 2012.

Relative to the development of suburban areas, it is necessary to improve facilities and infrastructure. One of them can be done through the expansion of facilities and improving the quality of toll roads. The expansion will be related to the conversion of rural land, especially those around the toll gate (Semarang City Service, 2015, p. 15). However, the conversion of suburban land, referred to as a protective area for the sustainability of the ecosystem, should be used more. That condition can have a negative impact in the long term if it is maintained continuously. In addition, crucial problems will also occur if the conversion of land does not pay attention to the environmental impact. One of the problems that will arise is the loss of infiltration areas and plantations, which will cause landslides and floods. Yet, some developers still prioritize current needs over the security and balance of the ecosystem. That condition can trigger excessive land use without considering the negative impact on the environment.

For example, what happened in the suburban area of Semarang City, which consists of hilly areas that have started to turn into residential areas? The land conversion resulted in flooding in Semarang City. The problem was then overcome by the existence of polders spread across the Old City area, precisely in front of Tawang Station, Semarang City, becoming one of the solutions to accommodate flood overflows from the upper areas of Semarang City, as well as floods caused by high tides. Meanwhile, drainage channels in the West Semarang area include the Mangkang River, Tapak River, Boom Karanganya River, Jumbleng River, and Tugu River. The drainage system in Semarang City is integrated with drainage in coastal areas. This

drainage is one of the efforts to overcome flooding in the Semarang City area. Another effort the Semarang City government made was to build the Jatibarang Reservoir, located between two sub-districts, Gunungpati District and Mijen District. The reservoir was built to control flooding while supporting the regional economy because it has the potential to be a tourist destination, irrigation provider, and power plant.

### **Industrial Area: Economic Value of a Space**

The transformation of land on the outskirts of Semarang City has caused a high demand for land. It has affected the increasingly high price of land on the market. The condition occurs on the outskirts of Semarang City, so agricultural land is converted into an industrial area. As a result, the area is starting to become dense and expanding. In his study, Arsyad stated that an industrial area can be formed if there is a process of utilizing natural and human resources to increase the added value of raw materials into products, which affects the development of the trade and service sectors (Arsyad, 2010, p. 442). The development of the outskirts of Semarang City has its appeal to urban communities.

Basically, land conversion can occur intentionally or unintentionally. The utilization of space on the outskirts of Semarang City is one example of a planned land conversion. The space is utilized by considering the benefits, convenience, and development demands and paying attention to environmental aspects. The planning can be caused by various things, one of which is the limited capacity of the city centre space, so a shift or expansion of space is needed. In addition, population growth can also result in a shift in space. Therefore, planning for the development and expansion of urban areas needs to be carried out to anticipate various problems such as population density, transportation congestion, and air pollution (Bapeda Semarang City, 2015).

In its development, nine industrial areas were built in Semarang City until the end of the 21st century, one of which is Bukit Semarang Baru, conceptualized as an integrated area. The industrial area was built near the main highway (National) traffic route. Meanwhile, other industrial areas are located on the main intersections between cities and provinces on Java Island. The nine industrial areas occupy areas with easily accessible topography, making them very economically beneficial as built-up areas for business activities. In developing existing industrial areas, the government has carried out careful planning for long-term sustainable programs. Based on Table 1, the area is determined by considering aspects of environmental sustainability and products produced by each industrial sector.

**Table 1. Industrial Estates Have Continued to be Developed in the Early 21<sup>st</sup> Century**

No	Name Industrial Estate	Type of Industry Developed
1	Wijayakusuma Industrial Park	Machinery, heavy equipment, electric
2	Industrial Estate Terboyo	machinery, heavy equipment, electricity
3	Lamicitra Nusantara Industrial Estate	Electronic, motor vehicle and gamelan assembly (all nonpollutant industries)
4	New Bukit Semarang	Integrated area: residential areas,

	Industrial Area (112 Ha)	business and service centers, electronics assembly, motor vehicles and gamelan (all non-polluting industries)
5	small industrial environment New Bugangan	Various household needs, offices,
6	Industrial Estate Guna Mekar Tambak Aji	Machinery, heavy equipment
7	Candi Industrial Estate	Machinery, heavy equipment, electronics
8	Tugu Industrial Estate	Machinery, heavy equipment, steel processing
9	Sinar Centra Cipta Industrial Park	Manufacturing, consumer products

Source: Processed from the official website of each Region 2010-2020 and capital investment Dynamics and Semarang City Government One Stop Integrated Services

Based on Table 1, the development of industrial areas that have been determined is influenced by Government Regulation No. 16 of 2004 concerning Regional Spatial Planning. As previously explained, policymakers are carrying out the spatial planning of industrial areas and the development of transportation infrastructure in the suburban areas of Semarang to achieve sustainable urban development in the future. Rodrigue, Comtois, and Slack (2009) in their study argue that transportation itself is a link between various built-up areas and commodity centres. It can be seen in Semarang City in the development of several industrial areas spread across various regions, both in the eastern, western, and northern parts of Semarang City. These industrial areas include the Wijaya Kusuma Industrial Area located on Pantura Semarang Kendal road, Tugu District, owned by BUMN, together with the Central Java Provincial Government and the Cilacap Regency Government with ready-to-use land and modern Ready-to-Use Factory Buildings (BPSP) with international standards (KIW.co.id, June 2024). Then, the Terboyo Industrial Area is located in Trboyo Wetan Village District Genuk, Semarang City, which borders Demak City. Bukit Semarang Baru (BSB), as the largest satellite city (suburb) in Semarang, has an industrial area with a clean industry concept (PP No. 24 of 2009), which is equipped with a city park. In addition, this area is easily accessible because of the excellent road quality from various directions, which connects it to other sub-districts. The superb road quality also facilitates the community around the BSB area. The area is also not far from the Jatibarang reservoir, thus accelerating the rate of industrial growth.

Furthermore, other small industrial areas are in the Bugangan Baru area in Muktiharjo Lor Village. The Lamicitra Nusantara Industrial Area is also located at Tanjung Emas Port, Tanjung Mas District, Semarang. The industrial area is currently seeking to expand its location for export processing. Then, the Mekar Industrial Area is in the Tambak Aji Village area, Ngaliyan District. Meanwhile, the Candi Industrial Area is an industrial area that produces heavy equipment, machines, electronics, and other components. That area is located in Ngaliyan Village, Ngaliyan District.



Meanwhile, in the westernmost area of Semarang City, with the smallest population, there has been an industrial area since 1988 that the government has managed.

### **Infrastructure, Land Prices, and Distribution Patterns**

The enactment of Law Number 38 of 2004 concerning the construction of the second road triggered a change in land use in the outskirts of Semarang City. We can understand that roads are land transportation infrastructure that includes all parts of the road intended for traffic on the ground's surface. Hence, road infrastructure is one of the important elements in changing the spatial planning of industrial economic activities through expansion. Road infrastructure development and land use changes are very closely related. That is because the expansion of the area requires transportation with good road conditions.

Consequently, the expansion of the industrial area will follow the axis of growth, namely following existing transportation routes or newly developed routes, to the final destination area. This pattern forms an industrial area that is interconnected with each other even though its location is spread out. In line with the program to increase the capacity of the toll road that passes through Semarang City, investors have made related plans. Investors have invested in response to the policy of improving the quality of toll roads. It is done by competing for new strategic land as the centre of their business development. Giuliano argues that improving infrastructure will increase accessibility. That is because the land has value that needs to be developed further. Then, land development will trigger the growth of various new economic activities in the community (Giuliano, 2004; 2012).

Several new industrial areas on the outskirts of Semarang City that are integrated with housing, business centres, services, and industry are developed by the private sector in collaboration with the government and State-Owned Enterprises. The development is an effort by the government to increase economic income and regional independence following Presidential Decree No. 41 of 1996. The policy was then followed up with Regional Autonomy Law No. 22 of 1999. Meanwhile, Law No. 32 of 2004, which was replaced by Law No. 23 of 2014, has explicitly stated that each region can optimize their potential and diversity. The policy also provides convenience for investors to invest in industrial development (Suara Merdeka, May 25, 2015). The description above is one factor causing the rapid conversion of land functions. In addition, the need for industrial areas also affects the value of land, which increases in a short time.

When several industrial areas, such as the Candi Industrial Area, the Bukit Semarang Baru Area, and the Lamicitra Nusantara Area, began to be built, the surrounding areas experienced a change in function due to the drastic increase in land value. The rise in land value can occur due to several factors, including the location close to the toll gate and one of the flood-free areas. Geo-economically, areas with these characteristics are considered strategic. These conditions are attractive places for business development. That is because the distance and travel time are shorter, transportation costs are cheap, and the ease of transporting goods and passengers. In

addition, high accessibility attracts investors, entrepreneurs, and the community to invest in this location. The location also has easy access to the port as an infrastructure for loading and unloading export-import commodities because it is close to the national highway. In other words, its location is on the main route connecting Semarang City in the western and eastern regions of Java Island. Moreover, the area began to be equipped with trade, commerce, services, and industry sectors that increasingly provide convenience and comfort for the residents. That is because almost all user needs can be met or obtained. These various facilities indirectly became one of the factors that caused land prices to double.

At the end of the 20th century, the phenomenon that occurred in big cities in Western countries was the demand for job locations close to where they lived. In addition, locations close to the workplace are also equipped with recreational, entertainment, and sports facilities, education, communication, transportation, business, services, and trade. The phenomenon will occur in developing countries in the future. Therefore, developers in Semarang City are always looking for strategic space by considering economic principles. On the other hand, consumers are willing to pay any price offered if they get adequate facilities. When suburban areas have access, as mentioned above, there is the potential for an increase in demand. It will impact the increase in land prices that cannot be predicted or controlled (Disperindag, Semarang City Government, 2020).

Based on Law No. 14 of 2011, the spatial development pattern of industrial areas can be based on the location and function of the land being developed. In general, industrial areas in Semarang are located along faster transportation routes. Land development in these areas can cause high mobility. Therefore, land use can be explained using the relocation diffusion model. The spatial distribution model is used when people leave their home areas for economic interests. Related to the topography and division of areas in an area, Northam explains that appropriate topography and zoning will facilitate the provision of utility infrastructure. The expansion of the city area in his study can be called "invasion", and the process of introducing the city can be called "urban sprawl" (Northam, 1994, pp. 31-35). In general, the physical distribution of Semarang City follows a pattern similar to Northam's explanation. That is because the road network in various regions shows uneven distribution in each part of the suburban development. The topography and geographical conditions of the area have varying contours, so the development tends to be elongated/linear. In addition, the spatial distribution pattern in the suburban area is formed evenly due to the increasing quality of connecting roads (neighbourhood roads). Therefore, there is a space division between community groups in residential, industrial, and commercial areas. As instructed by the central government, the business licensing process needs to be facilitated so that the conversion and utilization of land in the suburban areas of Semarang City are increasingly intense. Based on the results of the spatial planning and spatial utilization analysis, many suburban villages are declared eligible as integrated industrial areas, even though they have an area of >50 Ha. That is because the Waste Treatment Plant (IPAL), one of the requirements for developing an area, can

be built (Mayor Regulation No. 9 of 2015). The determination and placement of the area have also gone through a feasibility analysis and careful planning. The analysis was carried out by considering the availability of supporting infrastructure, such as the Tanjung Emas seaport's location within a certain radius as an outlet for inter-island and export products. In addition, there is also a network of northern and eastern arterial roads as primary collector roads connecting the area with the port (outlet). The network is equipped with adequate capacity electricity, water sources, telecommunications networks, and supporting facilities such as banking, health, and safety infrastructure.

Based on data from the Department of Industry and Trade in 2019, more than 50% of land ownership in industrial areas on the outskirts of Semarang City is managed and run by the private sector. That condition illustrates the intensity of domestic and foreign private investment. In addition, these institutions supervise area ownership, control it, and evaluate its use. Meanwhile, the division of industrial locations must always follow mitigation laws. Niandyati et al. (2019) explained in their study that changes in land use in suburban areas designated for industrial areas must consider the social impacts. That is because the suburban agricultural regions will continue to experience densification and expansion. That condition will cause various problems if not anticipated in advance and through an environmental impact analysis (AMDAL).

## Conclusion

The increasingly limited land in urban areas is one of the causes of the rapid growth of suburban areas. It is due to the movement of people from the city centre to the suburbs in the early 21st century. The movement of people occurred because the suburbs could still find relatively empty land and could be developed with careful planning to make it relatively more comfortable. The use of space to meet housing and business needs has caused land prices to increase quickly. The suburbs of Semarang have become a new space for macro-scale economic activities. Integrated regional development is an inseparable part of environmental change and its use. Meanwhile, the selection of industrial areas has been carried out with careful planning, calculation, and analysis. The determination was made by considering environmental aspects. The government did that to avoid future problems such as natural disasters.

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