



PLANNING MALAYSIA:

Journal of the Malaysian Institute of Planners

VOLUME 22 ISSUE 1 (2024), Page 256 – 269

TRANSPORT POLICIES, TRANSIT-ORIENTED AND DEVELOPMENT REDISTRIBUTION OF POPULATION IN PERI-URBAN: LESSONS FROM KUALA LUMPUR AND JAKARTA METROPOLITAN AREA

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Abstract

Transit-Oriented Development (TOD) is the representation of a compact land-use management strategy relying on a mixture of land use and transport concepts to manage urban sprawl and population. The concept promotes high-density housing, mixed land use, and integrated mobility. Therefore, this article aims to discuss the incorporation process of TOD concept into urban policies and transport planning in Southeast Asian metropolitan cities. The effects of the policies on population movement patterns are examined, specifically in peri-urban areas, which are the most difficult parts of cities. In addition, the case studies include Jakarta and Kuala Lumpur, representing two of the most rapidly developing metropolitan areas in Southeast Asia where TOD has been progressively adopted. Data and information are collected from documentary reviews and interviews. The results show that the duration of TOD policy implementation gives rise to distinct trajectories in peri-urban population redistribution experiences within the two metropolitan areas.

Keywords: TOD, Transit Policy, Metropolitan Area, Urban Sprawl

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INTRODUCTION

Major cities in Southeast Asia are subjected to a rapid transition in urban development phase characterized by a significant increase in population, building density, and spatial concentration of economic activities. This phenomenon creates a new spatial layout networked by cities and districts close to each other and share similar socio-economic functions known as metropolitan area. In contrast to the conservative model of city development, which relies on a single growth pole, this spatial layout signifies socioeconomic connections among more than two urban centers and the respective supporting peripheries (Moreno 2017).

Urban sprawl usually follows development of metropolitan areas. In this context, physical and population distributions are rapidly extended to create functional boundaries difficult to control within specific proximities. Urbanization occurred with the rapid growth of population as well as the massive development of housing and infrastructure. Meanwhile, peri-urban is developed as a popular area for the working and middle class. This area is characterized as affordable and provides alternative living spaces to individuals who are unable to acquire expensive land in the city center (McGee, 1991; Rustiadi and Panuju, 2002). Generally, the concentration of buildings and people in peri-urban areas exceeds the normal carrying capacity. These areas face serious challenges from daily commuting activities, rapid housing development, economic activities, higher energy consumption, and increased pollution levels, occurring in unorganized and spontaneous ways (Habibi and Asadi, 2011; Oueslati et al., 2015).

Transit-Oriented Development (TOD) is urban planning approach that focuses on a mixed-use, compact, and walkable living space. Development is related to transit nodes or areas where mass rapid transit and other public transportation modes are integrated to create new functional areas. Furthermore, these areas serve more effective socio-economic activities to promote environmental, social, and economic sustainability (Kenworthy, 2006; Wey et al., 2016). The concept has gained significant attention and is increasingly applied in Southeast Asian cities as a model for innovative urban living. In the last decades, large metropolitan cities such as Jakarta, Bangkok, Manilla, and Kuala Lumpur adopted TOD concept to deal with urban sprawl at the peripheries, organizing more effective and efficient area development. This consists of affordable apartments and flats with direct physical connections to transit station surrounded by offices, shopping areas, public spaces, and public services (Gomez et al., 2019; Hasibuan et al., 2014). The objective is to enhance more appealing living conditions (Banai, 1998) and maximize land usage efficiency (Ann et al., 2019).

This article discusses TOD policy and population in two case studies, Metropolitan Jakarta and Kuala Lumpur, representing two of the most rapidly developing urban areas. A historical institutional framework is used with spatial

visualizations to guide the analysis processes. Data and information are gathered through a combination of document reviews and interviews. This article consists of six parts and after the introduction and literature review, a methodology section is provided, followed by two main discussions of the policy process of TOD in Kuala Lumpur and Jakarta as well as the implications for population reorganization in peri-urban areas.

LITERATURE REVIEW

TOD in Urban Metropolitan's Sprawling

TOD is a response to overcome various urban sprawling problems in metropolitan areas and large cities where overpopulated, massive flow of commuting activities, traffic congestion, and sporadic building constructions occur (Xu et al., 2017). This concept was developed at the end of the 20th Century as a form of the New Urbanism Movement in the USA (Carlton, 2009) and an effective alternative to achieving urban sustainability (Cervero and Sullivan, 2011). TOD is linked to compact city where housing, services, and economic facilities are provided within walking proximity (Dittmar and Poticha, 2004). Even though the original concept intends to promote sustainability in area of 2,000 feet (10 minutes on foot) radius (Calthorpe, 1993; Xue et al., 2010; Jerde, 2011), the current development has been translated into various circumstances, including 100—200 meters and 400—800 meters in Kuala Lumpur and Jakarta, respectively.

TOD drives population distribution in urban areas through accessibility and healthy living features (Fol and Gallez, 2014; Pereira et al., 2017). The concept offers the target population a quality of life in the city centre and suburban areas where people can have more flexible time and travel options, as well as served by modern offices and complete urban facilities (Papa and Bertolini, 2015). However, TOD implementations were unanticipated to create new competition and area attracted new populations from rural and other cities. This situation often results in high prices of land and property, which triggers social class segregation (Chava et al., 2018) and pushes low-income populations into suburban areas (Saunders and Smith, 2014). Considering the Curitiba case, TOD has been growing against the expected plan because the high-income population is concentrated around city centers and corridors. Meanwhile, the low-income and middle-class populations who are unable to compete in securing land and property move out into suburban areas. This inequality in access causes new concentrations of population growth beyond the 300-800 m radius (Turbay et al., 2022).

Theoretically, the core area of TOD has a higher density compared to the surrounding (Calthorpe, 1993). The difference in density level is also influenced by the distribution of the typology. TOD serving as a regional center

has a higher level of density at the core area than the suburban centers and urban neighborhoods. Therefore, different layers of urban density and population concentration are created. Tong et al. (2018) suggested that TOD in central stations serving as regional centers with more public transport connections had significant impacts on gathering people to live within a defined walking proximity than suburban and neighborhood settlements. However, more suburban and neighborhood TOD should be provided in the planned peri-urban areas when planners expect to deconcentrate urban population from the city (Higgins and Kanaroglou, 2017). Focusing on TOD concept is important considering the existing challenges in peri-urban areas, namely spontaneous housing, inefficient land uses, and a scarcity of open space. Meanwhile, the implementation of a suburban and neighborhood settlement model can effectively guide population towards enhancing the living quality in these spontaneous peri-urban areas. TOD at regional and city levels should be provided when metropolitan area expects to reduce its commuters and traffic congestion. This allows the concentration of mixed-use developments, including residential spaces, commercial, and public amenities, around transit hubs and promotes compact living with minimum driving habits (Hasibuan & Permana, 2022).

STUDY METHODOLOGY

A case study is analyzed through a mixed-method approach using documentary reviews, semi-structured interviews, and spatial visualizations. The documentary reviews examine the chronological development of TOD policies and the subsequent impact on urban development. These reviews included a wide array of sources, such as existing study publications, policy papers, planning documents, as well as formal and academic records, providing essential data and information for a thorough analysis. Meanwhile, interviews contribute to gaining opinions, expectations, and additional information that is not covered by the existing documents. Spatial visualization includes area and population mapping as well as TOD delineation area to explain urban population trend as well as spatial conditions. This process was facilitated by the use of Geographic Information System (GIS) software.

ANALYSIS AND DISCUSSION

The Institutionalisation of TOD in Kuala Lumpur Metropolitan Areas

TOD concept was initially mentioned in the 10th Malaysia Plan (2010-2015) of 2010 (Economic Planning Unit, 2010). The policies focused on the importance of creating a city that promotes a wide range of activities and facilities within walking distance. To achieve this policy, mixed-use development is promoted with the integration of the public transport system. TOD concept has been widely

adopted at the national, state, and local levels of government documents. Even though the concept was first mentioned in 2010, the Malaysian government implemented the first project in 2001. To understand TOD relevant to the Kuala Lumpur metropolitan area, policies should be reviewed from the national and local levels since the implementation follows a hierarchical order.

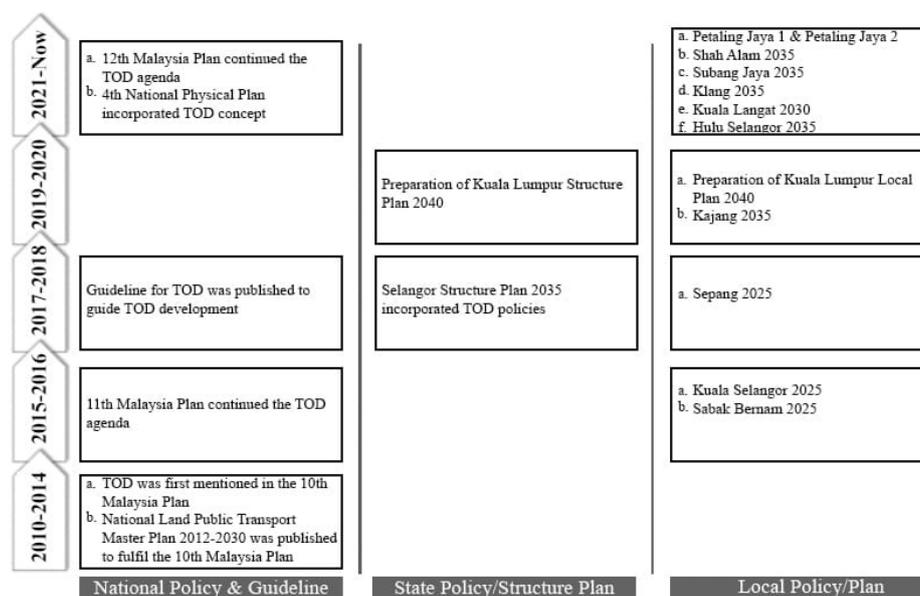


Figure 1: The Institutionalisation of TOD in Kuala Lumpur Metropolitan Areas
 Source: Economic Planning Unit (2010, 2015, 2021); DBKL (2023); Plan Malaysia (2012, 2021); & Plan Selangor (2023)

At the national level, four main policies are included. Firstly, other than the 10th Malaysia Plan, the 11th (2016-2020) and 12th Malaysia Plan (2021-2025) continue the agenda due to persistent challenges such as the lack of first- and last-mile connectivity for public transportation and limited TOD in cities, which has led to a higher cost of living (Economic Planning Unit, 2021). Secondly, the National Land Public Transport Master Plan 2012-2030 was formulated to increase the public transport modal share from 16.4% in 2011 to 40% in 2030 (Land Public Transport Commission, 2012). To achieve this policy, several strategies were proposed, including 1) investment to improve and expand the public transport network, 2) provision of integrated facilities and terminals, and 3) establishment of a mechanism and enforcement system. Thirdly, the fourth National Physical Plan increased the expansion of TOD concept to global and regional transit stations, providing incentives to promote affordable housing in TOD areas (PLANMalaysia, 2021). Finally, the 2018 Planning Guidelines

provide general and detailed guidelines, such as types and intensity of TOD, principles, and detailed design standards, such as land uses, plot ratio, setback, density, height, pedestrian walkways and cycling paths, parking areas, recreational areas, and public facilities (PLANMalaysia, 2018).

TOD policies mentioned at the national level are translated at the state level. The main document included in implementing TOD is the Structural Plan. Since the study is focused on the Kuala Lumpur metropolitan area, the documents reviewed are those pertaining to Kuala Lumpur and Selangor States. Apart from policies to promote TOD, the Kuala Lumpur Structure Plan 2040 identified five (5) categories based on main activities including central business district, main growth centre, neighborhood area, institution and public facilities area, as well as suburban and the location in Kuala Lumpur (Kuala Lumpur City Hall, 2023). In the Selangor Structure Plan 2035, the document shows the policy to integrate transportation system with land use planning through the implementation of TOD and to expand the coverage of railway and Bus Rapid Transit in high-density areas (Department of Town and Country Planning Selangor, 2017). The policy in the Selangor Structure Plan is not detailed since the State covers nine administrative districts. However, the detailed explanation of TOD implementation in Selangor is explained at the local level.

All policies at the state level are translated by the local government into the Local Plan. For example, in the Subang Jaya City Council Local Plan 2035, 15 out of 32 stations in the Subang Jaya area are designated as TOD based on the suitability of the stations and surrounding areas (Subang Jaya City Council, 2021). The designation covers the core area of 500 meters from the station and up to a 1-kilometer radius. To obtain a successful implementation, the proposed TOD should be 1) supported by feeder bus services to connect with surrounding neighborhoods and commercial areas, 2) well-connected and convenient pedestrian walkways and cycling paths, and 3) better road design to enhance safety. Another aspect contributing to the success of TOD is the implementation of mixed-use development surrounding the station, primarily focused on commercial centers (Abdullah, 2020).

The Institutionalisation of TOD in Jakarta Metropolitan Areas

The implementation of TOD policies in the Jakarta metropolitan area started in 2012 before Kuala Lumpur. The policies were marked by the DKI Jakarta Provincial Regulation No. 1 of 2012 concerning Jakarta Spatial Plan. This spatial planning regulation interpreted TOD concept as urban activity centre model designed in a mixed-use - commercial, residential, office, and public space - consisting of a high-density building integrated with an accessible mass public transportation system.

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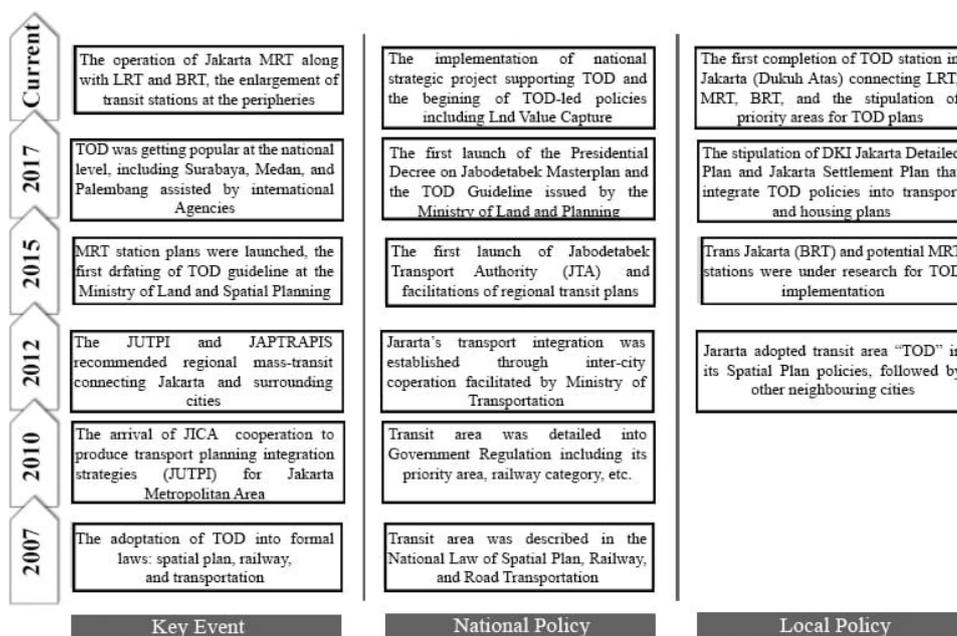


Figure 2: The Institutionalisation of TOD in Jakarta Metropolitan Areas

Source: Hasibuan et al. (2014) & JICA (2012)

Local government initiative was triggered by the national direction that presented the concept of TOD as a national strategic concept to be implemented at the local level. This concept was introduced in various national laws, including Law No. 23/2007 concerning the National Railway, Law No. 26/2007 concerning Spatial Planning, and Law No. 22/2009 concerning Road Transportation. The regulations urged the national and local governments in metropolitan areas to promote spatial use with effective and efficient approaches. However, TOD in Indonesia was not quickly implemented after the launch of the regulations. The initial planning policies lacked specificity, failing to explicitly outline targets such as the reduction in modal share and building intensity, as observed in the case of Malaysia. For instance, the two national laws, including spatial planning and railway primarily only focused on mentioning the importance of transit areas for urban transportation systems. The law also only mentioned the criteria of potential land uses for transit areas where high population density meets transportation modes without any land uses, plot ratio, setback, and pedestrian design.

Detailed explanations and points of reference for TOD plan were presented by a series of Japan International Cooperation Agency (JICA) and

Ministry of Transportation collaborative studies entitled the Jakarta Urban Transport Policy (JUTPI) and the Jakarta Public Transport Policy Implementation Strategy (JAPTraPIS) held in 2010-2012. In these studies, TOD areas were suggested to be constructed with the plan of mass-transit corridors in inner city Jakarta (MRT) and corridors connecting Jakarta with Bekasi, Bogor, Depok, Tangerang, and Tangerang Selatan. These JICA studies were very influential and many local governments referred to the recommendations in the following years. The phase of development is considered a turning point in the serious pursuit of TOD plan in the Jakarta metropolitan region.

The policies to introduce TOD-designated areas in Jakarta was also dynamic and constantly changing. The Jakarta Plan (Jakarta Provincial Regulation No. 1/2014) initially planned TOD to spread across six regions, namely Dukuh Atas and Manggarai as primary activity centers, Blok M, Grogol, and Harmoni as secondary activity centers; and Senen as the trade and service center. However, several changes occurred due to national political preferences, development interests, and urban dynamics. In 2016, TOD designated areas added by including Pulo Gebang and Jatinegara. New detailed criteria were also added, including the increase of the Floor Area Ratio (FAR) with a maximum of 35% and 65% for residential and commercial functions in TOD areas. At the national level, the provision was also introduced by the Ministry of Land and Spatial Planning Regulation No. 16/2017, where TOD was described based on the types, building intensity, transport connectivity, and radius areas, with a slightly different provision.

In 2019, TOD policy was implemented and the project was guided by the DKI Jakarta Governor Regulation No. 67/2019 where most of the standards followed the Ministry of Land and Spatial Planning (Regulation No. 16/2017). However, the national and provincial governments have different focus and interest on the list of TOD areas. Despite the mutual agreement to define TOD areas as managed within the 350—700 meters of transit nodes, there persists a consistent disparity in the list. In 2020, the first project was launched in Dukuh Atas as stipulated by the Governor Regulation No. 107 of 2020. Area connects MRT, LRT, and BRT stations in the proximity of 700 meters.

TOD Influence on Population Changes in Kuala Lumpur Metropolitan Area

The spatial distribution of population in Kuala Lumpur Metropolitan areas shows a clear pattern of population deconcentration. In 2000, Kuala Lumpur's population (1.31 million) was almost similar to Petaling's population (1.18 million). However, in 2020, Petaling's population (2.3 million) exceeded Kuala Lumpur (1.98 million). Population share in Kuala Lumpur significantly declined from 27.2% in 2000 to 23.5% in 2020. On the contrary, Petaling's population share increased from 24.6% in 2000 to 27.3% in 2020. This situation shows that

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Kuala Lumpur has lost its primacy due to limited space for expansion, resulting in a spillover of urban development towards surrounding districts. Another reason is the ribbon sprawl along the main roads, highways, as well as public transportation routes and stations.

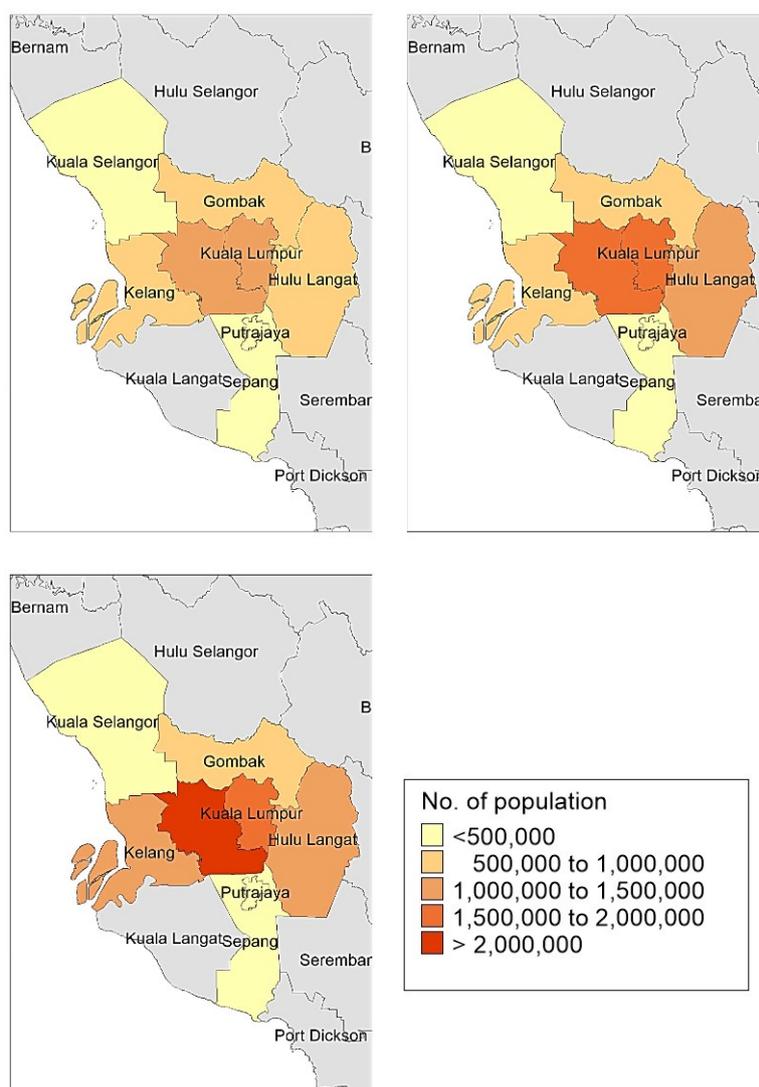


Figure 3: Population Distribution in Kuala Lumpur Metropolitan area (2000-2020)
Source: Department of Statistics Malaysia (2020, 2010 & 2020)

TOD Influence on Population changes in the Jakarta Metropolitan Area

The spatial distribution of population in Jakarta shows a slightly different pattern to Kuala Lumpur. Instead of deconcentration, the case of Jakarta shows a higher concentration in the city centre that affects the increase in two neighboring cities. Population (10.7 million) of the city outperforms its surroundings, but in the last decade, Bekasi (3.7 million) and Depok (2.5 million) have more population than before. In contrast to Petaling and Kuala Lumpur relationship, Jakarta and its surroundings, including Bekasi and Depok did not show a sign of deconcentration or population outflow. The city is stable to share its area for more than 30% while Bekasi, Depok, and Tangerang are still contributing 10%, as shown in the Figure below.

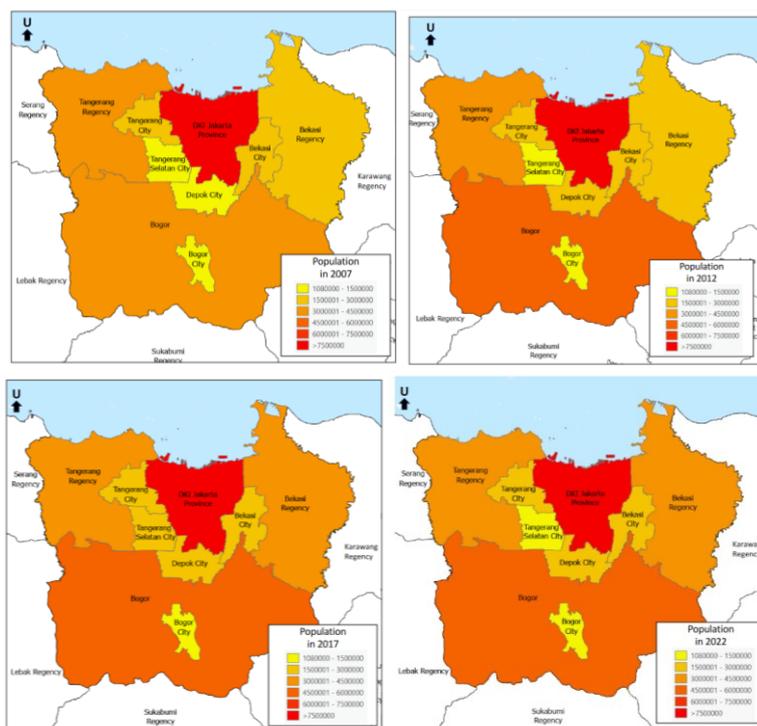


Figure 4: Jabodetabek’s Population Distribution in Four Periods (2007—2022)

Source: Personal Documentation

Jakarta retains supremacy against the surroundings in terms of population concentration. This situation occurs due to the high concentration of jobs and economic opportunities that are unable to be dispersed to the

surrounding area. Workers in Jakarta prefer to stay in boarding houses, flats, commuting from surrounding areas or living in informal houses and slum areas. In several cases, there is also a trend that many people prefer to be registered as residents while living and owning a property in neighboring cities because of the privileges. Therefore, the slow development of a more integrated transport system is also the cause of the phenomenon.

Based on the findings in this research, the phenomenon of sprawling happened both in Kuala Lumpur and in Jakarta to the peripheries. The results of this study are in line with Rosni et al. (2018), stated that Kuala Lumpur has been experiences segregated sprawl, which is the result of the previous land use regulations and policies. On the other hand, the sprawling phenomenon in Greater Jakarta, has resulted from the transport-led infrastructure development (Pratama and Yudistira, 2020). The distribution and concentration of population also similar both in Greater Kuala Lumpur and Greater Jakarta. In Malaysia, the Greater Kuala Lumpur is the fastest-growing metropolitan, increasing by 18-fold between 1970 and 2020 (Tey and Lai, 2022). Based on the results of this study, the implementation of TOD both in Greater Kuala Lumpur and in Greater Jakarta has not significantly influence the development of redistribution of population, as confirmed by Abdullah et al. (2023) and Hasibuan and Mulyani (2022)

CONCLUSION

In conclusion, the institutionalization process of Kuala Lumpur TOD policy was reported to provide a different direction of urban development to Jakarta. Initially, Kuala Lumpur city was the primary population magnet, but the concentration shifted towards suburban areas due to limited space, urban sprawl, and deagglomeration economics. Many incentives were introduced to attract investment and projects in developing TOD areas at the existing and new rail lines. However, property prices, specifically for new developments were unaffordable and barely within reach for low-income and middle-income earners. Jakarta city is continuously serving as the core and the leading city to its six surroundings. The city provided more attractive living in terms of economic opportunity, business prospects, and adequate public infrastructure and services. Even though property prices were very high, the existing population stayed in the region through renting and occupying boarding houses or commuting daily. Therefore, the focus of Jakarta policy did not drive new investment and projects to develop TOD areas.

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Received: 6th Nov 2023. Accepted: 23rd Jan 2024