THE IMPACT OF ISKANDAR MALAYSIA DEVELOPMENT ON URBAN AMENITIES

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Abstract
For major cities in Malaysia, globalized urban images are enthusiastically pursued by urban policy and explicitly depicted as a blueprint for a civilized city life. These developments have implications to physical and socio-economic developments as well as cultural aspects of cities in Malaysia. This is especially true for Iskandar Malaysia (IM), a new corridor development envisioned to be a “sustainable conurbation of international standing”. The whole initiatives targeted an enormous increase in socio-economic development indicators such as populations (222%), workforce (233%), and per-capita GDP (210%) during a 20-year period of 2005-2025. Since its establishment in 2006, Iskandar Malaysia has witnessed wide spread urban renewal and new urban/suburban projects which resulted in distinct physical and socio-economic changes. One of the challenges to urban consumption is the provision and allocation of amenities to people within the region. A main concern of this paper is to identify the impact of Iskandar Malaysia development on urban amenities distribution. The 2000 and 2010 census data will be explored using GIS to explain the spatial distribution of health, education and safety amenities. This information will be matched with the residential distribution to determine amenities’ location, distribution and accessibility.

Keyword: Gentrification, Iskandar Malaysia, globalization, socioeconomic implication

INTRODUCTION
Since independence Malaysia has built on the initial stock of infrastructure and all categories of infrastructure have since expanded manifold and facilities have also been modernised. The development of infrastructure has required very large investments. The infrastructure sector has received the largest share of public sector development expenditure in every one of the Malaysia Plans. However from the early 1990s because of resource constraints faced by the public sector, among other reasons, the Government has encouraged and facilitated private sector participation in infrastructure development. Three aspects to the Malaysian economy continue to have an important influence on infrastructure development in the country, these being the growth performance of the economy, the physical make-up of the country and the socio-economic disparities between the different parts of the country. These three matters have had to be taken into consideration in the formulation of infrastructure policies and allocation of resources for infrastructure development (Naidu, G. (2008), ‘Infrastructure Development in Malaysia’,

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Over the last decade, globalization and economic competitiveness have brought greater pressure on Malaysia particularly in providing high impact infrastructures and facilities to support rapid urbanization and industrialization process. Cities like Kuala Lumpur and Penang have undergone massive physical and social demographic changes similar to other major metropolitan centers in Southeast Asian countries (Hogan et al., 2012; Morshidi, 2000; Nasongkhla and Sintusingha, 2012). Iskandar Malaysia launched in 2006 was the second development region to be established after Greater Kuala Lumpur to strengthen the southern region’s economic condition (Foziah & Adawiyah, 2014). This region was designed to become an international sustainable metropolis. The rapid urban growth in Iskandar Malaysia however bring multiple challenges in managing the region which include providing adequate urban services and amenities, addressing urban poverty, providing infrastructure, establishing efficient governance and revitalizing slum neighborhood (Newton, 2001). The tremendous pressure brought by globalization and urbanization caused urban areas to expand as urban population grew dramatically. The region required a high impact infrastructure and utilities as engine to stimulate the growth and meet the global market. According to Noraniza et al., (2011), development of infrastructure and facilities played a major role in improving the economy and quality of life. It is also argued that a key element in the transition to more urbanised environments is related to the extent to which urban amenities have a role in resident perceptions of quality of urban life (Allen, 2015).

Amenities as claimed by Machado et al., (2013) consist of public and private goods and services that generate positive externalities for the resident and visiting population. While Glaeser et al., (2000) claimed that urban amenities is a driver for urban development and is important in shaping the attractiveness of a place. They also suggested that amenities are influential in determining the location’s allocation for others infrastructure and deciding location’s destiny. A city as an entertainment machine depends on urban amenities to attract people to choose their place for living and travelling (Clark, 2000). Beside the presence of urban amenities itself, proximity to urban amenities play a major role in generating urbanization and gentrification (Glaeser et al., 2000).

The development of socio-economic infrastructure and amenities indicate the quality of life of the people of a particular area. However according to Parry et al., (2012) urban amenities are not worthwhile until they are adequately provided according to local population size and the extent of area. Partial political practices and imbalanced development policies will result in an unequal and irrational distribution of infrastructure in the region leading to the emergence of urban amenities inequality. Inequalities in accessing urban amenities means inefficiency in the distribution and allocation of facilities between areas or unequally distributed over space due to variegated spatial structure of cities (Aderamo & Aina, 2011; Parry et al., 2012; Stevenson, 2004).

CONCEPT OF URBAN AMENITIES

Generally, half of the world’s population now lives in urban area. Urbanization and urban amenities is closely related because urbanization will fuel continued growth and drawn momentum from vast expenditures to meet consumer demand such as urban
infrastructure, amenities and housing (Yusuf, 2009). Urban amenities are specific urban facilities that contribute to residents in carrying out their urban daily life such as access to public transport, schools, grocers and professional services like clinics (Randall, 2009). Aderamo & Aina (2011) defined urban amenities as comprising the goods, infrastructure and services required by urban society to sustain them. There are two type of urban amenities which are public and private amenities. Public amenities are those provided by governments such as parks, public clinics and school, while private amenities may include cafe, restaurants, retail or professional services (Allen, 2015).

The importance of urban amenities contribution to urban growth can be explained in terms of economic sense as well as in the context of quality of life. In terms of economic, it seems that diverse urban amenities can attract more firms and labour. The advantages provide by these amenities will generate concentration of economic and population who prefer to be in close proximity to them (Partridge et al., 2007). Quality of life and provision of urban amenities is also closely related (Chhetri et al., 2011). Accessibility and convenience of urban amenities contribute to urban life experiences (Rappaport, 2008). Access to urban amenities such electricity, sanitation, health care facilities and social amenities play a major role in determining a quality of life (Bhagat, 2011; Yasin et al., 2012). Urban amenities is therefore a crucial factor in shaping urban growth and highly influential in maintaining a socially acceptable quality of life (Glaeser et al., 2000; Parry et al., 2012).

The debate about quality of life was for a long time influenced by three philosophical approaches. The first one is characteristic of a good life influenced by religious or other system. In this context, quality of life depend neither on the subjective experience of people nor on the fulfilment of their wishes but dictated by normative rules. The second approach identified the good life based on the satisfaction of preferences. It is assumed that people select the best of quality of life based on whatever resources they have. Experience of individuals forms the basis for the third approach to quality of life and is most associated with the subjective well-being tradition in the behavioral sciences (Diener & Suh, 1997). This approach is now used as a basis for social indicator and subjective well-being. Social indicator is an approach which involves an evaluation of quality of life by quantitative statistic and is applicable for rural and urban area (Körreveski, 2011). A Malaysia Well-being Index (MWI) developed by the Economic Planning Unit served as the official index investigating the wellbeing of the people in the nation. The MWI was constructed using 14 components with 68 indicators covering the economic and social wellbeing aspects for the period of 2000-2012. The components include income and distribution, transportation, working conditions, health, education, housing, environment, family life, social participation, culture and leisure, as well as public safety. It is a tool used by the government in understanding the changes and improvements in the wellbeing of the people. It also allows the government to evaluate the effectiveness of economic policies. The wellbeing of Malaysians has improved significantly over the last 12 years, according to government data compiled in the first Malaysian Wellbeing Report released yesterday. According to the numbers, the Malaysian Wellbeing Index (MWI) improved by 25.4 points over the period, or an average of 1.9% per year. The index was at 100 points in 2000 and had improved to 133.3 points in 2012.
DEVELOPMENT IN ISKANDAR MALAYSIA

Iskandar Malaysia (IM) launched in 2006 lies at the heart of South East Asian and strategically located at East-West trade routes like Singapore, China and India (Foziah et al., 2006). In terms of regional contexts IM will add competitiveness to the region and will benefit significantly from the air and sea linkages within Asia-Pacific countries. According to Rizzo & Khan, 2013, IM will receive wider impact in relation to the zones of influence of the global cities of Kuala Lumpur and Singapore. The rapid socio-economic development in IM has brought two major transformations (Bunnell, 2002; Sabri, et al., 2012). First, the dramatic increase in urban land prices resulting in clustering of activities in particular areas. Second, the emergence of new socio-economic profile with specific preferences and lifestyle (Embong & Macmillan, 2002). These new socio-economic groups are middle classes that are mostly professionals, managers, and administrators. Since its formation, the region has witnessed rapid development and succeeded in attracting many investors to the region. Iskandar Malaysia is estimated to have 1.35 million people or 43% of Johor’s population of 3.17 million by 2025. Some 66% of the population is of working age. As the population of the city grow, the demand for different types of public services and facilities increases (Jahan & Oda, 1994). There are 11 Mukim in Iskandar Malaysia which covers an area of about 2216.3 km². According to Jabatan Perangkaan Malaysia (2013) the current level of basic amenities, distribution and accessibility to public school and health institution in Johor was higher with 70% of population able to access those facilities within 5 kilometers. However, the influx of wealthier residents, and the clustering of business premises in certain area particularly the special economic corridor resulted in certain areas becoming exclusive, at the same
pushing the lower income residents to areas with fewer services, amenities and institutions (Richard, 2014).

Figure 2: Distribution of health, education and safety facilities in IM

METHODOLOGY
This study focused on spatial pattern and adequacy of education, health and safety amenities distribution at Iskandar Malaysia. The data used for this study were obtained from both primary and secondary sources such as census tract report. The 2010 census data is collected to identify the number of population in each zone to facilitate analysis in the next stage. Data of selected amenities such as number of schools, clinics, hospitals and police station were provided by the Centre of Innovative Planning and Development (CIPD) UTM. The study follows the steps below:

Step 1: Adequacy of Selected Facilities
To determine the adequacy of selected amenities, the number of facilities in each Mukims was calculated in Arcgis and data capacity for each selected amenities was recorded. The capacity of each selected amenities were compared with population in each Mukim to identify areas in Iskandar Malaysia which did not have sufficient facilities.

Step 2: Concentration of Selected Amenities
The concentration of selected urban amenities distribution has been measured by Z-Score variate. Analysis of Z-score variate was used to determine spatial pattern and identify inequality in distribution. This analysis was extensively used in previous research (Aderamo & Aina, 2011; Allen, 2015; Parry et al., 2012). The mean and standard deviation for number of amenities in each mukim was calculate to generate Z-score result and indicate composite indicator. The Z score variate is calculated by the following formula:
The study also utilised proximity analysis. Proximity analysis is able to indicate which neighbourhoods are located outside the standard distance. The standard distance to amenities established by the Federal Town and Country Planning Department in the Guidelines to Infrastructures and Public Facilities Planning is divided into 5 levels which are area within 500 meter, 1000 meter, 1500 meter, 2000 meter and 5000 meter. The neighbourhood area located within 500 meter to selected urban amenities is assumed as very accessible.

ISKANDAR MALAYSIA
Nowadays, due to extensive development, a lot of existing natural and agricultural land cover have been converted into anthropogenic land cover. The city-region has also witnessed widespread urban renewal and new urban/suburban projects which resulted in distinct physical and socio-economic changes. Previous land use in Nusajaya for instance, was largely agriculture and green field occupied by villages and fishing communities. Since the implementation of IM in 2006, almost half of land use in Nusajaya can now be categorized as commercial, institutional and public facilities. These include such uses as a private university, hospitals, retail and theme parks. This changes of land use will soon change the image of Nusajaya in term of cultural and ethnic background, personality, attitudes, motivation, income, age, length of stay, lifestyle, social class and socio-economic group (Nasongkhla & Sintusingha, 2012; Suthasupa, 2011)
RESULT AND DISCUSSION

Distribution of selected urban amenities
Table 5.1 shows the number of population, schools, police station and health amenities in each mukims, within Iskandar Malaysia. It shows that Mukim Plentong has the highest number of facilities with 89 schools, 14 healthcare and 7 police stations. This is followed by Mukim Pulai with 60 schools, 9 healthcare and 7 police stations; Mukim Tebrau (42 schools, 11 healthcare, 5 police stations) and Mukim Bandar Johor Bahru (41 schools, 5 healthcare, 3 police station). The other mukims recorded lesser numbers of amenities for education, health, safety and security.
Table 1: Distribution of Education, Health and Safety Amenities at Iskandar Malaysia

<table>
<thead>
<tr>
<th>Mukim</th>
<th>Population</th>
<th>Education</th>
<th>Health</th>
<th>Safety and Security</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Primary</td>
<td>Secondary</td>
<td>Clinics</td>
<td>Hospital</td>
</tr>
<tr>
<td>Pulai</td>
<td>360642</td>
<td>42</td>
<td>18</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Plentong</td>
<td>494152</td>
<td>56</td>
<td>33</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Tebrau</td>
<td>316327</td>
<td>29</td>
<td>13</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Bandar Johor Bahru</td>
<td>124096</td>
<td>25</td>
<td>16</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Kulai</td>
<td>93784</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Sedenak</td>
<td>17212</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Senai</td>
<td>120312</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Sungai Tiram</td>
<td>13348</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Tanjung Kupang</td>
<td>10972</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Jelutong</td>
<td>14651</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Bukit Batu</td>
<td>13986</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: 1. Department of Statistic Malaysia, 2. Centre of Planning Development (CIPD UTM)

The provision of education, health and security amenities depend on population size in a particular area. However, educational facilities provided in Mukim Senai are not sufficient to cater for its population which indicate an inequality in distribution when compared to Mukim Bandar Johor Bahru which has almost similar population range with Mukim Senai. In term of health amenities, the distribution of these amenities in Iskandar Malaysia was adequate and corresponds to population size. There are 4 hospitals within Iskandar Malaysia that have a capacity to accommodate the current population. In terms of safety and security amenities, Mukim Senai, Sedenak, Sg, Tiram, Tanjung Kupang, Jelutong and Bukit Batu do not have a police station although the population in those mukim meet the requirement for the provision of a police station.

**Spatial variation of urban amenities distribution**

The inequalities and spatial distribution of urban amenities in Iskandar Malaysia was analyse by using Z-score variate. This Z-score variate approach has been used frequently in previous geographic research (Aderamo & Aina, 2011; Parry et al., 2012). Table 5.2 shows the standardized score of spatial pattern of three urban amenities concentration in Iskandar Malaysia which is education, health and safety.
Table 2: Standardized score for urban amenities distribution

<table>
<thead>
<tr>
<th>Mukim</th>
<th>Education</th>
<th>Health</th>
<th>Safety and Security</th>
<th>Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
<td>Clinics</td>
<td>Hospital</td>
</tr>
<tr>
<td>Pulai</td>
<td>-0.4788</td>
<td>-0.02517</td>
<td>-0.89049</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Plentong</td>
<td>-0.50297</td>
<td>0.27578</td>
<td>-0.85129</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Tebrau</td>
<td>-0.67001</td>
<td>-0.18242</td>
<td>-0.84989</td>
<td>1.25272</td>
</tr>
<tr>
<td>Bandar Johor</td>
<td>0.177</td>
<td>1.38451</td>
<td>-0.80597</td>
<td>1.76319</td>
</tr>
<tr>
<td>Bahru</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kulai</td>
<td>-0.966</td>
<td>-0.72532</td>
<td>-0.80882</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Sedenak</td>
<td>-0.48083</td>
<td>-0.91555</td>
<td>1.51846</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Senai</td>
<td>-1.18494</td>
<td>-0.619</td>
<td>-0.60116</td>
<td>1.83771</td>
</tr>
<tr>
<td>Sungai Tiram</td>
<td>1.51278</td>
<td>-0.91555</td>
<td>1.4297</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Tanjung Kupang</td>
<td>2.13866</td>
<td>2.33623</td>
<td>0.9365</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Jelutong</td>
<td>0.72914</td>
<td>0.30206</td>
<td>-0.38767</td>
<td>-0.6067</td>
</tr>
<tr>
<td>Bukit Batu</td>
<td>-0.27403</td>
<td>-0.91555</td>
<td>1.31064</td>
<td>-0.6067</td>
</tr>
</tbody>
</table>

Source: Author

Bahru and Jelutong due to the uneven population compare to others mukim. Mukim Johor Bahru has been recognized as city centre for Johor and most of urban amenities have already existed before the implementation of Iskandar Malaysia. Meanwhile, Mukim Senai recorded as less served of education facilities due to its function as industrial area. In term of health facilities, clinics in Iskandar Malaysia were highly concentrated at Mukim Sedenak, Bukit Batu, Tanjung Kupang and Sg.Tiram. Mukim Pulai and Plentong have less concentration of clinics although the numbers of population in both mukim are higher. However, the less provision of clinics in others mukim is not an issue since there are four hospitals has been provided in Mukim Johor Bahru, Tebrau and Senai to meet the requirement of current population for health amenities.

The Malaysia crime index 2013 was higher as much as 74.5% which covered about 111,000 reported cases. Johor Bahru indicates a similar trend where the crime index has increased and ranked as fourth city that has highest crime rates. Despite the state government has provided 16 Community Police Post across Iskandar Malaysia starting from 2010 to prevent crime although crime index does not show any decline (refer figure 4). The higher crime index indicated the level of security and safety still lower. Therefore the distance and location of police station or community police post should be revised to ensure those services are adequate.
The safety and security amenities pattern in Iskandar Malaysia is much focused to the area with higher population such as Mukim Pulai, Plentong, Johor Bahru, Tebrau and Kulai. The provision of this amenities in others mukim should be considered since there are areas which have no police station although the population is higher such in Senai and Sedenak. Based on composite indicator for urban amenities, the provision of social amenities in Iskandar Malaysia is best served in Johor Bahru, Senai, Tanjung Kupang and Sg Tiram, followed by Kulai and Tebrau with mediate level of amenities provision. Meanwhile, Pulai, Plentong, Jelutong, Sedenak and Bukit Batu have the worst level of urban amenities distribution.

Proximity of amenities to neighbourhood in Iskandar Malaysia
The results of proximity analysis show that 96% of residents in Iskandar Malaysia have access to primary schools within 5 kilometres. However, only 17% of the neighbourhood areas meet the planning standard of 500 meters and 28% within 1 kilometre. The distance of more than 1 kilometre will increase the travel distance among residents which at the same time increase the traffic volume.
For secondary schools, 83% of the residents stay within 5 kilometers. The remaining 17% residents located in Mukim Senai and Pulai need to travel more to access the secondary school. The results indicate the potential area especially at Mukim Senai and Pulai to be provided with secondary schools to cater the demand for future. The proximity to health facilities shows 95% of resident in neighbourhood area have access to this amenities within 5 kilometres. However, only 4% have access within 500 meter which indicates that the health amenities are located at non-strategic area.

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Figure 7: Proximity to Healthcare Amenities

In terms of safety and security, the proximity to police station recorded 80% of residents have access within 5 kilometer. The planning standard for distance to police station is 1 kilometer and only 9% have access within that area. Overall, the proximity to selected urban amenities was higher for current situation. However any areas such as Mukim Johor Bahru, Plentong, Kulai and Tebrau will have to be considered for future population increase.

CONCLUSION

Public facilities such as schools, health centres, police stations are generally not uniformly distributed. This is common in developing countries where apart from uneven population distribution, many other extraneous factors such as political consideration go into locational decisions. However, consideration for the well-being of the people should be a paramount factor in the provision of facilities so that the people will have a sense of belonging and the orientation of the people towards the use of these facilities will also change positively.
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