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Generations of Professional Excellence

**Unleashing Potentials
Shaping the Future**

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INTRODUCTION

Green neighbourhood is one of the initiatives taken by PLANMalaysia to reduce the nation's overall greenhouse gas emissions. Walkability has been introduced as one of the newest elements in supporting green neighbourhood. Various studies have been conducted to identify the built environment factors that influences people's decision to walk. From these studies, scholars have developed walkability index to measure the walkability of a specific areas. However, most of this studies are conducted outside of Malaysia. Despite the numerous advantages of using walkability index to measure walkability of an area, the application of walkability index in Malaysia is limited and scarce. Therefore, this study attempts to develop the walkability index based on Malaysian context and test the feasibility of using this walkability index in Malaysia. The walkability index indicators were adjusted to suit the Malaysian local environment and used transportation network design, land use diversity and population density as the built environment indicators..

ISSUES/ PROBLEM STATEMENT

Pedestrian requires a walkable environment to encourage people to choose walking as mode of transportation. Therefore, the Local Authority needs to provide infrastructure to encourage people to walk. However, most of the decision to improve the pedestrian infrastructure are based on visual inspections by the technicians. This approach is time consuming and requires a lot of effort. Therefore, a more efficient approach are needed to determine the areas with high walkability. By having this valuable information, it will assist the Local Authority to make decision and improve the efficiency of services.

OBJECTIVES

1. To determine the built environment factors that influences people's decision to walk.
2. To develop the Walkability Index.
3. To test the Walkability Index.

METHODOLOGY

This study developed a neighbourhood walkability index in Malaysia, using the urban areas in Petaling Jaya as a case study. The study investigated the factors of built environment to be used as the indicators in the walkability index and identifying an appropriate GIS data source for modelling the walkability index.

The walkability index for Petaling Jaya was developed and computed based on three indicators associated with walking behaviours; transportation network design (intersection density), land use diversity and distance to transit and Point of Interest. The three indicators were chosen based on the availability of data and the highest value of weighted average elasticities of walking. Based on the value of weighted average elasticities of walking, population density indicators were omitted from the computation of walkability index.

The walkability index was produced at neighbourhood scale using land use data, street data, transit data and POI data. The formula used to derive the walkability index are as follows:

$$(w/3) + (x/3) + (y/3)$$

- w = ranking score for proximity to transit station and Point of Interest (POI)
x = ranking score to street intersection density
y = ranking score for Entropy Index

FINDINGS

Figure 1 shows the result of Walkability Index for Petaling Jaya based on the three (3) indicators. The high score indicates areas of high walkability areas in Petaling Jaya based on built environment factors while the low score of Walkability Index means that people are more incline to use motorized vehicles which resulted in less walking.

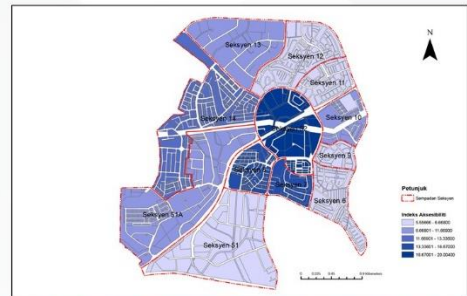


Figure 1: Results of Walkability Index for Section 5 – Section 52, Petaling Jaya

Results from this study was validated by officers and technicians from the Transport Department, Petaling Jaya City Council. The index showed high reliability in depicting areas which may have high volume of pedestrian especially in the town centre of Section 52.

Based on this study, the index has the potential to be applied at City Council especially in assisting the City Council in determining areas with high or low volume of pedestrians. However, it should be highlighted that the accuracy of the Walkability Index is highly dependent on the accuracy of input data used in developing the index. Therefore, the acquisition of highly accurate spatial data is important to ensure the reliability of the index.

NOVELTY

This study developed a neighbourhood walkability index in Malaysia, using the urban areas in Petaling Jaya as a case study. The application of walkability index in Malaysia is limited and scarce. Current approaches in Malaysia to assess walkability relies on visual observation and respondents survey. Those approaches are time consuming and is difficult to implement by Local Authorities due to limited resources. Therefore, the study developed Walkability Index based on Malaysian context that is more efficient in depicting walkability areas in any given area. This Index will provide useful insights on walkability areas that can assist planners and stakeholders in making informed decision in improving the built environment to promote walkability among the people.

CONCLUSION

The findings from this study showed that the Walkability Index is a highly valuable tool to assist planners and stakeholders in understanding areas with high level of walkability and low level of walkability. Having this valuable information will assist planners and stakeholders in formulating strategies and policies to improve the pedestrian infrastructure in the city. Previously, most of the decision to upgrade or improve the pedestrian infrastructure are based on visual inspections by the technicians. However, this approach is time consuming. By using Walkability Index, planners can focus a more thorough inspection at the areas with high score because it is deemed that this area has a high chance of people walking based on built environment factors. This approach will improve the efficiency of the public services and ensure that areas with high score will be provided with the proper infrastructure. This also will provide the planners with a proper tool to evaluate the existing and proposed new layout from the built environment factors that can encourage people to walk.