A Conceptual Paper on the Determinants and Challenges of Developing a Sustainable Public Transport in Kuala Lumpur

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Abstract

Sustainability of Public Transport System is a hot topic that has become a rather taboo issue to be discussed in South East Asian countries like Bangkok, Thailand and Jakarta, Indonesia. Malaysia too with its high vehicle congestion also belong to this category. The respective government dilemma is whether to increase allocation for more highways or to provide more fund to build more Public Transport such as Light Rail Transit (LRT), Mass Rapid Transit (MRT) or Bus Rapid Transit (BRT). The aim of this study is to identify the determinants and challenges in ensuring sustainability of Public Transport in Kuala Lumpur and to propose policy to encourage more LRT ridership. The focus of the study is on LRT Kelana Jaya Line as it has higher ridership. A survey would be conducted using electronic questionnaires to gather the data for content analysis to be carry out.

Keywords:
Sustainability; Content Analysis. Light Rail Transit

1. Introduction

United Nations [UN] had conducted a study which stated that by 2030, 5 billion people are projected to live in cities. Due to the high number of people living in cities, there will be cities with high level of pollution and fuel consumption demand. UN also came up with seventeen [17] Sustainable Development Goals. For this research, we are focusing on **Goal 11: Sustainable cities and communities - Make Cities and human settlements inclusive, safe, resilient and sustainable.**

Sustainable Transportation refers to any means of transportation that is 'green' and has low impact on the environment. Sustainable transportation is also about balancing our current and future needs. Sustainable Transport drives Sustainable Development and it protects and preserve the planet and its resources for generations to come. Examples of sustainable transportation include walking, using LRT, MRT and BRT, cycling, transit, carpooling, car sharing, and green vehicles. There are five [5] common urban challenges which associated with high number of people concentrated in one area. Congestion are the most common problem which usually associated with urban areas. The reasons for the congestion is due to the high number of people still using private vehicle to commute instead of using public transport. Lack of funds to provide basic services include unable to build a proper road to connect from one area to another. There are not enough pedestrian bridge for pedestrian to cross busy streets. Next challenges are related to adequate and affordable housing for all population. Currently, the price of property in Kuala Lumpur has rocketed and too highly price resulted in people unable to purchase them. Most of the properties are to cater for T20 bracket, which is a high income earner.

Declining infrastructure is concerning facilities that are outdated and need to do major repairs. This declining infrastructure can be building, underground water pipes and cables. All of these need to do major repairs work. Lastly, air pollution within cities due to the number of vehicles that are on the road. When the number of vehicles are high, it will mean more fuel will be burn off and resulted in more emission release to the air. Harmful emission will result in air pollution and also result in greenhouse effect. There are three objectives for this study which are to identify determinants of developing a sustainable public transport in Kuala Lumpur, to identify challenges of developing a sustainable public transport in Kuala Lumpur and lastly to evaluate and propose policy to push for sustainable public transport in Kuala Lumpur.

2. Literature Review

There are two [2] factors that describe sustainability according to Public Transport System.

2.1 Accessibilities and connectivities

According to Vo Van Dut (2017), the challenges relating to accessibility and connectivity are lack of widespread feeder bus services in residential areas; lack of connection with other public transport modes at many stations; lack of one integrated link pass; limited park-and-ride and bicycle parking at some stations and at a high cost when available and lack of shopping centers in MRT Stations.

In addition to focusing of decarbonization, the study by Chandrima Mukhopadhyay (2017) also explores the benefits of promoting BRT system as a mode of public transport in Malaysia. Chandrima Mukhopadhyay (2017) used document analysis, including media report as source of data. He also used semi-structured interview of project promoters, open-ended survey of project users potential users and non users and participatory observation of public-engagement meetings. Chandrima Mukhopadhyay (2017) mentioned that BRT should be viewed as a less expensive alternative to rail as it need less capital investment to set up. Chandrima Mukhopadhyay (2017) suggested that BRT stations in Malaysia should include facilities similar to LRT Stations in order to encourage ridership. Researched by Nur Shazwani Rosli, *et. al,* was that the highest mean value for possible indicator is "Mode Split: portion of travel made by walking, cycling, rideshare, public transit and telework". In order to get sustainable transport, Kuala Lumpur public transportation operation, management and structure must be supported by mature and appropriate sustainable public transport guidelines and standards, indicators and systematic evaluation process. Meanwhile, according to Jeongwoo Lee, *et. al*, (2017), the purpose on the research were to identify whether new, high quality transit options, such as light rail, near existing transit services increase sustainable transportation mode shares and reduce car travel. The main findings was the changes in service, particularly those associated with new LRT, can change travel behavior.

2.2 Facilities

Syahriah Bachok, *et. al*, (2015) emphasized that planning of park and ride facility with better accessibility, frequency and services of public transportation system, attractive public transport fare, affordable parking charges will lead to high parking utilization.

3. Method

In this study, the researcher plan to utilise data on determinants and challenges which are collected primarily from questionaires, be it printed and online platform. Questionaires are chosen because they ensured a high response rate as the questionnaires were distributed to respondents to complete and were collected personally by the researcher; they required less time and energy to administer; they offered the possibility of anonymity because subjects' names were not required on the completed questionnaires; there was less opportunity for bias as they were presented in a consistent manner and most of the items in the questionnaires were closed ended, which made it easier to compare the responses to each item.

The questionnaires will be in both English and Bahasa Malaysia to enable those who do not understand English to complete them in Bahasa Malaysia. The questionnaires will consist of sections A and B. Section A aim at gaining demographic data such as age, level of education, income and gender. This information could assist the researcher when interpreting the results. Section B aim at determining the knowledge and views of users on challenges and factors that can determine the sustainability factors of Public Transport System in Kuala Lumpur. Questionnaire will be constructed with reference to previous literature. The researcher will carry out electronic questionnaire as to obtain a more diverse correspondents. The methodology use will be the same as the physical questionnaires. The study population will consist of all adult working users of LRT Kelana Jaya Line with a convenient sample of 300 subjects. Some of the questions that researcher have in mind are like *"How do you get to work?"; "Do you take LRT train often in a month and why?"; How do you arrive to the LRT Station?"; what do you like most about this LRT Station"* and *"What do you think can encourage more people to use LRT to get to work?'.* Face to Face interviews will be utilized to further clarify information with the relevant personnel in Prasarana and Ministry of Transport (MOT) as to get more feedback on the policy on how to encourage more ridership on Public Transport.

For analysis of closed-ended questions, a computer programme called Statistical Package for Social Sciences (SPSS) will be used. Data will be analyse by using descriptive statistics. Frequency tables will be drawn and from these, the data will be presented in pie diagrams and bar graphs. A preliminary analysis will also be conducted to

test the validity and reliability of the parameters. Beside a factorial analysis is utilized to investigate the variable relationships for complex concepts pertaining to socioeconomic status or patterns of travelling to work. It allows concepts that are not directly measurable to be collapsed into a few interprefig underlying factors. The open-ended questions will be analyse through quantitative content analysis by the researcher with the aim of quantifying emerging characteristics and concepts. Meanwhile, concept analysis is the process of analysing verbal or written communications in a systematic way to measure variables quantitatively (Polit & Hungler 1995:209, 698). For this research, authors choose to use content analysis. Content analysis is a quantitative method, in which the results of content analysis are numbers and percentages. The main reason for also doing content analysis is to be able to make links between causes (e.g. program content) and effect (e.g. audience size).

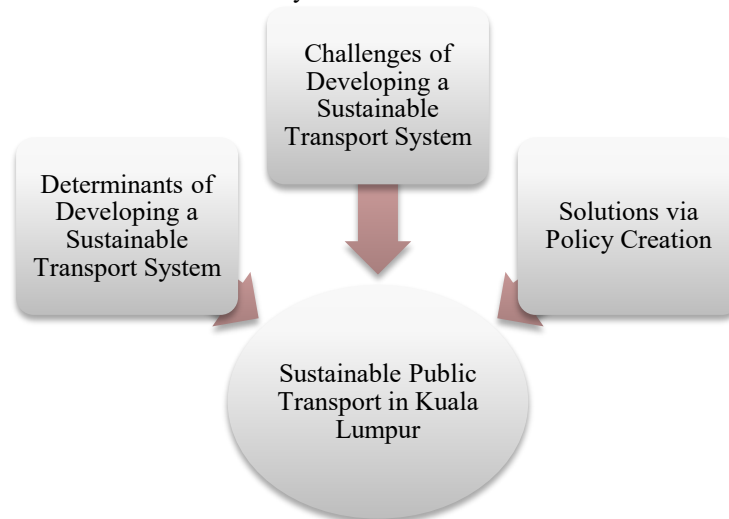Figure 1 is the theoretical framework in this study:

Figure 1: Theoretical Framework

Figure 1 shows that in order to create sustainable transportation in Kuala Lumpur, we need to know what is the determinants, challenges and this will lead to creation of Policy by the Government.

4. Conclusion

The findings provide an insight and overview on the challenges and determinants of achieving sustainable public transport system in Kuala Lumpur. The researcher greatly aware that in order to get more comprehensive research data, a wider range of literatures need to be explore to obtain an insightful and meaningful knowledge and information. It is hope that this paper, even though a conceptual paper will open the eyes and minds of the relevent ministry and agencies on the importance of developing a sustainable public transport in Kuala Lumpur.

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