

# Urban Transportation Issues: A Case Study at Kuala Lumpur, Malaysia

<sup>1</sup>Tham Guan Min and <sup>2</sup>Nur Khairiel Anuar

School of Technology Management and Logistics, College of Business,  
Universiti Utara Malaysia, 06100, Sintok, Kedah, Malaysia  
Email: <sup>1</sup>Mud52013149413@hotmail.com, <sup>2</sup>nurkhairiel@uum.edu.my

## ABSTRACT

*The purpose of the research is to examine the urban transportation issues in Kuala Lumpur. In recent years, rapid economic and urban population growth cause rapid motorization in Malaysia. Unfortunately, Malaysian urban transportation has developed in a rapid pace but still need to meet certain demands of growing economy and population. The study focus on issues traffic congestion, rise in private vehicle ownership, inadequacy public transport and limited parking space. The major problem is daily traffic congestion in this urban area. It show that rapid increase use in private vehicle, inefficiency public transport service, and parking difficult in CBD area has resulted in increasing traffic congestion.*

## Keywords

*Urban transportation, Private Vehicle, Parking, Congestion, Motorization.*

## 1.0 INTRODUCTION

Malaysia has witnessed an explosive rise in the demand for transport vehicles recent decades in conjunction with its rapid economic growth. According to Dimitrio & Gakenheimer (2011) agreed that together with rising populations and increasing incomes, urbanization is among the major driving forces of the increased demand for movement within and between cities. Kuala Lumpur area was continues rapid population and economic growth. However, continue rapid growth of population and economic in the Kuala Lumpur area has resulted in the expansion of the urban area and demand of transport vehicles and infrastructure that impact traffic congestion, housing and environmental problems.

### 1.1 Problem Statement

Private vehicles today have become the main means of travel of urban living in developing countries (Shariff, 2012). Malaysian economy is developing so fast that most of the people afford to have private vehicles. Consistent economic growth, rising incomes, and urbanization have led to rapid

growth in vehicle ownership and usage, this become the major concerns of traffic congestion and environment pollution in Kuala Lumpur today.

Besides that, the inadequacy of public transport cause the modal share of public transport came down in this recent year. Citizens become more private vehicle dependency because the inefficiency of public transport. The government and transport sectors should target to have a more efficient, safe and comfortable public transport system to enable a modal shift from private car usage.

### 1.2 Objectives

The main objective of the research is to determine urban transport issues. Discuss the relationship of each issue that find out the factor causing traffic congestion problem in Kuala Lumpur. It is important for government to implement transportation policy and planning to urban sustainability in future.

## 2.0 LITERATURE REVIEW

Kuala Lumpur is one of the largest cities in the region. It has an area of 243 square km's that houses administrative, commercial, industrial, educational and recreational activities and has all modern urban facilities and services to support these activities. The population of Kuala Lumpur was 1.4 million in 2000 and is expected to increase to 2.2 million over the next 20 years (Review of Developments in Transport in Asia and the Pacific, 2005). Urban population growth will determine the progress of transport sector in the concern region. Income growth makes people willing to travel much more. There has been dramatic increase in the level of motorization in recent years.

### 2.1 Urban Transportation Issues

In Malaysia, urban issues and problems become major constraints in achieving quality life in the city. The increase the population not only requires more job opportunities, demand for housing, social facilities, but will also improve number of vehicles on roads and highways (Shafii, 2003). Due to rapid

economic and population growth in Kuala Lumpur, rise up a lot of urban transport problem such as increase in private vehicle ownerships, traffic congestion, public transport no able provide satisfy service to user, and limited parking space.

### 2.1.1 Rise in Private Vehicle Ownerships

According to Mohamad & Kiggundu (2007) many cities today, the private car has become an important and dominant mode of transport. The level of car ownership in Kuala Lumpur is high not only when compared with other Malaysian cities, but also with that of other developing countries. According to Shaffi and Musa (2008) that while to continue to use private vehicles turned out to be more complicate when forced to face long traffic congestion, fatigue, and so on.

### 2.1.2 Inadequacy Public Transport

According to Schmarcz, S. (2003) public transportation in Kuala Lumpur consists of buses, LRT (Light Rail Transit), monorail, airport express rail link, and commuter rail. According to Almselati & Rahmat & Jaafar (2011) that the public transportation facility is modern, it lack of service quality. Dissatisfaction with the level and quality of public transportation leads those people who can afford it to turn to private modes of transport (Review of Developments in Transport in Asia and the Pacific, 2005).

### 2.1.3 Limited parking space

According to Dimitrio & Gakenheimer (2011) parking is a key factor in transport patterns, especially the level of parking in the central business district (CBD)<sup>1</sup>. In Kuala Lumpur, land use and space is very limited for provide the enough parking spaces in the peak working hour and holiday in shopping area. According to Almselati & Rahmat & Jaafa (2011) that in 2009, total 536905 vehicles were registered in Malaysia of which 486342 were passenger cars and 50563 were commercial cars. The parking difficulties is one of the factor got relationship with the rise in private vehicles causes the traffic congestion problem in Malaysia. According to Almselati & Rahmat & Jaafa (2011) that parking management and policies are very important to avoid traffic congestion, traffic accidents, pollution and unwanted fuel use.

<sup>1</sup> Central business district (CBD) is the commercial and often geographic heart of a city.

### 2.1.4 Traffic Congestion

Traffic congestion is a major urban problem affecting people who live in urban areas both in the developing world. Most of the city roads experience traffic congestion especially during peak periods. According to Schmarcz (2003) Kuala Lumpur currently has traffic congestion problems with projections showing that congestion is going to get worse if nothing is done. There are as many as 2 million vehicles on the streets of Kuala Lumpur every day. According to Shariff, (2012) rising vehicle congestion and slower travel speeds are the most obvious impact of rapid motorization.

Table 1 below show that the trip-making and modal split of each cities (Dimitriou & Gakenheimer, 2011).

City	Total daily per trips capita (trips/person)	Proportion of total daily trips by non motorized modes (%)	Proportion of total daily trips by motorized public modes (%)	Proportion of total daily trips by motorized private modes (%)
Chennai	1.25	43.9	42.3	13.8
Mumbai	1.30	49.8	40.9	9.3
Ho Chi Minh City	1.70	44.2	1.7	54.2
Beijing	2.44	47.9	27.8	24.3
Budapest	2.47	23.3	46.6	30.1
Bangkok	2.61	11.5	42.7	45.8
Manila	2.04	21.4	59.0	19.6
Kuala Lumpur	2.72	24.0	7.2	68.8
Prague	4.56	24.9	45.8	29.3
Seoul	2.41	17.9	34.8	47.3
Athens	1.93	11.8	22.3	65.9

**Table1: Trip-making and modal split**

Table1 clearly shows about the issues of rise in private vehicle ownerships, inefficiency of public transport and parking difficulties as factor that got irrelative ship to each others in the study to impact urban traffic congestion problem. From table 1, total daily trip per capita (trips/ person) in Kuala Lumpur is 2.72. Proportion of total daily by non motorized modes is 24.0%. Proportion of total daily trips by motorized public modes is 7.2%. Proportion of total daily trips motorized private mode is 68.8%. This shows that private vehicle use on road was so higher than the public transport used. The use of public transport is low because people more afford to travel with private car or motorcycle. This affect the inefficiency of public

transport because lack of demand. It also makes parking difficulties and increase traffic flow in the road because the limited parking space is not enough for the huge private vehicles in CBD areas. All these issues will cause a major problem of traffic congestion daily in Kuala Lumpur, especially peak hour.

### 3.0 METHODOLOGY

The methodology of the study is to use qualitative comparative analysis. It consists of a theoretical part that uses literature survey method and conceptual model development. The study is designed to examine traffic congestion in urban areas, rise in private vehicle ownership, inadequacy of public transport, and limited parking space. The study mainly focuses on secondary sources and data such as journals, reports, and books that describe urban transportation issues. Data were collected using a review and gathering of previous literature studies on urban transportation issues by other researchers in Malaysia. Literature survey method is used to compare each data collection until the final result of the research. In order to reduce the variation of data, the literature review of this study is based on sources published since 2003.

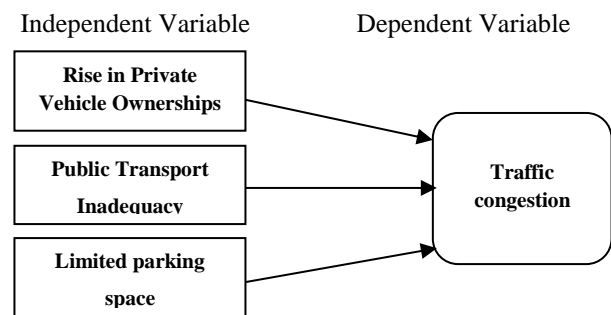
Secondary data acquisition was done in the early stages of this study to establish the initial study. The uses of collected information and data from secondary sources to identify the problem, develop the problem, and formulate a research design to determine the variables and solution for the research question. The tables, data, and figures were taken from past researchers that analyzed before to prove the research reliability that happened in today. The research will review past literature about urban transportation issues in Kuala Lumpur to determine the factors that impact the main transport issues of traffic congestion in the urban area. A theoretical framework like causal relationship<sup>2</sup> is used to determine the independent variable and dependent variable about urban transportation issues in Kuala Lumpur. Independent variables are rise in private vehicle ownerships, inadequacy of public transport, and limited parking space. The dependent variable is traffic congestion. Through the review and comparison of past studies and databases, the research determined the factors that impact traffic congestion issues in Kuala Lumpur.

<sup>2</sup> Causal relationship is the relationship between a set of factors of causes and a phenomenon of the effect.

### 4.0 FINDINGS

Each research variable of this study was examined by summary and compared between literature reviews of previous sources. Through comparison of previous literature on urban transportation issues in Malaysia, it was determined that traffic congestion in Kuala Lumpur is caused by a rise in private vehicle ownership on the road, inadequacy of public transport to supply the demand of users, and limited parking space, which makes cars and motorcycles stuck on the road.

Figure 1 shows that traffic congestion is the dependent variable in urban transportation issues. It is the main problem of urban transportation in Kuala Lumpur, caused by other issues such as a rise in private vehicles, public transport inadequacy, and limited parking space as independent variables.



**Figure 1: Theoretical Framework**

Diversity of modes of transport used by people when interacting on the road has contributed to serious traffic congestion. Refer back to past researches, traffic jam is the highest at Kuala Lumpur. The main cause of urban traffic congestion was car dependency by citizens. During the morning peak hour, 70% of vehicular trips crossing the MRR are single-occupancy vehicles. A rise in private vehicle ownership will increase traffic flow in the road, causing traffic congestion to happen daily.

Level and quality of public transport is important to shift use from private vehicles to public transport. Improvement of public transport service can avoid traffic congestion. However, the ridership and use of public transport such as ERL<sup>3</sup>, Monorail, buses, and commuters in Kuala Lumpur is low due to inadequacy and inefficiency of public transport. Besides, people reasoned that the use of private transport will be able to reflect the status, social or personal, saving time and more comfortable. This will cause a lack of demand for public transport.

<sup>3</sup> Express Rail Link is an electrified airport rail link in Malaysia that connects the Kuala Lumpur International Airport with the Kuala Lumpur Sentral transportation hub.

When people travel use private transport higher than public transport, traffic congestion will easy occur, especially in peak hour.

Rapid motorization has expanded the demand of parking space, but the limited parking space in Kuala Lumpur has created space consumption problem in central areas. Congestion and parking are interrelated since looking for a parking space that creates additional delays and impairs local circulation.

The traffic congestion problem can be undertaken that the government should control the private vehicle on the road, and changing the public transport network and system are comprehensively in place and working efficiently. Multi-level parking space that uses different types of parking layout can overcome limited parking space problem.

## **5.0 DISCUSSION**

### **5.1 Road Safety**

Road safety also is one of the urban transportation issues in the world. Due to the rapid motorization and urbanization, the rate of road fatalities is rising at a faster pace. According to Almselati & et al. (2011) the working population and children are the majority of the victims of road traffic accident. In Malaysia, there was an increase in road fatalities over time. Among all road traffic fatalities, the motorcycle crashes that are most fatal and second largest are cars. Hence, government should taken actions to reduce the incidence of accident in road.

### **5.2 Air Pollution**

Transport is one of the most important causes that contribute to environmental pollution, especially air pollution in urban areas. Dependence on private vehicles will have impact on the environment. According to Almselati & et al. (2011) the rise in income level and private vehicles creates more CO<sub>2</sub> emissions. In the year 2000 itself, the per capita CO<sub>2</sub> emission of Malaysia is 5.4 metric ton which is more than the global average is 3.9 metric ton per capita and Asian average is 2.2 metric ton per capita. (World Resource Institute, 2007). The hydrocarbon, lead and nitrogen oxide causes several health problems such as asthma, chronic lung diseases and neurological defects. The keep increasing of CO<sub>2</sub> emission from the large number of vehicle on road is real concern for policy makers. So, government should take action to reduce the green house gases by reducing the motor vehicle in road and travel distance.

## **6.0 CONCLUSION**

Many major roads leading to the city centre experiencing traffic congestion especially during peak hours cause by high use private vehicle and inefficiency public transport. Besides that, on-street parking, parking difficult and limited parking space also reasons of traffic congestion.

Due to rapid motorisation in Malaysia, rises in private vehicle ownership is seriously issues in urban area. This cause more people car dependency travel on the road. Kuala Lumpur face daily traffic congestion cause by people more afford use private vehicle for travel than use the public transport that make high volume transport vehicle in highway or road. According to Rodrigue & Comtois & Slack (2009) that since vehicles spends the majority of the time parked, motorization has expanded the demand for parking space, which has created space consumption problems particularly in central areas.

According to Shariff (2012) the investments in public transport infrastructure, particularly bus rapid transit and railways like metro, surface, and elevated rails, is considered to help reduce any types of externalities like congestion, emissions, and accidents. Actions should be taken to promote ways to reduce private motorized travel and encourage a shift toward public transportation. The current situation of public transport can be addressed by improving accessibility, ease and comfort of travelling. In addition, it should enhance reliability, safety and security. Promoting the public transportation can reduce the oil and use by transportation sector. Public transportation factices when improved can automatically reduce the car ownerships at least to small extend. Next, urban transportation planner also should consider proper land use pattern together with sufficient public transport facilities accessible to more people and locations.

Increased car ownership, change in traffic arrangement and densification of land creates a lack of parking space. The common type of parking system seen in Malaysia is shared-parking turn-time system. This type of parking creates less supply when compared to demand. Then, effectiveness parking system will solute limited parking space to avoid traffic congestion problem in CBD area.

Lastly, the government should developing car pooling system in Kuala Lumpur for decrease private vehicle on the road by share the car to travel. Parking management can also support the traffic congestion. Multi-level parking space is the only way to overcome limited parking space issues.

Government could use the ParkCAD<sup>4</sup> method that proper design of parking layout for all kinds of vehicles is crucial to ensure how many level of parking floors is required for any building. Implementing smart technologies could dimmed the travel time and cost.

## REFERENCES

Ab Rahman, A. *Transport and Communication for Urban Development Car Pooling in Kuala Lumpur Public Perception*. Faculty of Built Environment, University Teknologi Malaysia. From [http://www.ucl.ac.uk/dpu-projects/drivers\\_urb\\_change/urb\\_infrastructure/pdf\\_transport/HABITATII\\_Abraham\\_poolong\\_kuala\\_lumpur.pdf](http://www.ucl.ac.uk/dpu-projects/drivers_urb_change/urb_infrastructure/pdf_transport/HABITATII_Abraham_poolong_kuala_lumpur.pdf)

Almselati, A. S. I., & Rahmat, R. A., & Jaafar, O. (2011). *An Overview of Urban Transport in Malaysia*. Journal of Social Sciences, 6(1), 24-33. From <http://www.medwelljournals.com/fulltext/?doi=ssci-ence.2011.24.33>

Dimitriou, H. T., & Gakenheimer, R. (2011). *Urban transport in the Developing World: A Handbook of Policy and Practice*. Cheltenham: Edward Elgar Publishing Limited.

Economic and Social Commission for Asia and the Pacific. *Review of Developments in Transport in Asia and The Pacific, (2005)*, United Nations publication, pp 121-132. From [http://www.unescap.org/ttdw/Publications/TPTS\\_publications/pub\\_2392/pub\\_2392\\_fulltext.pdf](http://www.unescap.org/ttdw/Publications/TPTS_publications/pub_2392/pub_2392_fulltext.pdf)

Kamba, A. N., & Rahmat, R. A., & Ismail, A. (2007). *Why Do People Use Their Cars; A Case study In Malaysia*. Journal of Social Sciences, 3(3), 117-112.

Lawrence, T. (2006). *Urban Transport Growth: The Challenges Ahead – The New Realism and Institutional Changes*. Fourth Sabah-Sarawak Environmental Convention, pp 1-23. From [http://www.sabah.gov.my/jpas/news/Conv06/Papers/Pap8\\_SPU.pdf](http://www.sabah.gov.my/jpas/news/Conv06/Papers/Pap8_SPU.pdf)

Mohamad, J., & Kiggundu, A. T. (2007). *THE RISE OF THE PRIVATE CAR IN KUALA LUMPUR, MALAYSIA: Assessing the Policy Options*. ITASS RESEARCH, Vol.31, No.1. From <http://www.iatss.or.jp/pdf/research/31/31-1-07.pdf>

Nurdden, A., & Rahmat, R. A., & Ismail, A. (2007). *Effect of transportation Policies on Modal*

*Shift from Private Car to Public Transport in Malaysia*. Journal of Applied Sciences, 7(7), 1014-1018. From <http://scialert.net/qredirect.php?doi=jas.2007.1013.1018&linkid=pdf>

Omar, D. (2009). *Urban Form and Sustainability of a Hot Humid City of Kuala Lumpur*. European Journal of Social Sciences, 8(2). From [http://www.eurojournals.com/ejss\\_8\\_2\\_15.pdf](http://www.eurojournals.com/ejss_8_2_15.pdf)

Rodrigue, J. P., & Comtois, C., & Slack, B. (2009). *THE GEOGRAPHY OF TRANSPORT SYSTEM*. (2<sup>nd</sup> ed.). New York: Routledge. From <http://people.hofstra.edu/geotrans/eng/ch6en/conc6en/ch6c4en.html>

Schwarzc, S. (2003). *Public Transportation in Kuala Lumpur, Malaysia*. Ministry of Transport Statistic, Malaysia. From [http://web.mit.edu/mtransgroup/reports/reports%20pdf%203-25-04/Schwarzc%20\\_2002\\_%20Public%20Transport%20in%20KL.pdf](http://web.mit.edu/mtransgroup/reports/reports%20pdf%203-25-04/Schwarzc%20_2002_%20Public%20Transport%20in%20KL.pdf)

Shafii, H., & Musa, S. M. S. (2008). *Pengangkutan di Bandar: Isu dan Penyelesaian*. Journal of Techno-Social, 31-46. From <http://penerbit.uthm.edu.my/ojs/index.php/JTS/article/viewFile/324/201>

Shariff, N. M. (2012). *Private Vehicle Ownership and Transportation Planning in Malaysia*. Paper presented at the 2012 International Conference on Traffic and Transportation Engineering, IACSIT Press, Singapore. From <http://www.ipcsit.com/vol26/13-ICTTE2012-T020.pdf>

TOKUNAGA, T., & TAKAHASHI, Y. (2003). *A Study on Urban Planning /Urban Transportation Issues in Southeast Asian Countries And Japan's Technical Corporationins*. Proceedings of the Eastern Asia Society for Transportation Studies, Vol 4. From [http://www.easts.info/2003proceedings/papers/166\\_6.pdf](http://www.easts.info/2003proceedings/papers/166_6.pdf)

Zakaria, Z. (2003). *The Institutional Framework for Urban Transportation and Land Use Planning and Management in the Globalizing Kuala Lumpur Region*. From [http://web.mit.edu/mtransgroup/reports/reports%20pdf%203-25-04/Zakaria%20\\_2003\\_%20Institutional%20Framework%20for%20Urban%20Transport%85.pdf](http://web.mit.edu/mtransgroup/reports/reports%20pdf%203-25-04/Zakaria%20_2003_%20Institutional%20Framework%20for%20Urban%20Transport%85.pdf)

---

<sup>4</sup> ParkCAD is brilliant software that will maximise the open parking space.