



ROAD DAMAGE ISSUES - THE EFFECTIVENESS OF VOLUNTEER INVOLVEMENT IN ASSISTING THE AUTHORITIES

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**A thesis submitted
in fulfillment of the requirements for the degree of Master
in Manufacturing Engineering**

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2019

DECLARATION

I declare that this thesis entitled “Road Damage Issues - The Effectiveness of Volunteer Involvement in Assisting the Authorities” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

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APPROVAL

I hereby declare that I have read this dissertation/report and in my opinion this dissertation/report is sufficient in terms of scope and quality as a partial fulfillment of Master of Manufacturing Engineering (System Engineering).

Signature :

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Date :

DEDICATION

To my beloved father and mother, Zainal Bin Hussion and Cheah Binti Shaari, and for the
Manufacturing Engineering purpose.

ABSTRACT

Road damage is one of the major issues which frequently happened in Malaysia. The recurrence of the problems at the same location lead the road users wonder how well is the quality of maintenance and repair works done by the responsible parties. Most roads that have been patched and repaired will be damaged again in a short period of time. In addition, there is also an issue on the delay of repairing works. Various initiatives have been implemented by the authorities to resolve this problem. However, the issue is still persisting at the same level. This study aimed to identify the role played and the effectiveness of the involvement of a volunteer group, *Ikatan Silaturrahim Brotherhood* in assisting the Public Works Department (JKR) to address road damage issues around the Kinta District, Perak. Subsequently, several suggestions on cooperation between both parties, volunteers and authorities have been stated. For this study, the interview method was used to obtain response from the selected respondents regarding the problems studied. The feedback received was analysed using Atlas.ti software which has shown that the involvement of the volunteer group that also serves as a challenger to the road maintenance system has a positive impact. It is hoped that the action of volunteers will continued and some forms of cooperation can be utilized by both parties to ensure that issues related to road damage can be resolved faster and efficiently.

ABSTRAK

Masalah berkaitan kerosakan jalan raya merupakan antara isu utama yang sering berlaku di negara ini. Kekerapan berlakunya masalah tersebut terutamanya di lokasi yang sama menimbulkan tanda tanya sejauh mana kualiti kerja penyelenggaraan dan baikpulih jalan raya dilakukan. Selain itu, terdapat kelewatan dalam melakukan kerja-kerja baikpulih tersebut. Kebanyakan jalan raya yang telah ditampal dan dibaikpulih akan kembali rosak dalam tempoh masa yang singkat. Pelbagai inisiatif telah dilaksanakan oleh pihak berkuasa untuk menangani masalah ini. Walaubagaimanapun, isu tersebut masih lagi berada di tahap yang sama. Kajian ini dilakukan adalah bertujuan untuk mengenalpasti peranan yang dimainkan serta keberkesanan penglibatan sebuah kumpulan sukarelawan yang menggelarkan diri mereka sebagai *Ikatan Silaturrahim Brotherhood* dalam membantu pihak Jabatan Kerja Raya (JKR) menangani isu-isu berkaitan kerosakan jalan raya di sekitar daerah Kinta, Perak. Seterusnya, beberapa cadangan berkaitan kerjasama yang boleh dilakukan oleh kedua-dua pihak tersebut dinyatakan. Bagi kajian ini, kaedah temuramah telah digunapakai bagi mendapatkan maklumbalas daripada participants berkaitan permasalahan kajian. Maklumbalas yang diterima dianalisa dengan menggunakan perisian Atlas.ti. Daripada analisa yang dilakukan, didapati penglibatan kumpulan sukarelawan tersebut yang berperanan sebagai pencabar kepada sistem penyelenggaraan jalan raya telah memberikan impak yang positif. Diharapkan tindakan tersebut dapat diteruskan dan beberapa bentuk kerjasama yang dinyatakan dapat digunapakai oleh kedua-dua pihak dalam memastikan isu berkaitan kerosakan jalan raya dapat diselesaikan dengan lebih pantas dan berkesan.

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LIST OF ABBREVIATIONS

AIDS	-	Acquired Immune Deficiency Syndrome
BEM	-	Board of Engineers Malaysia
BQSM	-	Board of Quantity Surveyors Malaysia
CBR	-	California Bearing Ratio
CIDB	-	Construction Industry Development Board
DBKL	-	Kuala Lumpur City Hall
GPS	-	Global Positioning System
HIV	-	Human Immunodeficiency Virus
JKR	-	Public Works Department
KKR	-	Ministry of Works
KM	-	Kilometer
LLM	-	Malaysian Highway Authority
MACC	-	Malaysian Anti-Corruption Commission
MIROS	-	Malaysian Institute of Road Safety Research
M	-	Meter
mm	-	millimeter
NGO	-	Non-Governmental Organisation
N/mm ²	-	Newton per millimeters square
PLUS	-	Projek Lebuhraya Utara Selatan
RM	-	Malaysia Ringgit
SOP	-	Standard Operating Procedure
UKM	-	National University of Malaysia
UTeM	-	Technical University of Malaysia Malacca

CHAPTER 1

INTRODUCTION

1.0 Introduction

The first chapter of this report starts with the background of the study. This is followed by the research problem, research questions, research aim, research objective, scope of study and end with contribution to the body of knowledge.

1.1 Background of The Study

In today's life, human needs a quality infrastructure to perform their activity effectively. Road facility is an important infrastructure to assist human to connect from one area to another either by using car, motorcycle or bus. The transportation system and road development are closely interconnected where traffic runs smoothly if roads are in good condition. Road is a network that connecting areas in Malaysia covering Peninsular Malaysia, Sabah and Sarawak. According to Hong et al. (2011) stated in Nur Syazwan and Yusmarwati (2014), facilities such as roads generally lead to economic growth for a country, especially for developing countries.

In Malaysia, road can be classified to (3) three types which are first, highways that are maintained by the Malaysian Highway Authority (LLM), second, federal roads are maintained by the Public Works Department (JKR), and third, town's roads are maintained by the City Council. Problems that have always concerned by the public are congestion and the damage of the road. Perforated roads and uneven surfaces are not only affected the comfort of the users but also can lead to vehicle damage and accidents. Perforated roads,

cracks, corrugated, embedded hole`s cover at above street level, inadequate and sandy surface are often the factors of road accidents.

Digging and pasting the road surfaces have become a common sight in Malaysia. The frequency of road damage, especially at the same location, imposed questions such as to what extent the quality of repairs and road maintenance work done. Some paved and repaired roads were quickly damaged after that. In some cases, the paved road only last for half a month or lesser than that. This problem become worst during raining. Stagnant water softened the soil, causing the hole on the road gets bigger and eventually causing danger to road users, especially those who ride motorcycles.

Various initiatives have been carried out by the authorities to address these problems. For example, the Ministry of Works (KKR) is aiming to ensure that all roads under their maintenance to have zero potholes starting from 2016 until now. This campaign was implemented to monitor the road conditions and to ensure the appointed concessionaire who are responsible for maintenance work to always immediately fixed the damage. Besides that, KKR also set up a 'JKR Partner' program where users are welcomed to share the information when there is any damage occurred on the road (Jkr.gov.my, 2018).

However, those initiatives still show less effective impact . There are still roads that have potholes and in a shabby condition that are not repaired eventhough the issue has been reported to the authorities. In some worst cases, an accident already happened in that reported area for quite some time but the problem was still not fixed. This situation creates the possibility of more accidents that will happen in that area and at the same time it is not pleasing to the eyes. Malaysia as a developing country, should take an initiative to overcome this problem in a shorter period of time.

Volunteer plays a big role especially in sectors that cannot be fulfilled by the government services. It is referred to as the third sector that helps to solve the community problems and addresses various social needs. Volunteer can be a person who are established to voice out the public interest rather than individual or commercial. The establishment of this third sector may emerged from the strong experience, interest, ideas and spirit of the struggle of individuals or groups to act on a phenomenon that occurs or a desire in society. The strength and ideas behind the establishment of the volunteer group is to focus on achieving its various objectives, such as providing education, (Holdsworth and Quinn, 2010), controlling and managing diseases (Akintola, 2010), helping victims of natural disasters (Harian Metro, 2017) and other issues. This study will identify the effectiveness from the involvement of volunteer in addressing road damage issue.

1.2 Research Problem

Perforated roads, cracks, corrugated, embedded hole`s cover or above street level, inadequate and sandy surfaces are the examples of the common problem that occurred in Malaysia nowadays. The problem become worst in the raining season. The damaged road, for example pothole become invisible if it is covered with full of water. This will threaten the safety of road users, especially the motorists. The road users will slow down their vehicle to avoid hitting the pothole which can damage their vehicle. At the same time this situation will cause traffic slow movement and increase the potential of accidents.

Various initiatives have been carried out by the authorities to address these problems. For example, the Ministry of Works (KKR) is aiming to ensure that all roads under their maintenance to become *zero potholes* starting in early 2016 until now (New Straits Times, 2016). This campaign was implemented to monitor the road conditions and the appointed concessions that are responsible for maintenance work to immediately fix the

damage. KKR also set up a program namely 'JKR Partner', where users are welcomed to share the information if there are potholes or any other damages occurred on the road (Jkr.gov.my, 2018) so that the action can be taken immediately.

It is a good feedback from the authorities for example KKR that come out with some initiative to countermeasure this issue. But the effectiveness level is still unclear and doubtful even various initiatives have been implemented. There are some damaged road that still can be seen eventhough the issue has been reported to the authorities. This situation will increase the possibility of accidents happen. In order to solve this issue, the responsible parties have to overcome their weaknesses. Cooperation from various parties also can help to solve this issue.

Volunteerism can be described as the practice of providing time and skills with the benefit for other people rather than the volunteer members. Penner (2002) defined the volunteerism as long-term, planned, prosocial behaviors with benefit to strangers. Stukas, Snyder and Clary (2016) stated that without the present of volunteers in community, activities of people's lives would be disrupted. In Malaysia, volunteers act as the third sector after the government sector and private sector. The involvement from this sector is really helpful in order to ensure this issue can be suppressed. Eventhough there are various studies shown that the volunteerism can give positive impact, (Stukas, Snyder and Clary, 2016, Wang and Graddy, 2008, Morrow-Howell et al., 2003) the level of effectiveness for solving the road damage issues are still unclear and questionable.

1.3 Research Question

- i. What role does the volunteer group play?
- ii. What are the effectiveness of voluntary group engagement in assisting the authorities to resolve the road damage issue?
- iii. What form of cooperation that can be used by both parties to solve the road damage issues?

1.4 Research Aim

This study aims to identify the roles played by the volunteer group in assisting the authorities in order to solve the road damage issues and at the same time, the effectiveness of the volunteers' involvement will be identified. This study will suggest possible cooperations that may benefit both government and the volunteers.

1.5 Research Objective

The specific objectives of this study are to:

- i. Identify the role played by the volunteer group in assisting the authorities to solve the road damage issues.
- ii. Identify the effectiveness of the volunteer group involvement to solve the road damage issues.
- iii. Suggest the methods that can be used by both parties to solve the road damage issues.

1.6 Scope of Study

This study focuses on identifying the role and effectiveness of the actions taken by Ikatan Silaturrahim Brotherhood, a volunteer group in repairing the road damages around district of Kinta, Perak. A total of eight respondents with different backgrounds have been

selected. Their views on the issue studied was obtained through qualitative research method.

1.7 Contribution to The Body of Knowledge

Based on the research objectives, this study produces significant outputs regarding the weaknesses in the implementation of the road maintenance. This study suggested a set of improvement plan that can be applied in order to overcome this issue effectively. This research also proposes several methods that can be used by both parties to create cooperation and understanding that can enhance the quality of the road maintenance system.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter will present the overview of the previous research on the understanding of issues related to the road damage problem and also the role that played by the volunteer.

2.1 Road in Malaysia

The development indicators of a country can be measured by the length of the infrastructure network covering the country. This infrastructure is a network of roads comprising roads connecting suburban to urban area. Road infrastructure is a catalyst for economic growth and country development. This also increases the number of motor vehicles in the country's road network. The increase in the number of vehicles may be favourable in terms of upgrading the standard of living, but also negatively impacting the safety of road users. This development also resulted in an increase in the number of road accidents and also causes worse traffic congestion especially in urban areas.

Improper maintenance works also affected the level of road safety. Failure to place the importance of road safety in design and construction increases the risk to road users. It also affects the credibility and reputation of road authorities in providing the infrastructure. The road authorities also have to incur additional costs to repair the infrastructure. This is a

financial impact the country needs to compensate. However, the greater cost is the injury and death that happens to the users due to road accidents.

2.1.1 Overall length

Road construction in Malaysia has begun before independence in 1957. There has been a road system connecting Johor Bahru in the south with Kangar in the north and Kota Bharu in the east coast, that connecting the main cities with the other cities. After the Independence, the government increase the effort to improve the road system in Malaysia. It was done systematically through the proper development planning, particularly the Malaysia Plan. In Malaysia, there are three different types of roads, State Road, Federal Roads and Toll Expressways. Each of these roads covers the different length of roads. State Roads covers 61,100 km, Federal Roads covers 17,500 km (Zakaria et al., 2009) and Highway Roads covers 2000.88 km (Ilm.gov.my, 2018). The overall length of the roads increasing time to time due to demand and responsibility of government in providing a basic facilities to its people (Zakaria ~~aria~~ et al., 2009).

2.1.2 Types of road

Roads are divided into three main categories namely Toll Expressways or also known as Highway, Federal Roads and State Roads.

2.1.2.1 State Road

State roads generally comprise of primary roads providing intra-state between the district administrative centres. Other roads included in this category are the urban collector roads under the municipalities and other minor roads within the villages and the rural inhabited areas under the District Offices.