

Pragmatic framework for on-site sorting of construction waste in Malaysia

1st Lam Tatt Soon
*School of Architecture, Building
and Design (SABD)*
Taylor's University
Subang Jaya, Malaysia
LamTatt.Soon@taylors.edu.my

2nd Yin Ru Lim
*School of Architecture, Building
and Design (SABD)*
Taylor's University
Subang Jaya, Malaysia
yinru.lim02@sd.taylors.edu.my

3rd Kenn Jhun Kam
*School of Architecture, Building
and Design (SABD)*
Taylor's University
Subang Jaya, Malaysia
KennJhun.Kam@taylors.edu.my

4th Boon Tik Leong
*School of Architecture, Building
and Design (SABD)*
Taylor's University
Subang Jaya, Malaysia
BoonTik.Leong@taylors.edu.my

5th Myzatul Aishah Kamarazaly
*School of Architecture, Building
and Design (SABD)*
Taylor's University
Subang Jaya, Malaysia
myzatulaishah.kamarazaly@
taylors.edu.my

6th Habizah Sheikh Ilmi
*School of Architecture, Building
and Design (SABD)*
Taylor's University
Subang Jaya, Malaysia
habizah.ilmii@taylors.edu.my

Abstract— In an era of rapid urbanisation and population growth, there is a perpetual demand for building and infrastructure developments. This has led to a commensurate increase in the generation of construction waste. As a result, the construction industry contributes significantly to the landfills in Malaysia. Hence, if the industry is stagnant on the progress of sustainable waste management, the landfills in Malaysia would not be able to cater for the amount of waste being generated. In an effort to reduce anthropogenic impacts such as groundwater pollution and climate change caused by the proliferation of landfill sites, it is imperative for contractors to improve their waste management practices. This study aims to postulate a pragmatic framework for on-site sorting of construction waste by identifying the current waste management practices on-site and understanding contractors' considerations towards waste management procedures adopted on-site. The scope of this research was limited to physical waste produced on-site. A qualitative research method based on in-depth interviews with contractors was employed to obtain comprehensive data on the research topic. It was found that waste management in Malaysia is still under-developed as contractors do not generally practice on-site sorting. A large portion of the waste stream produced is collected and disposed of as a mixed stream. This paper mapped the waste generated on-site into individual waste streams based on data obtained on current waste management practices. It was also found that practices on-site are highly influenced by profitability, budget constraints and regulations imposed by the government. Thus, a pragmatic framework on on-site sorting was formulated in hopes that construction waste management practices can be enhanced.

Keywords— *On-site sorting, Construction waste, Construction waste management, Construction industry, Malaysia*

I. INTRODUCTION

Malaysia is on a trajectory where waste generation will surpass population growth. This surge in population has led to an insatiable demand for building and infrastructure developments. Hence, it is unsurprising that the construction industry plays a stable role in the Malaysian economy. In the second quarter of 2019, the Department of Statistics reported that the construction sector registered 4.6% of the Gross Domestic Product of Malaysia at RM35.9 billion worth of work done. Unfortunately, the inevitable by-product of our flourishing industry is an unhealthy increase in construction waste (Jaillon, Poon, & Chiang, 2009). It is estimated that 8 million tonnes of construction waste are generated annually in 2016 (Saadi, Ismail, & Alias, 2016). Currently, the construction industry significantly relies on landfilling as a means of disposal for construction waste (Tey et al., 2012). Landfills are designed to isolate waste from the environment until it is completely degraded biologically, chemically and physically (El-Haggag, 2019). However, if not adequately managed, landfills are prone to leachate contamination that can pose a threat to the residents around its vicinity which has happened in Klang Valley in 2007 (Agamuthu & Fauziah, 2011).

It has been previously reported that 26% of our landfills are occupied with construction waste which is undesirable because of the space it consumes (Nagapan et al., 2012; Peng et al., 1997). With the rapid increase in construction waste paired with poor sustainable waste management, the landfills in Malaysia will not be able to sustain the amount of waste being dumped (Ng, Tan, & Seow, 2017). Jereme et al. (2015) highlighted that in 2007, there were a total of 291 solid waste disposal sites in Malaysia in which only 179 of these sites were still in operation. In 2019, twelve years later, the Minister of Housing and Local Government, YB Zuraida Kamaruddin, reported that 49% out of 150 operating solid waste disposal sites are expected to reach