UNIVERSITI TEKNOLOGI MARA

DEVELOPMENT OF CONSTRUCTION WASTE MINIMISATION PLAN IN CONSTRUCTION SITE

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ABSTRACT

Construction industry in Malaysia contributes a rapid growth in the last decade. However, the recent construction industry is undertaking pressure to practice waste minimization due to the over-production of waste. Facing problem such as money priority by contractor compared to responsible on ecosystem, existence of illegal dumping, lack of management level concern and lack of enforcement law by government lead this thesis to evaluate the strategies. The aim of this study is to identify the construction waste barrier, sources and categorisation, to evaluate the awareness of management team on construction waste issue as well as to develop construction waste minimisation plan in construction projects. A quantitative method has been adopted as the mean of data collection by distributing 100 set of questionnaire surveys to construction key player of Grade CIDB G1 until G7 and an interview with local authority in Penang. Further, the data analysis was conducted through reliability analysis and adopting Statistical Package for Social Science (SPSS) version 26. Based on the finding, timber is the most frequent construction waste produced in Penang followed by concrete and cement. Meanwhile, lack of market on recycling centre is the highest barrier factor revealed by the respondents. Apart from that, the most potential strategies proposed by respondents on construction waste minimisation is government must improve the enforcement law followed with encouraging in Building Information Modelling (BIM) application as well as to launch awareness campaign. Besides, the construction waste minimisation plan also presents a coherent approach for achieving sustainable waste minimization in construction companies.

CHAPTER ONE

INTRODUCTION

1.0 Background of Study

Living in modern technology, concrete jungle is speedily grown and causes negative affect the green environment. According to Umar et al. (2021), the amount of waste that related with building construction and demolition is increasing harmfully. It is noticeable as in year 2018, Department of Statistic Malaysia mentioned that the value of construction work done of RM36.5 billion in the fourth quarter of 2018 as recorded by Malaysian's construction sector. This bulky volume of waste causes impurity to the air, water and soil as a consequence effects to the plants and animals for which the environment serves as a habitat (do Amaral et al., 2022).

Definition of waste is unused resource of time, tools, equipment or abandoned stuffs without any plan of consumption or recovery (Hyginus, 2020). Conceptually, Davis et al. (2021) define waste in construction projects as a rejected by-product due to construction operations have finished or have no more value. Meanwhile Lu et al. (2021) believed that waste as unnecessary activities, extra effort, unproductive use of time, along with costs or resources that have been expended, carelessly, or to no ultimate aim. Similarly, Nagapan et.,al (2018) mentioned that site clearance, excavation, concreting, roadwork, plumbing work and tile installation are example of the activities at construction sites always produce construction waste.

A study had shown that construction waste generation has huge variations produced from the primary materials used in construction projects such as glass, plastics, wood, steel, surplus mortar, surplus concrete, broken bricks and excavated soil (Noor et al., 2020). According to Wong and Roslan (2019), by reducing construction wastes on material, it simply will reduce subsequently disposal costs. A good management in handling construction waste is exactly essential. Waste minimisation practices in construction projects helps to reduce the waste amount hence good for developing a sustainable environment (Babalola et al., 2018). Construction waste reduction is the most important element compared to Reuse and Recycle (Yoshida, H. 2007). This is because reduction of construction wastes at it sources not just able to minimise waste generation, but it also reduce the cost for transportation, disposal activities and waste recycling (Hasmori, 2020).