

A pilot study on implementation of sustainable design and construction activities in highway development

Raja Rafidah Raja Bt Muhammad
Rooshdi
CENTER OF STUDIES FOR
QUANTITY SURVEYING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM
ISHAH ALAM, SELANGOR,
MALAYSIA
raja_rafidah@uitm.edu.my

Noor Akmal Adillah Bt Ismail
CENTER OF STUDIES FOR
QUANTITY SURVEYING
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM
SHAH ALAM, SELANGOR,
MALAYSIA
noorakmal@uitm.edu.my

Shaza Rina Bt Sahamir
CENTER OF STUDIES FOR
CONSTRUCTION MANAGEMENT
UNIVERSITI TEKNOLOGI MARA
SHAH ALAM
SHAH ALAM, SELANGOR,
MALAYSIA
shaza_rina@uitm.edu.my

Abstract

The construction industry is one of the major contributors to the CO₂ emission which cause environmental impacts on the earth's climate. Malaysian government is committed in reducing the CO₂ by 40% in 2020 and 45% by 2030 as compared to the levels in 2005. Hence, there is a need to reduce the impact on the environment. Currently, Malaysia had developed several assessment tools such MyGHI, pHJKR and Infrastar. However, the implementation was still in not too much. Therefore, the main objective of this paper is to identify the sustainable construction activities element that had been implement and to determine the most main criteria had been implemented in current highway construction project. The pilot study was based on sustainable design and construction activities scorecard in MyGHI. The case studies were chosen based on the stages of the project such as the designing and planning stage, constructing stage, and operating and maintaining stage. The results of the pilot test for case studies had been discussed in focus group discussion. The focus group had been chosen among the expertise in highway development. The experts agreed with all the results that had been gathered during the pilot test. The scorecard of sustainable design and construction activities would be used in the future assessment of highway. The experts had also agreed that highway development in Malaysia is ready for green highway development. All the case studies had gathered 47% until 80% of points. However, the total point scores obtained by different highway projects were considered comparatively and moderately and indicated that the current highway construction practices need to be improved with the sustainable element during highway development. Based on these results, it was clearly discovered that green practices in terms of design and construction were already applied by all three highway projects in Malaysia.

Keywords: Sustainable development, green highway, assessment tools, pilot study

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