

UNIVERSITI TEKNOLOGI MARA

**A MODEL FOR RELATIONSHIP
BETWEEN CHARACTERISTICS
AND CHALLENGES IN
IMPLEMENTING GREEN
HIGHWAY**

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Thesis submitted in fulfillment
of the requirements for the degree of
Master of Science


Malaysia Institute of Transport

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

Green highway is different from conventional highway due to the differences of its concept, fundamental, characteristics, and technologies. Stakeholders in highway projects have to overcome various challenges towards the successful implementation of green highway. Although Malaysian Highway Authority (MHA) has been introducing guideline for green highway, the implementation of green highway in Malaysia is still far behind because of the challenges in setting forth the guideline. This study comprises four objectives: (1) to investigate the main challenges of green highway implementation in Malaysia; (2) to determine the main characteristics of green highway in the Malaysian context; (3) to identify the main success factors of green highway implementation in Malaysia; and finally (4) to develop a model for the relationship between characteristics and challenges towards the success of green highway in the Malaysia context. This study was based on a triangulation research approach where a series of unstructured interview and questionnaire survey were conducted among stakeholders in highway construction industry. The data was analysed with content analysis and descriptive analysis using Nvivo 9.2 (QSR International) and Statistical Package for Social Science (SPSS) software respectively. The data was also analysed with Criticality Index assessment during the development of the model using Structural Equation Modelling-Partial Least Squares (SEM-PLS). A total of 12 unstructured interviews were conducted and a total of 63 usable postal questionnaires were received in order to establish the relationship. The study identifies that (1) legal and regulatory; technical and physical; financial and cultural are challenges to implement green highway in the Malaysia context; (2) planning, design, construction; operation and maintenance stage are characteristics to implement green highway in the Malaysia context; (3) innovation; construction activities; material and resources are success factors to implement green highway and proposes (4) a model that shows relationship between characteristics and challenges of green highway has significant and positive effect in implementing green highway. The key constructs for green highway implementation is the characteristics of green highway. For the future research, this study can be extended to look into lack of social aspects in green highway characteristics if it is compared to the Malaysia Green Highway Index (MyGHI) manual.

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