

Assessment Framework and Processes for Asset Management of Passenger Terminals

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Declaration of the Candidate & Supervisor

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Abstract

Asset management has become one of the significant areas demarcating its key concepts and has branches. There are records of good asset management practices worldwide, but local industry is yet to establish the asset management practice. Nevertheless, condition assessment is a major discipline of the asset management that is essential to develop effective and efficient maintenance strategies for any organization. On the other hand, condition assessment makes the foundation to develop systematic models that many of the organizations are experimented for, since managing of assets and the cost of repairing have made real-time challenges for them. Hence, the objective of this study is to develop a framework for predictive maintenance of assets considering the existing assessment frameworks of the early researchers. However, the significance of this research is that the framework is developed focusing the passenger terminals where this concept has been narrowly addressed. Kandy Multimodal Transit Terminal was selected for the case study. Generally, assets deteriorate with the time but the tendency of assets to get damaged by the external ways and means like disasters is more. Since this study further expected to in cooperate the asset management with the disaster management of the passenger terminals. Accordingly, Markov Chain was used for developing the framework for the predictive maintenance of assets and the cost projections whereas a conceptual framework was introduced for predicting the cost of maintenance considering the availability of data. Disaster assessment method was conceptually developed by introducing the disaster risk score of assets and simple approach of asset damage calculation for pre and post disaster assessments respectively. Hence, the outcome of this research facilitates to reduce the consequences in asset maintenance management and to manage the budget allocation for the maintenance in the passenger terminals.

Keywords: Asset predictive maintenance management, Disaster management, Passenger terminals, Condition evaluation, Risk score value, Markov chain

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Finally, I hope this thesis will inspire the reader to use logic and reasoning to understand things, even if they encounter any shortcomings in this piece of work that needs to be improved.

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Abbreviations

ADB	Asian Development Bank
AMS	Asset Management System
DMS	Disaster Management System
GIS	Geographic Information System
HVAC	Heating, Ventilation and Air Conditioning
IIMM	International Infrastructure Management Manual
KMTT	Kandy Multimodal Transit Terminal
MEP	Mechanical Electrical Plumbing
NAMS	National Asset Management Support
RM	Malaysian Ringgit
UNISDR	The United Nations (UN) International Strategy for Disaster Reduction