

**DEVELOPMENT OF A FRAMEWORK FOR
IDENTIFYING HIGHWAY PROJECTS FOR
PRIVATE-PUBLIC-PARTNERSHIP FINANCING**

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Degree of Master of Engineering

Department of Civil Engineering

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Thesis submitted in partial fulfillment of the requirements for the degree Master of
Engineering in Highway & Traffic engineering

Department of Civil Engineering

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Sri Lanka

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DECLARATION OF THE CANDIDATE AND SUPERVISOR

I declare that this is my own work and this thesis does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where acknowledgement is made in the text.

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Signature of the Supervisor

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Date

DEDICATION

To all the persons who conduct the research in similar subject and all persons helped me for achieving this project success.

ABSTRACT

Development of a Framework for Identifying Highway Projects for Private-Public-Partnership Financing

In many cases, Public Private Partnership (PPP) projects are looked as skeptical phenomenon due to the involvement of risk factors. However, in order to reduce the financial burden on the government, it is essential to undertake PPP projects. Lack of project prioritization due to the absence of a supporting framework for selecting the infrastructure projects in Sri Lanka was identified as one of the key issues by World Bank for accelerating PPP projects. Therefore, a review was conducted to identify the criteria considered in the selection of road projects in other countries, and to develop criteria that can assist the public and private entities to identify the potential road projects in Sri Lanka. The aim of this research is to develop criteria to prioritize highway project from pipelines for the developments under PPP.

As the first step, criteria which are used by USA (US Department of Transportation, Virginia Transportation, Commonwealth of Pennsylvania), Pakistan, Philippines, and World Bank for selection of PPP projects were collected. Further, Critical Successful Factors (CSF) and reasons for failure of PPP highway projects were reviewed. The importance of these factors in the selection criteria was analyzed. A Multi Attribute Analysis was used in the research. The criteria identified from other countries are subpackaged under Demand, Financial, Risk and Scale categories.

A questionnaire survey was carried out with PPP and highway experts. The ranking of subpackage criteria, top six preferred criteria, and their score by nine respondents were collected. Using Garrett ranking technique, a single criterion was selected from each subpackages and used for development of preliminary screening criteria. Based on the other countries' guidelines, the percentage responses, and scores for the top six preferred criteria, nine criteria were recommended for secondary screening. Financial viability of a project was identified as the topmost criterion to be considered in project screening.

The completed and ongoing 10 expressway projects were considered, and PPP candidate nature of these projects were analyzed based on the secondary screening criteria. Preliminary screening was not carried out for the projects, because no qualifiers were developed in this study to screen out projects. Due to less information availability: financial viability, economic development, traffic congestion reduced from the projects, roles of the road in network and project cost were used for the comparison of projects. Port Access Elevated Highway was received the highest total score from the secondary screening. Major limitation in this study is that there are not any successfully completed PPP road projects in Sri Lanka, to compare our study and the real-world project scenario. In addition, another limitation was the lack of availability of detailed documentation in the projects.

Keywords: Public private partnership, Multi Attribute, Screening criteria, Garrett ranking technique

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ABBREVIATION

BCR	-	Benefit Cost Ratio
EIRR	-	Economic Internal Rate of Return
ENPV	-	Economic Net Present Value
FIRR	-	Financial Internal Rate of Return
FNPV	-	Financial Net Present Value
MCA	-	Multi Criteria Analysis
NAPPP	-	National Agency for Public Private Partnership
NPSV	-	Net Present Social Value
PPP	-	Public Private Partnership
RDA	-	Road Development Authority
O&M	-	Operation and Maintenance
VfM	-	Value for Money