SELECTION CRITERIA FOR PROVINCIAL ROAD DEVELOPMENT

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Abstract

Road network in Sri Lanka is expanding rapidly to cater the developing economical and social environment of the country. With that it is required to manage the road system in the county including national, provincial and rural road networks to provide necessary accessibility throughout the country.

The amount of money allocating to the road development has been increased. With this situation there is a necessity to spend this money in effective way. By selecting proper roads at proper time with proper method of improvement the money available for the road improvement can be used effectively.

Road Development Authority who manages the national road network is using different methods in this exercise. But in provincial councils or rural level still there is no proper system has been established for above, other than the methods used during implementation of foreign funded projects for provincial and rural road development.

This study was done to introduce a method for selecting roads for improvements in provincial councils. During the study it was compared the method used for road selection in Southern Provincial Roads Improvement project named as Provincial Roads Economic Model (PERM).

Initially there is a necessity of allocating the amount of road length to be improved in each province. This provincial allocation was done using different parameters with weightings. During that more weighting were given to the areas with high poverty and more road density. This provincial allocation consisting of the candidate road list has to be prioritized based on the economic and the social benefit assessment due to the development of those roads.

The cost estimation for the road improvement was done by computing the traffic loading of the road for the design period. This was forecasted using traffic counting data and the traffic growth rates developed by planning division RDA. It was revealed that the assessment done by PERM for traffic forecasting has based on incorrect data .This may lead to give incorrect costing for road improvement. The benefit assessment was done by calculating the vehicle operating cost saving and travel time saving due to road improvement.

This was done using the published data for VOC and VOT for different values of road roughness and the vehicle speeds. IRI and speed values used for above calculation were obtained by field data and prediction It was found that the values used in PERM for this was highly unrealistic and the speed and the roughness values are not matching to each other.

The data used in the research was obtained from the published data by university of Moratuwa or Road Development Authority. Other data were collected during field observation. This research may provide some guide in making road selection decisions in the provincial road improvement.

Declaration of the candidate

"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 University or other 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 the acknowledgement is made in the text"

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Declaration of the supervisor

"I have supervised and accepted this thesis for the submission of the degree"

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LIST OF ABBREVIATIONS

Abbreviation	Description
ABC	Aggregate Base Course
ROW	Right of way
SBST	Single Bitumen Surface Treatment
DBST	Double Bitumen Surface Treatment
B/C	Benefit Cost
EIRR	Economic Internal Rate of Return
NPV	Net Present Value
RDA	Road Development Authority
OD	Origin Destination
M&R	Maintenance & Rehabilitation
ESA	Equivalent Slandered Axle
PCI	Payment serviceability Index
NDT	Non Distractive Testing
HDM	Highway Design Manual
GDP	Gross Domestic Product
EIRR	Economic Internal Rate of Return
IRI	International Roughness Index
WB	World Bank
ADB	Asian Development Bank
M&R	Maintenance and Rehabilitation
DSD	Divisional Secretary Division
PERM	Provincial Roads Economic Model
VOT	Value of Time
VOC	Vehicle Operating Cost
SPRIP	Southern Province Road Improvement Project

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