

Identification of Suitable Decision Support System for Planning Programming and Economic Evaluation of Road Investment Projects for Sri Lanka

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Project evaluation, especially road investment project evaluations need to be handled carefully, since the initial capital outlay for such projects is considerably higher than other projects and it is highly essential for the national development. In Sri Lanka we can observe a lack of data for the evaluation process and the absence of suitable decision support systems although we have observed some developments such as the HDM-4, PREM model, and information systems such as TransPlan which are used widely. This research targets at identifying the current trends in the evaluation process and to identify critical parameters which affect the evaluation to further improve the quality of decision making in the sector.

The paper first identify the economic and engineering evaluation techniques currently used in the industry. NPV, IRR and Cost Benefit Analysis were the primary economic indicators used. Based on these and the available data it was decided to identify critical parameters that affect these indicators and to identify suitable evaluation methods. For this purpose HDM-4 was used.

HDM-4 (Highway Design and Maintenance Standards Model) was developed by the World Bank. It combines the technical and economic appraisals of road investment projects and is highly reliable. The application has a single drawback with respect to the local environment, i.e. it requires a high amount of data. Therefore in order to comply with the standards a sensitivity analysis was carried out to identify the most critical parameters that will affect the output significantly.

Several data sets were used with input data such as drainage condition, traffic data, pavement condition (Roughness, CBR etc.) and others to identify the impact of these factors in the evaluation process. Using the results produced over a range of input data, this paper identifies critical factors that need to be measured accurately to minimize significant deviations in results with respect to the actual situation. Furthermore it also targets at identifying a way to coordinate the existing information systems present to aid in the evaluation process. The

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result expected is a much better, accurate, reliable and transparent decision making process than at present in the local context.

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