

A Literature Review on Sustainability Appraisal Methods for Highway Infrastructure Projects

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Abstract : Traditionally, highway infrastructure projects are initiated based on their economic benefits, thereafter environmental, social and governance impacts are addressed discretely for the selected project from a set of pre-determined alternatives. When opting for cost-benefit analysis (CBA), multi-criteria decision-making (MCDM) has been used as the default assessment tool. But this tool has been critiqued as it does not mimic the real-world dynamic environment. Indeed, it is because of the fact that public sector projects like highways have to experience intense exposure to dynamic environments. Therefore, it is essential to appreciate the impacts of various dynamic factors (factors that change or progress with the system) on project performance. Thus, this paper presents various sustainability assessment tools that have been globally developed to determine sustainability performance of infrastructure projects during the design, procurement and commissioning phase. Indeed, identification of the current gaps in the available assessment methods provides a potential to add prominent part of knowledge in the field of 'road project development systems and procedures' that are generally used by road agencies.

Keywords : dynamic impact factors, micro and macro factors, sustainability assessment framework, sustainability performance

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