

## Research on the Ecological Impact Evaluation Index System of Transportation Construction Projects

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**Abstract :** Traffic engineering construction is an important infrastructure for economic and social development. In the process of construction and operation, the ability to make a correct evaluation of the project's environmental impact appears to be crucial to the rational operation of existing transportation projects, the correct development of transportation engineering construction and the adoption of corresponding measures to scientifically carry out environmental protection work. Most of the existing research work on ecological and environmental impact assessment is limited to individual aspects of the environment and less to the overall evaluation of the environmental system; in terms of research conclusions, there are more qualitative analyses from the technical and policy levels, and there is a lack of quantitative research results and quantitative and operable evaluation models. In this paper, a comprehensive analysis of the ecological and environmental impacts of transportation construction projects is conducted, and factors such as the accessibility of data and the reliability of calculation results are comprehensively considered to extract indicators that can reflect the essence and characteristics. The qualitative evaluation indicators were screened using the expert review method, the qualitative indicators were measured using the fuzzy statistics method, the quantitative indicators were screened using the principal component analysis method, and the quantitative indicators were measured by both literature search and calculation. An environmental impact evaluation index system with the general objective layer, sub-objective layer and indicator layer was established, dividing the environmental impact of the transportation construction project into two periods: the construction period and the operation period. On the basis of the evaluation index system, the index weights are determined using the hierarchical analysis method, and the individual indicators to be evaluated are dimensionless, eliminating the influence of the original background and meaning of the indicators. Finally, the thesis uses the above research results, combined with the actual engineering practice, to verify the correctness and operability of the evaluation method.

**Keywords :** transportation construction projects, ecological and environmental impact, analysis and evaluation, indicator evaluation system

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